

COVID-19 AND THE U.S. ECONOMY

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November 5, 2020

THE BEGINNING

1. January 10

“China Reports First Death From New Virus”

“...there is no evidence that it can spread among humans.”

2. January 20

“China Confirms New Coronavirus Spreads From Humans to Humans”

3. January 21

“...Coronavirus Is Identified in the U.S.”

“Federal officials plan to expand screenings for the infection at major airports.”

4. February 3

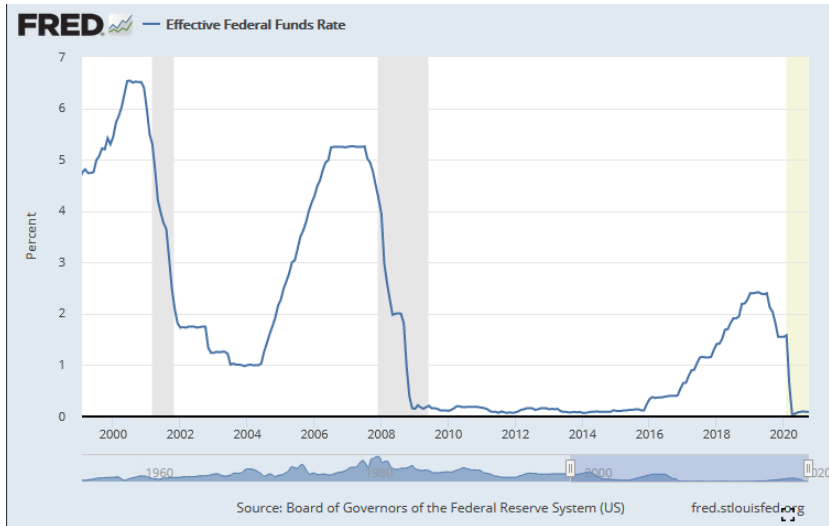
“World races to contain the coronavirus epidemic”

“Beijing moved to inject \$173B...into its financial markets.”

FEDERAL RESERVE RESPONDS

1. February 28: Federal Reserve Press Release
“The fundamentals of the U.S. economy remain strong. However, the coronavirus poses evolving risks to economic activity.”
2. March 3: Fed lowers interest rate (same as 2008)
“the coronavirus poses evolving risks to economic activity”
lowered target range for the federal funds rate by 0.5pp, a range of 1% to 1.25%
3. March 3-4: Fed changes discount rate (same as 2008)
regional banks decreased rate from 2.25% to 1.75%

FEDERAL FUNDS RATE



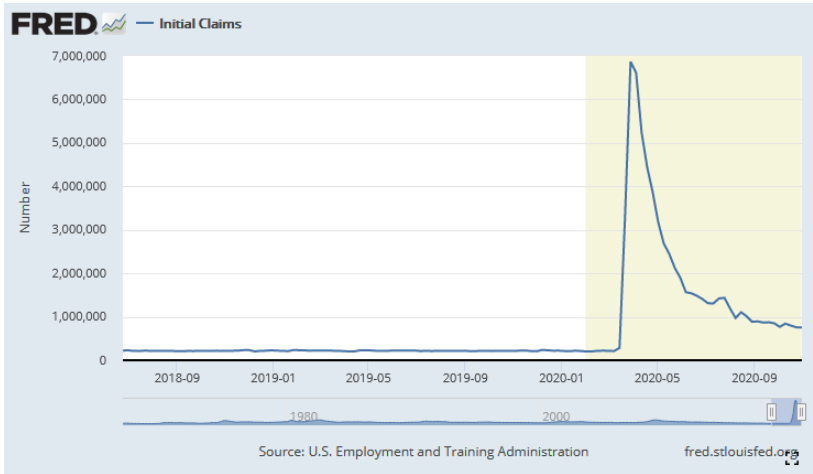
CONGRESS RESPONDS

- March 6: Congress provides emergency funds to combat spread of COVID-19
 - ▶ Coronavirus Preparedness and Response Supplemental Appropriations Act, 2020
 - ▶ \$3B for research on vaccines, therapies, and diagnostics
 - ▶ \$2.2B to support prevention, preparedness, and response efforts
 - ▶ \$1B for medical supplies, community health centers, and medical surge capacity
 - ▶ \$1.25B to fight COVID-19 internationally

STATES RESPOND

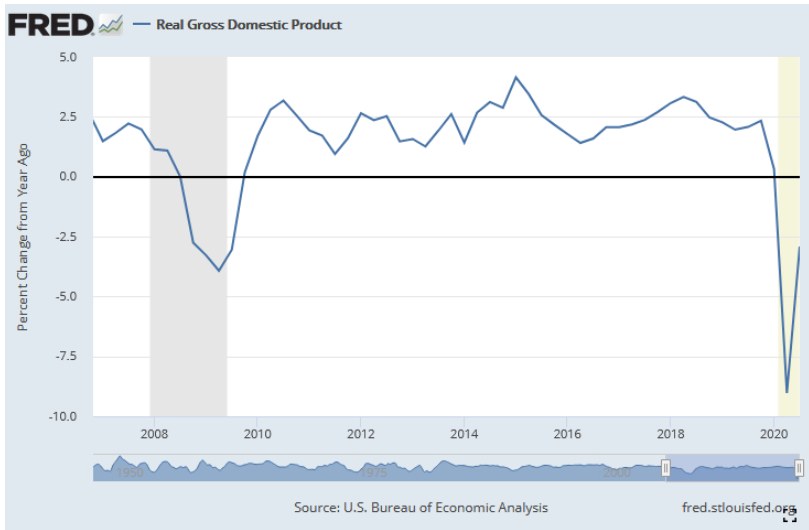
1. February 29: Washington issues stay-at-home order
2. March 15: federal guidelines for social distancing
3. March 19: California issues stay-at-home order
4. March 22: New York issues stay-at-home order
5. March 31: Virginia issues stay-at-home order

JOB SEPARATIONS



Before = 200k/wk, peak Mar 28 = 6.9M/wk, now = 750k/wk

U.S. INCOME (% CHANGE)



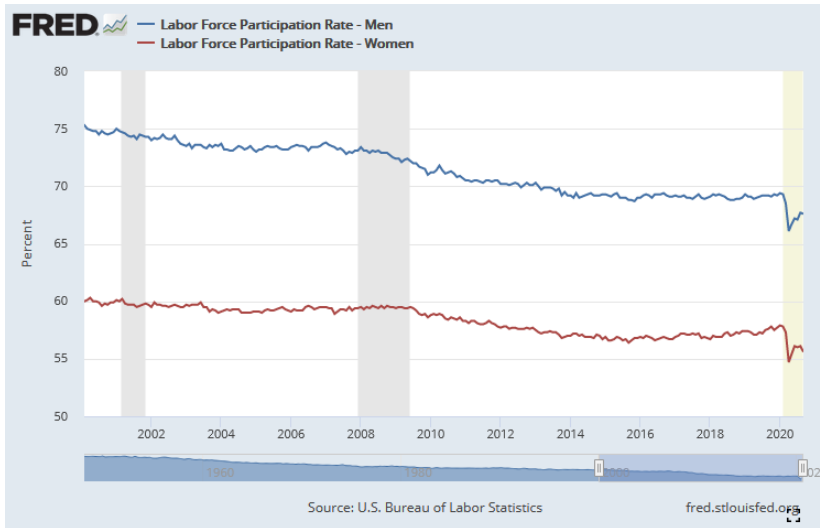
2009 Q2 = -4%, 2020 Q2 = -9%, 2020 Q3 = -3%

UNEMPLOYMENT BY INDUSTRY

Industry and class of worker	Unemployed (thousands)			Unemployment Rate (%)	
	Sept. 2019	Sept. 2020	Change	Sept. 2019	Sept. 2020
Total, 16 years and over(1)	5,465	12,277	6,812	3.3	7.7
Nonagricultural private wage and salary workers	4,099	10,098	5,999	3.2	8
Leisure and hospitality	678	2,436	1,758	4.8	19
Accommodation and food services	534	1,882	1,348	4.7	18
Retail trade	578	1,312	734	3.6	8
Education and health services	557	1,250	693	2.2	5.1
Professional and business services	585	1,161	576	3.2	6.7
Transportation and warehousing	209	735	526	3.3	11.3
Arts, entertainment, and recreation	144	554	410	5.1	23.3
Manufacturing	530	935	405	3.4	6.2
Construction	319	700	381	3.2	7.1
Other services	215	566	351	3.2	9.2
Government wage and salary workers	389	884	495	1.8	4.1
Self-employed workers, unincorporated, and unpaid family workers	259	688	429	2.6	6.7

Source: U.S. Bureau of Labor Statistics
A-31. Unemployed persons by industry...

LABOR FORCE PARTICIPATION



FEDERAL RESERVE RESPONDS (AGAIN)

- March 15: Fed pursues policies similar to 2008
 - ▶ lowered target range for the federal funds rate to 0% to 0.25% (same as 2008Q4-2015Q4)
 - ▶ “demander of last resort” → turn assets into money
 - buy U.S Treasury securities up to \$500B
 - buy Mortgage Backed Securities (MBS) up to \$200B
 - use interest on MBS to buy more MBS
 - will do more of this as recession/recovery unfolds (same as 2009-2015)
 - ▶ discount rate lowered to 0.25% (0.50% in 2009)
 - ▶ created standing U.S. dollar liquidity swap lines for foreign central banks (same as Dec. 2007 and 2008)
 - ▶ **New:** removed reserve requirement for banks

FEDERAL RESERVE RESPONDS (MORE)

- March 17: Fed pursues more policies similar to 2008
 - ▶ Established Commercial Paper Funding Facility (CPFF)
 - “The commercial paper market has been under considerable strain in recent days as businesses and households face greater uncertainty in light of the coronavirus outbreak.”
 - commercial paper used to fund auto loans, mortgages, and operations of companies
 - ▶ Established Primary Dealer Credit Facility (PDCF)
 - offers funding with maturities up to 90 days
 - in place for at least six months and may be extended
 - short-term loans to banks collateralized by investment grade corporate bonds, commercial paper, municipal bonds, and equity securities

FEDERAL RESERVE RESPONDS (MORE!)

- March 18: Fed pursues more policies similar to 2008
 - ▶ Money Market Mutual Fund Liquidity Facility (MMLF)
 - ▶ Similar to Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF) from 2008
 - ▶ Money market funds commonly used by families, businesses, and companies
 - ▶ meets demands for redemptions by households/investors
- March 18: New policies from FHA/Congress
 - ▶ suspend foreclosures and evictions for at least 60 days
 - ▶ can defer mortgage payments for up to 12 months
 - ▶ President signs Families First Coronavirus Response Act
 - provides paid emergency sick and family medical leave
 - coronavirus testing (not treatment) for insured people
 - \$1B for unemployment insurance and relaxes eligibility
 - funding for nutrition and food assistance programs

FEDERAL RESERVE RESPONDS (MORE!!)

- March 23: more Fed policies
 - ▶ “continue to purchase Treasury securities and agency MBS in the amounts needed to support smooth market functioning and effective transmission of monetary policy to broader financial conditions”
 - ▶ **New:** Established Primary and Secondary Market Corporate Credit Facility (PMCCF and SMCCF) to provide liquidity for outstanding **corporate bonds**
 - ▶ Established Term Asset-Backed Securities Loan Facility (TALF, also Nov 2008) to provide liquidity for asset-back securities collateralized by student loans, auto loans, credit card loans, and loans by the small business administration

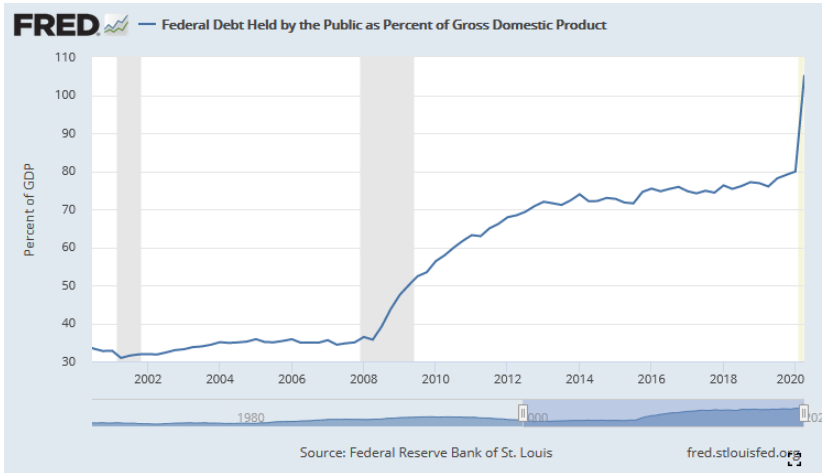
AND CONGRESS RESPONDS

- March 27: Congress enacts \$2T Coronavirus Aid, Relief, and Economic Security (CARES) Act
 - ▶ \$450B loans to corporations
 - ▶ \$350B loan and grant program for small businesses
 - ▶ \$300B payments to households
 - ▶ \$250B expansion of unemployment insurance
 - furloughed, gig workers, and freelancers are eligible
 - benefits increased by \$600/wk for four months
 - benefits available for 39 weeks (up from 26 weeks)
 - ▶ \$220B tax deferrals and deadline extension
 - ▶ \$150B in aid for state and local governments
 - ▶ \$120B to hospitals, health care systems, and providers

COVID-19 STIMULUS VS. ARRA

- \$830B American Recovery and Reinvestment Act of 2009
 - ▶ \$290B in tax cuts, e.g., \$120B payroll tax cut
 - ▶ \$155B for healthcare, e.g., \$90B for Medicaid
 - ▶ \$105B infrastructure investment
 - ▶ \$100B for education, e.g., \$55B to schools to prevent layoffs and cutbacks
 - ▶ \$82B aid to low income workers, unemployed and retirees
 - ▶ \$50B energy infrastructure and renewable energy research and investment

U.S. DEBT/INCOME



before 2008 = 35%, before 2020 = 80%, now = 105%

CONGRESS FAILS TO RESPOND

- October 1
“House approves \$2.2 trillion stimulus plan from Democrats with no bipartisan deal in sight”
- October 9
“White House proposes \$1.8 trillion stimulus, Trump says go bigger”
- October 23
“As Time Runs Short, Optimism Fades for a Pre-Election Stimulus Deal”

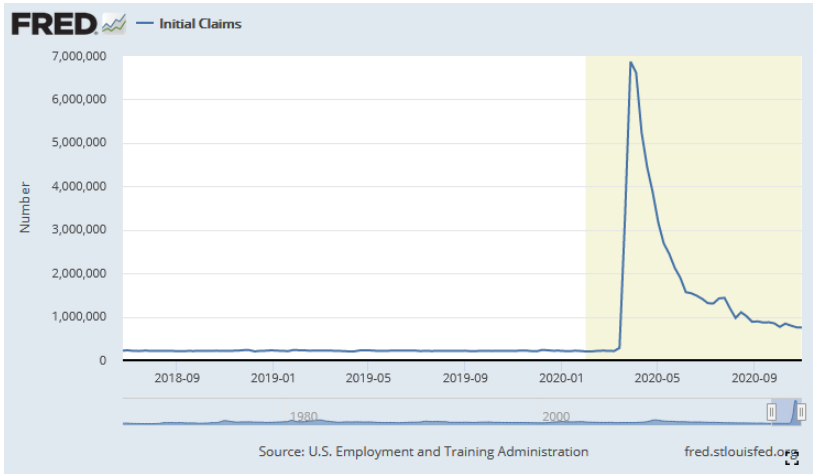
WHAT'S NEXT?

- Big question: how long will it take for labor market to recover?
- Many macroeconomists used epidemiology model: susceptible, infected, and recovered to forecast U.S. economy
- However, economic and health policy responses, which are uncertain, are just as important
- Will there be more stay-at-home orders and/or more stimulus?
- Generally, if more stimulus then faster recovery, if more stay-at-home orders, then slower recovery

COVID-19: A VIEW FROM THE LABOR MARKET

- <https://nathrockmorton.people.wm.edu/Papers/BRT-covid19.pdf>
- Collaboration with Dallas FRB and Indiana Univ.
- We used 2010 Nobel prize winning macroeconomic labor market model pioneered by Peter Diamond, Dale Mortensen, and Christopher Pissarides
- Agnostic about virus and policy response, instead just considered best-case and worst-case scenarios
- Our research focuses on nonlinear interactions between variables in models that other economists have ignored

JOB SEPARATIONS

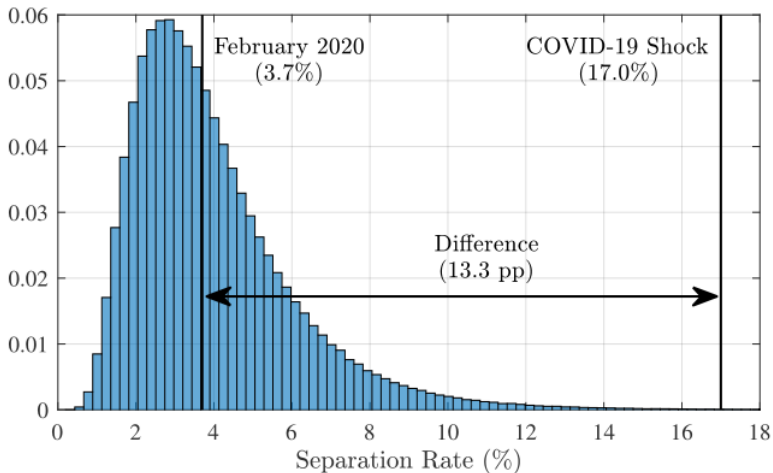


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COVID-19 SHOCK

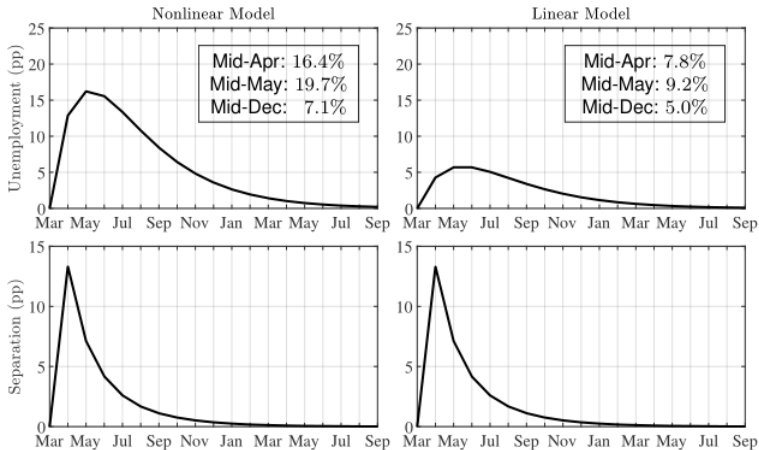
- February 2020: 5,560,000 separations (1,755,000 layoffs), 152,487,000 employed, 3.7% separation rate
- March 15-April 11: 22,034,000 new unemployment claims
- Estimated mid-April 2020 separation rate: 17.0%
($100 \times (3,805 + 22,034) / 152,487$)
- Set probability COVID-19 occurs once every 100 years
- Persistence implies a half-life of 2-months
(also consider 1-month and 3-months)

SEPARATION RATE DISTRIBUTION



IMPULSE RESPONSE FUNCTION

— 2-Month Half-life



MAIN RESULTS

- Job separation “shock” is designed to capture the sharp increase in initial unemployment claims over the first month of the pandemic
- Baseline scenario: the unemployment rate peaks at 19.7%, 2 months after the shock, and takes 1 year to return to 5% (slower recovery peak: 26.9%, faster recovery peak: 13.7%)
- How did we do? Headline unemployment rate in April was 14.7% and it is currently 7.9%

UNEMPLOYMENT MISCLASSIFICATION

- BLS survey takers had classified some workers as “employed but absent from work”
- Maybe should have been classified as “unemployed on temporary layoff”
- April unemployment rate would have been 19.5%, very close to the peak of our baseline projection
- Misclassification also lowered rates in May and June

CONCLUSION

- Federal Reserve response looked a lot like 2008/2009
- Stay-at-home orders really hurt the economy
- Response by Congress was a lot larger than 2008/2009
- Economically, things have been improving fairly quickly
- It is very difficult to forecast what will happen