Osher Lifelong Learning Institute, Spring 2020

What Economists Know About Important Policy Issues

Lecture 1: The U.S. Economy

April 8, 2020

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National Economic Education Delegation

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National Economic Education Delegation

- **Vision**
  - One day, the public discussion of policy issues will be grounded in an accurate perception of the underlying economic principles and data.
- **Mission**
  - NEED unites the skills and knowledge of a vast network of professional economists to promote understanding of the economics of policy issues in the United States.
- **NEED Presentations**
  - Are **nonpartisan** and intended to reflect the consensus of the economics profession.

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Who Are We?

- **Honorary Board: 47 members**
  - 2 Fed Chairs: Janet Yellen, Ben Bernanke
  - 6 Chairs Council of Economic Advisers
    - Furman (D), Rosen (R), Bernanke (R), Yellen (D), Tyson (D), Goolsbee (D)
  - 3 Nobel Prize Winners
    - Akerlof, Smith, Maskin
- **Delegates: 500+ members**
  - At all levels of academia and some in government service
  - All have a Ph.D. in economics
  - Crowdsource slide decks
  - Give presentations
- **Global Partners: 45 Ph.D. Economists**
  - Aid in slide deck development

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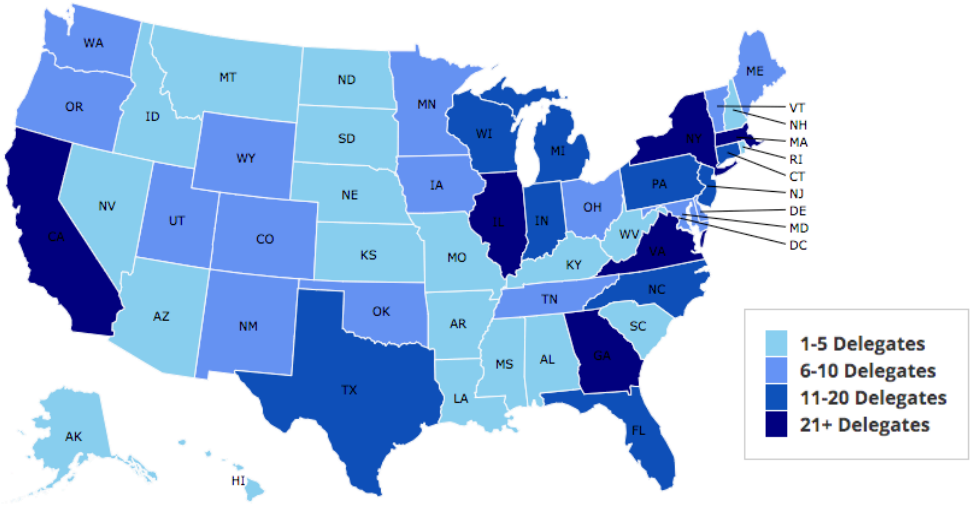
Where Are We?



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Available NEED Topics Include:

- US Economy
- Climate Change
- Economic Inequality
- Economic Mobility
- US Social Policy
- Trade and Globalization
- Trade Wars
- Immigration Economics
- Housing Policy
- Federal Budgets
- Federal Debt
- 2017 Tax Law
- Autonomous Vehicles

Credits and Disclaimer

- **This slide deck was authored by:**
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- **Disclaimer**
  - NEED presentations are designed to be nonpartisan.
  - It is, however, inevitable that the presenter will be asked for and will provide their own views.
  - Such views are those of the presenter and not necessarily those of the National Economic Education Delegation (NEED).

Course Outline

- **What Economists Know About Important Policy Issues**
  - Week 1 (4/8): US Economy & Coronavirus Economics
  - Week 2 (4/15): Poverty and Economic Mobility
  - Week 3 (4/22): Economics of Immigration
  - Week 4 (4/29): Autonomous Vehicles

Outline – U.S. Economy

- **Behavior of GDP**
- **Labor Market**
- **Summary**

Behavior of GDP

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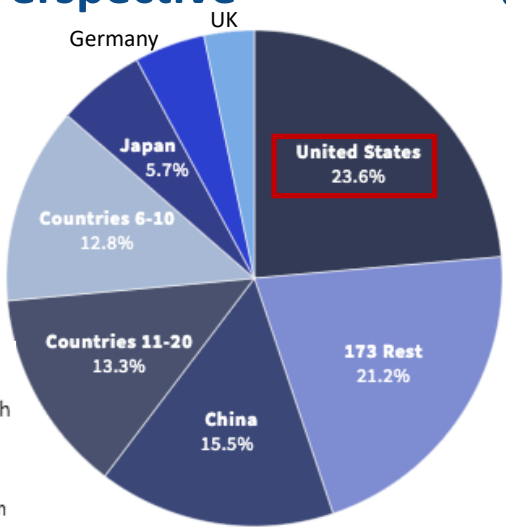
U.S. Economy in Global Perspective

U.S. Nominal GDP:

$21.5 trillion in 2019-Q3



% Share of the Global Economy

The 173 countries outside the top 20 make up less than a fourth of the total global economy.

United States | 173 Rest | China | Countries 11-20
Countries 6-10 | Japan | Germany | United Kingdom

Source: IMF

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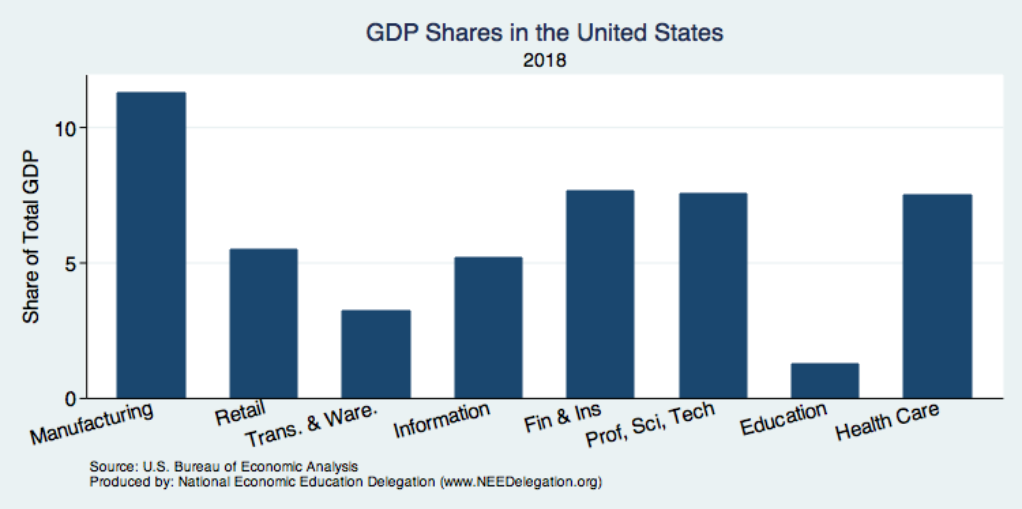
Composition of the U.S. Economy: 2018



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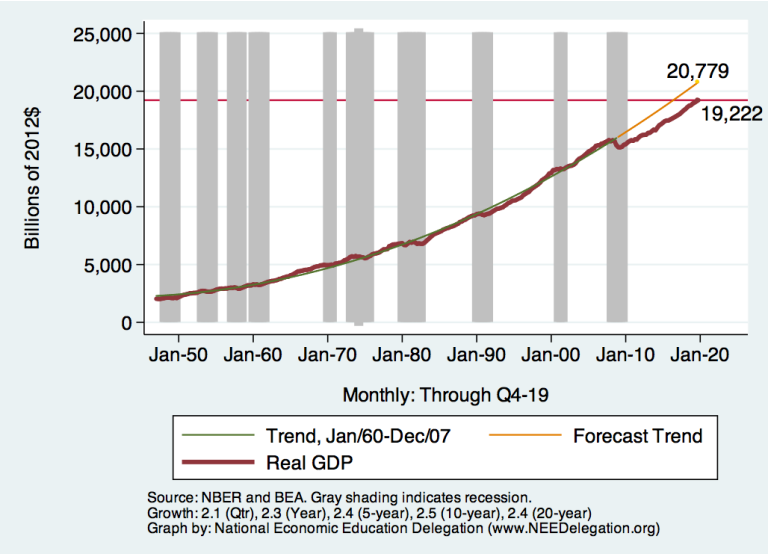
GDP Relative to Long-Term Trends



$1.5 Trillion Below Trend

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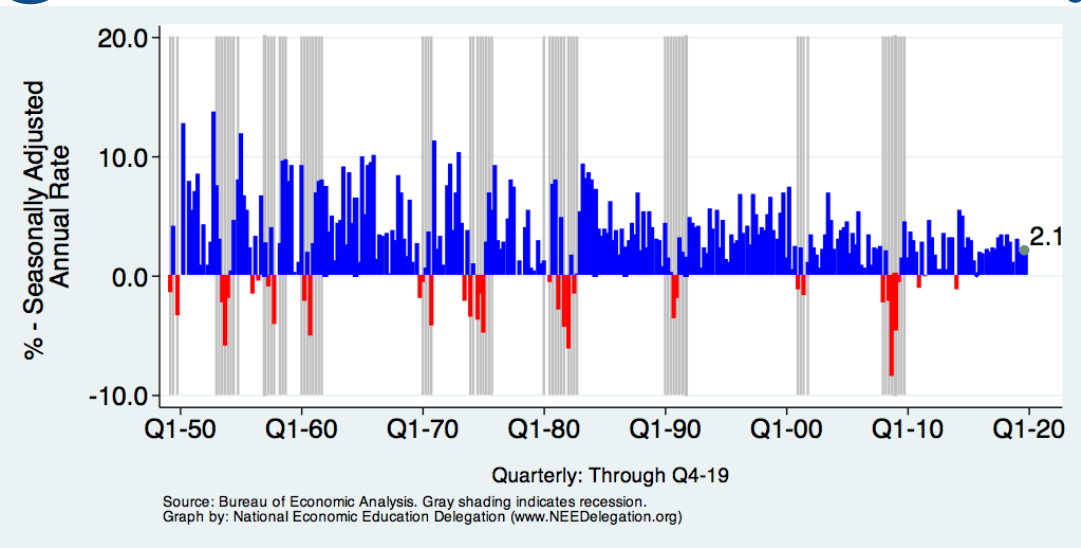
GDP Growth During Economic Recovery



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What Is "Accounting" for the Slow Recovery?

- **Expenditures drive GDP growth.**
  - GDP is the sum of four categories of spending:
    - Consumption
    - Investment
    - Government spending
    - Net Exports: Exports – Imports
      - Exports add to GDP
      - Imports are subtracted because they are included in the other categories

GDP = C + I + G + X - M

- **Production also matters and supports GDP growth.**
  - Employment
  - Productivity

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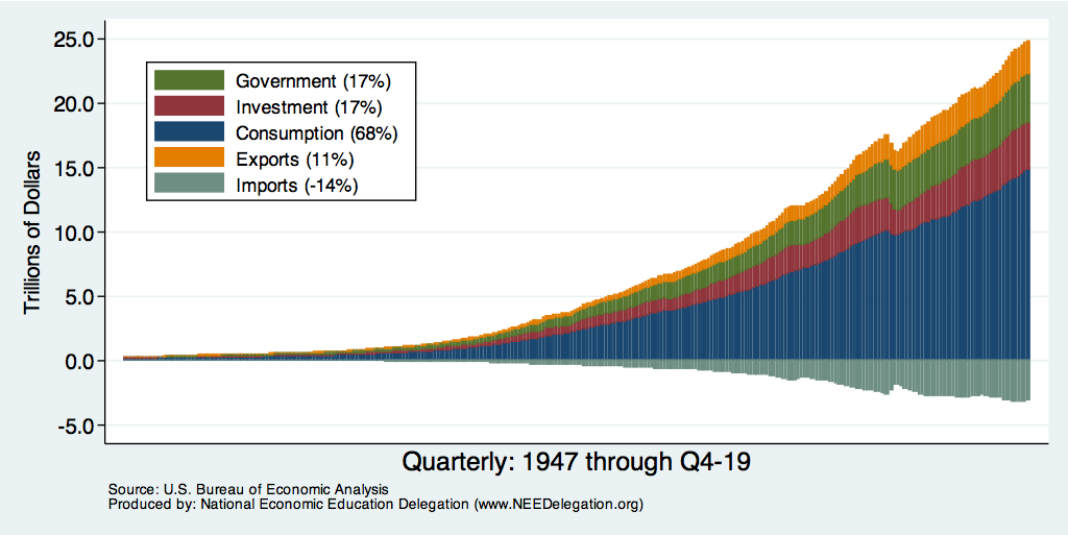
Composition of GDP



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Composition of GDP

- Slow growth in any of these categories will slow overall GDP growth.
- How does each component contribute to GDP growth pre- vs. post-recession?
- What explains current trends in each component?

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Understanding Contributions to GDP Growth

- **GDP Growth is a combination of the growth in its components:**
  - Consumption, Investment, Government, and Net Exports
  - It's a weighted average of these components
- **For example: Consumption**
  - If consumption accounts for **2/3** of the economy,
  - If consumption grew by **3%,**
  - It would cause GDP growth to be **2 percentage points** higher than it would otherwise be

$$2\% = 2/3 * 3\%$$

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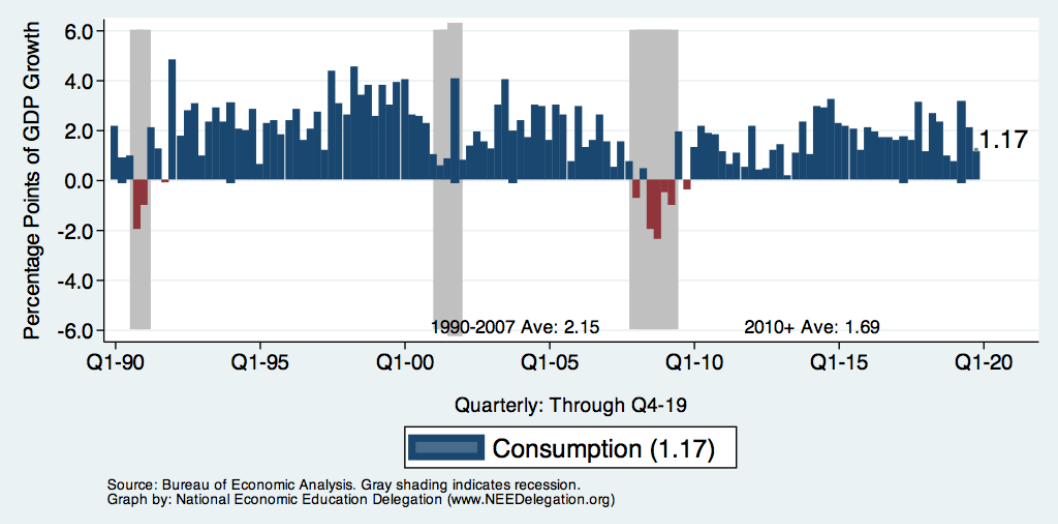
Contribution to GDP Growth: Consumption



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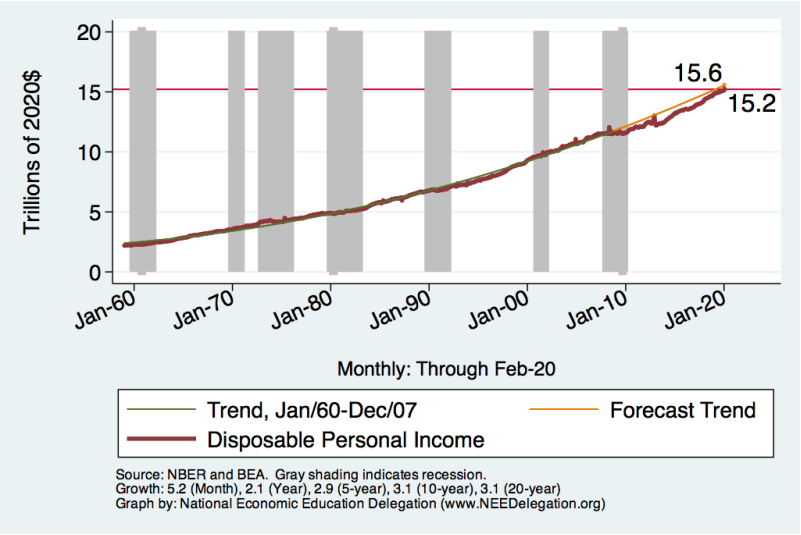
Personal Consumption Expenditures

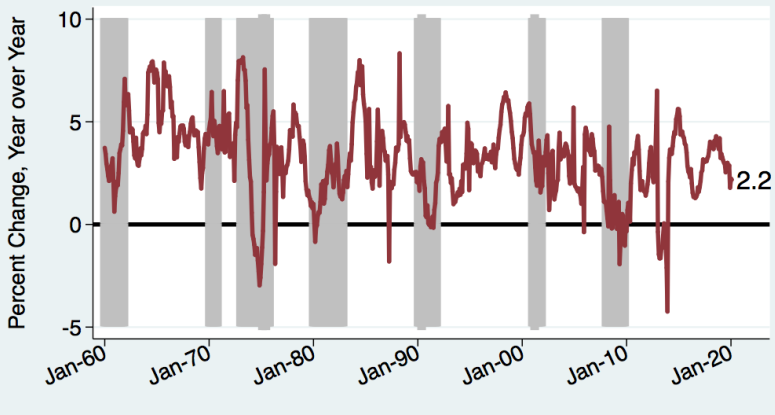
- **Consumption has been slow to recover.**
  - Pre-crisis average contribution of consumption expenditures was 2.15 percentage points.
  - Post-crisis contribution is 1.7 percentage points.
- **In other words, its contribution to GDP growth is down 21%.**
  - Let's explore why

Real Disposable Personal Income



$0.4 Trillion Below Trend

Real Disposable Personal Income - Growth



Source: NBER and BEA
Growth: 5.2 (Month), 2.1 (Year), 2.9 (5-year), 3.1 (10-year), 3.1 (20-year)
Gray shading indicates recession.
Graph by: National Economic Education Delegation (www.NEEDelegation.org)

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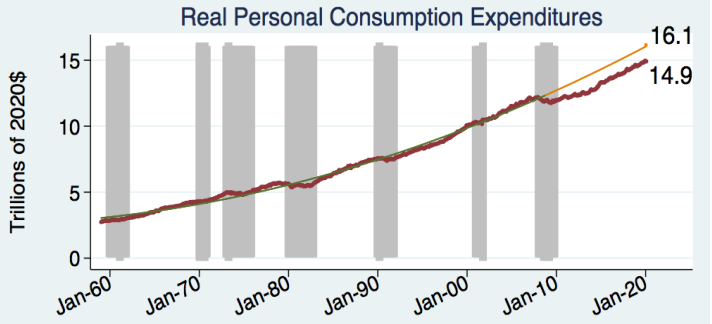
Personal Consumption Expenditures



$1.1 Trillion Below Trend

Source: NBER and BEA. Gray shading indicates recession.
Growth: -1 (Month), 2.4 (Year), 2.3 (5-year), 2.4 (10-year), 2.3 (20-year)
Graph by: National Economic Education Delegation (www.NEEDelegation.org)

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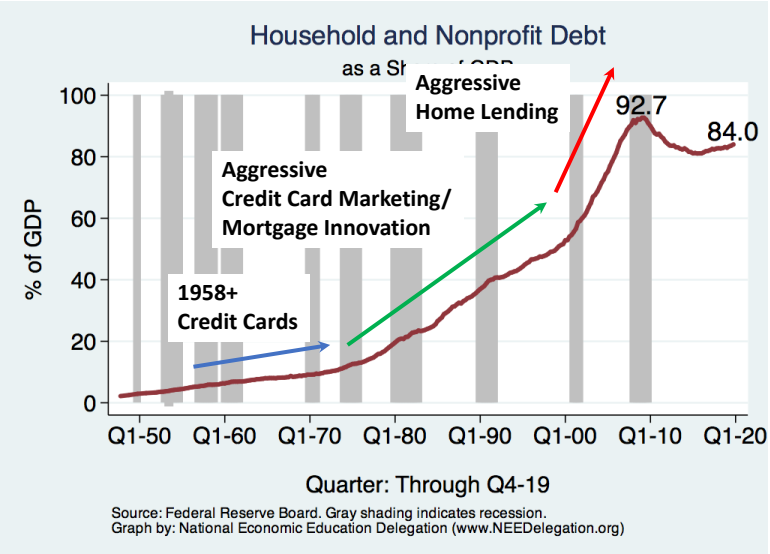
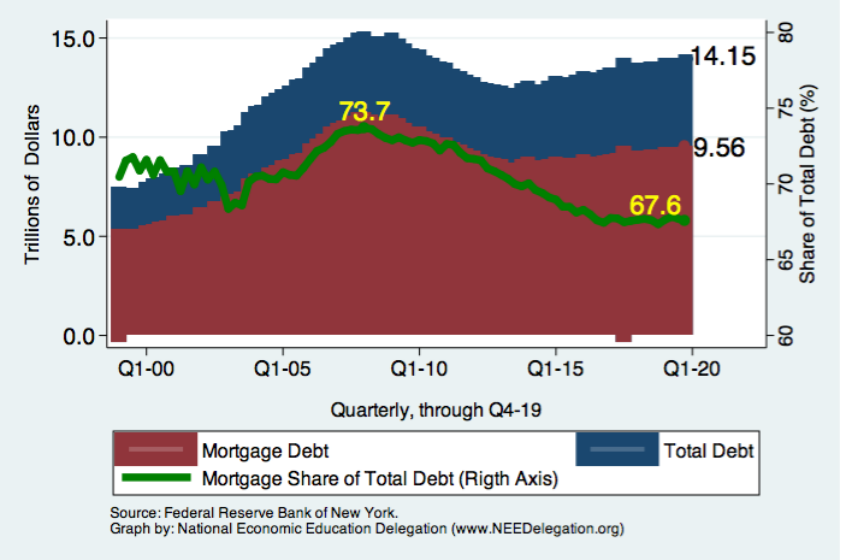
Explaining Consumption Expenditures

- **Retail sales, household debt, and personal savings help explain changes in consumption expenditures.**
- ***Lower*** **levels of retail sales and household debt and** ***higher*** **savings should be correlated with** ***lower*** **levels of consumption expenditure.**

Household Debt as a Share of GDP



Household Debt: Mortgages



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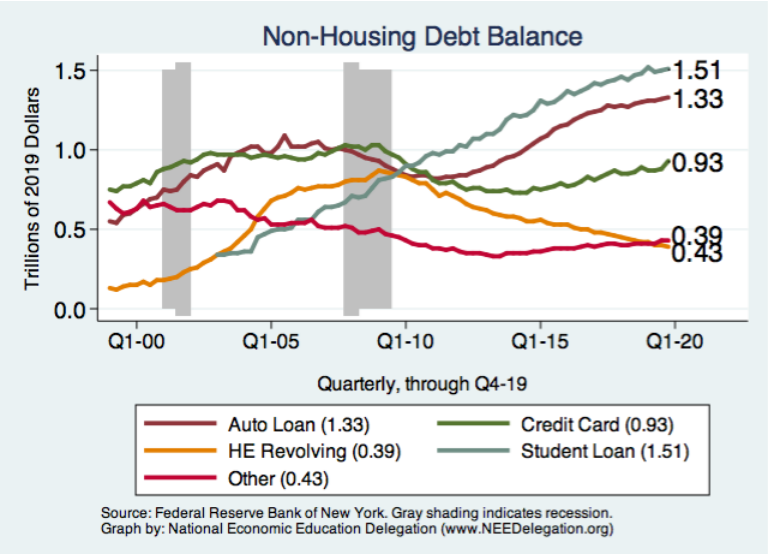
Household Debt: Other Sources



Student Loans

Car Loans

Credit Cards

HE & Other

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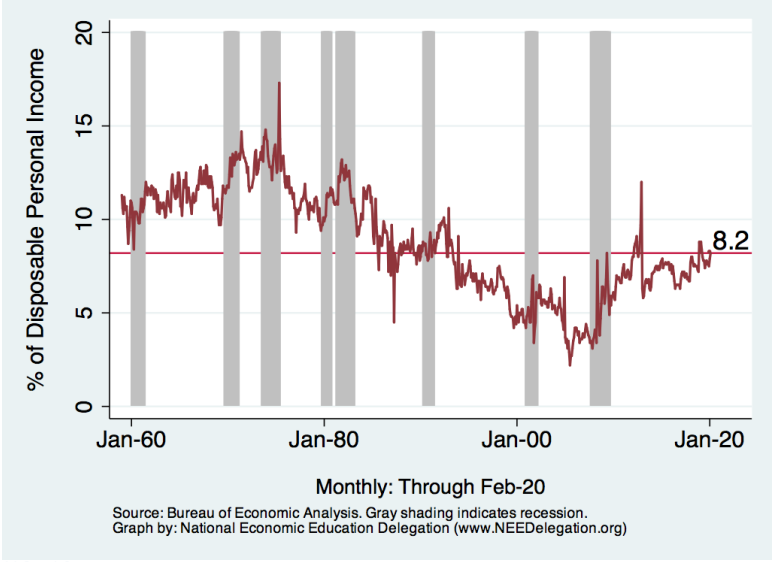
Personal Savings



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Investment Expenditures

- **Investment expenditures are composed of residential and non-residential spending.**
- **Residential spending refers to home construction, including remodeling.**
- **Non-residential spending refers to capital purchases and new inventory accumulation.**
  - Tools, machinery, new factories, commercial real estate.

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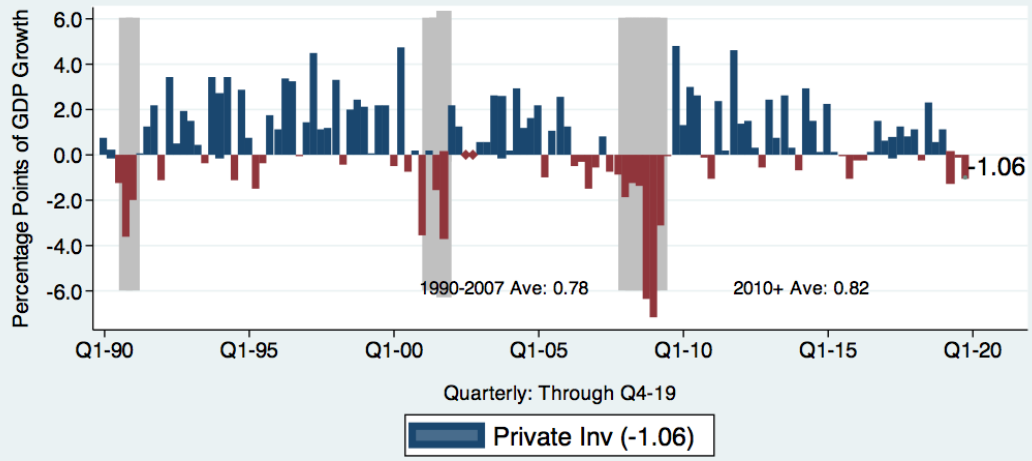
Contributions to GDP: Private Investment



Source: Bureau of Economic Analysis. Gray shading indicates recession.
Graph by: National Economic Education Delegation (www.NEEDelegation.org)

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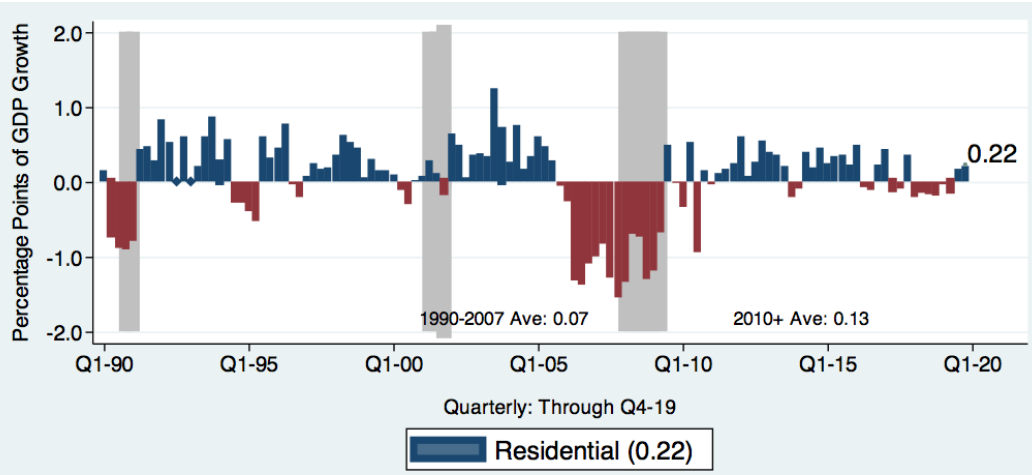
Contributions to GDP: Residential Investment



Source: Bureau of Economic Analysis. Gray shading indicates recession.
Graph by: National Economic Education Delegation (www.NEEDelegation.org)

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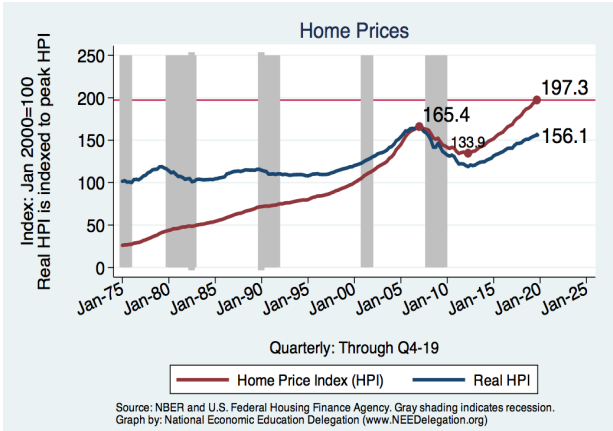
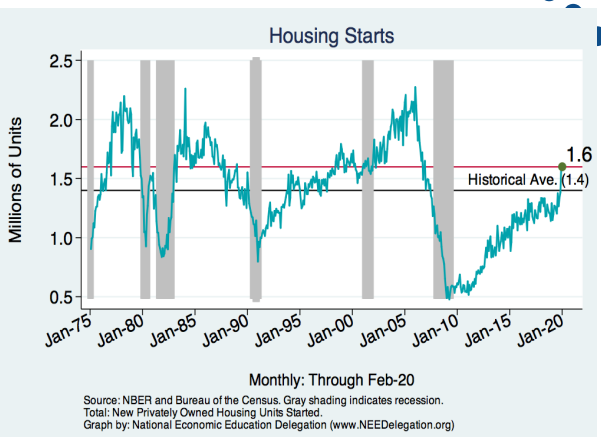
Home Prices and Housing Starts





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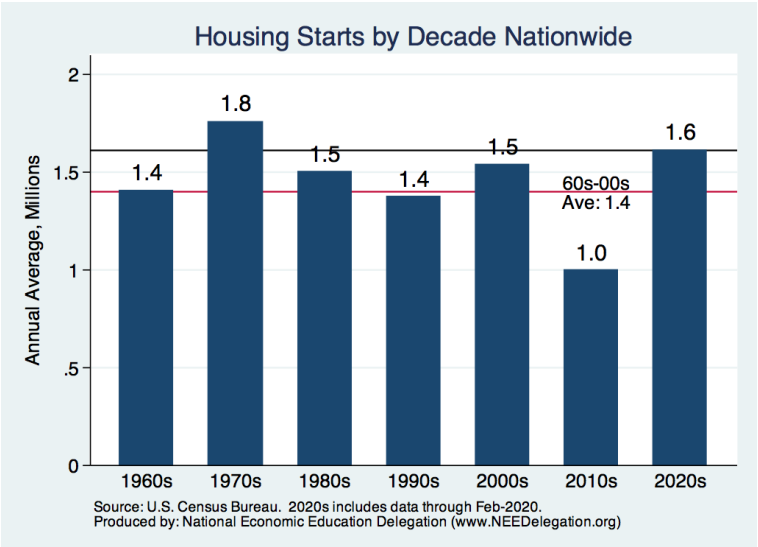
Recent Housing Growth Has Been Slow



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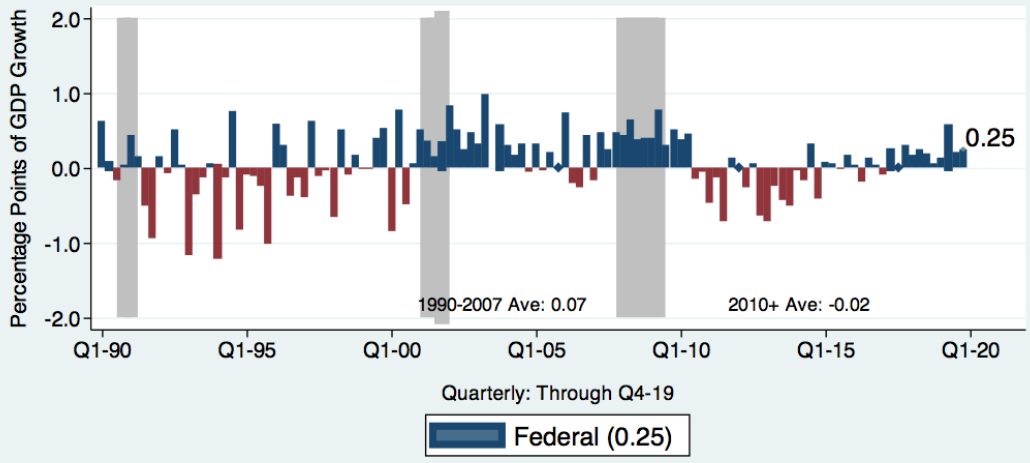
Contributions to GDP: Government



Source: Bureau of Economic Analysis. Gray shading indicates recession.
Graph by: National Economic Education Delegation (www.NEEDelegation.org)

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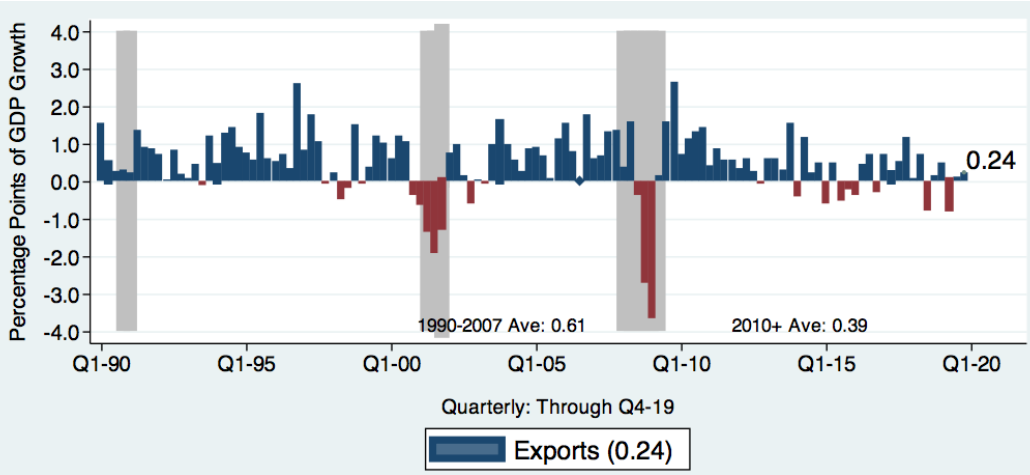
Trade's Contribution to GDP: Exports



Source: Bureau of Economic Analysis. Gray shading indicates recession.
Graph by: National Economic Education Delegation (www.NEEDelegation.org)

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Expenditure Summary

- **Post-recession consumption is down:**
  - Retail sales have returned to trend;
  - Household debt down, but climbing;
  - Personal savings is up.
- **Investment expenditures are contributing less to GDP growth.**
  - Having recently slowed.
- **Post-recession government spending is down:**
  - But starting to pick up.
- **Net exports are relatively unchanged.**

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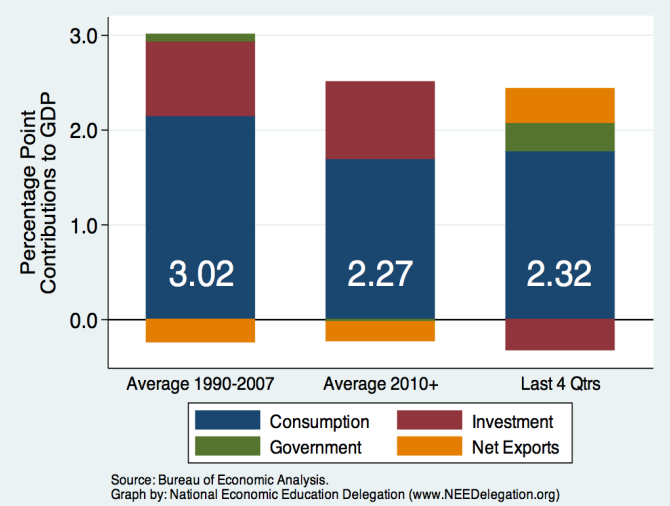
Expenditure Summary



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Labor Market

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Productivity and Employment

- **The labor market is an important indicator of the health of the U.S. economy.**
- **We'll focus on employment and productivity.**
  - Trends in employment and labor force participation.
  - Trends in labor productivity.

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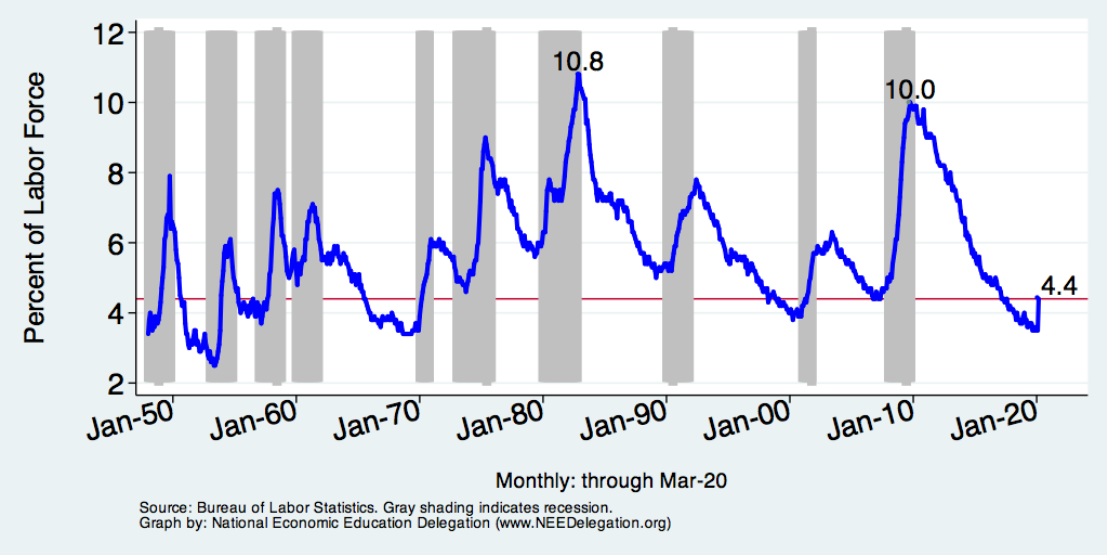
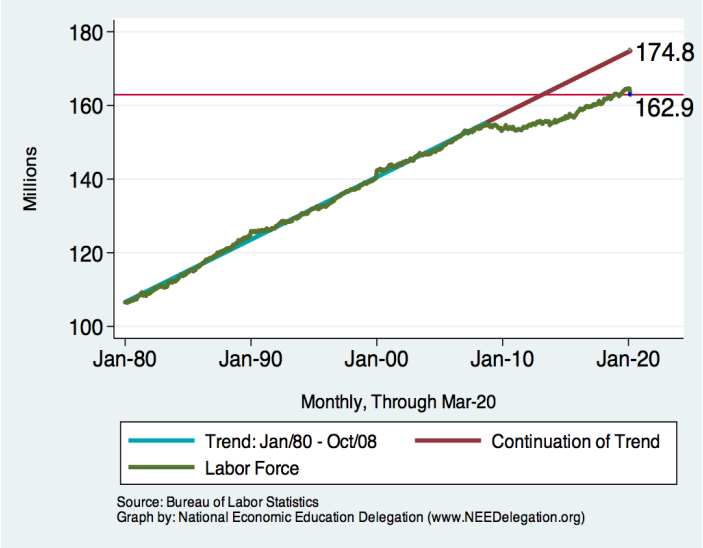
Labor Market Conditions

- **Unemployment rate is low, 4.4%, and perhaps as high as 13%.**
- **Natural rate of unemployment is estimated to be 4.5% - 5.5%.**
- **Monthly employment gains have averaged 70,000 jobs over the last six months.**
  - This measure has been declining throughout 2019.
- **Recent Labor Market Concerns:**
  - Low employment-to-population ratio
  - Falling labor force participation
  - Slow wage growth

Unemployment Rate



Labor Force Participation - Below Trend



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Low Unemployment: But Jobs Don't Pay

More than 53 million people–44% of all workers aged 18-64–are low-wage workers by our criteria. They earn median hourly wages of $10.22 and median annual earnings of $17,950.

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Source: Brookings Institution, 2019

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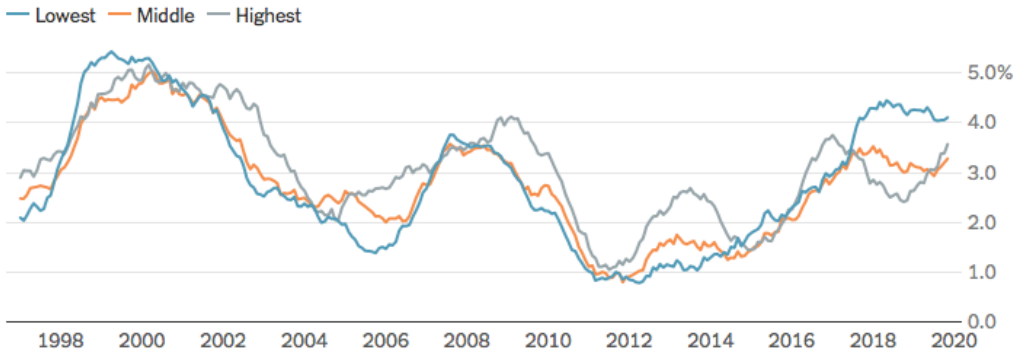
But That is Starting to Change

Growth in average hourly earnings for private nonfarm wage and salary workers in the Current Population Survey, by wage tercile.



Year-on-year percent growth, 24-month moving average

Source: Author's analysis of the Current Population Survey • By The New York Times

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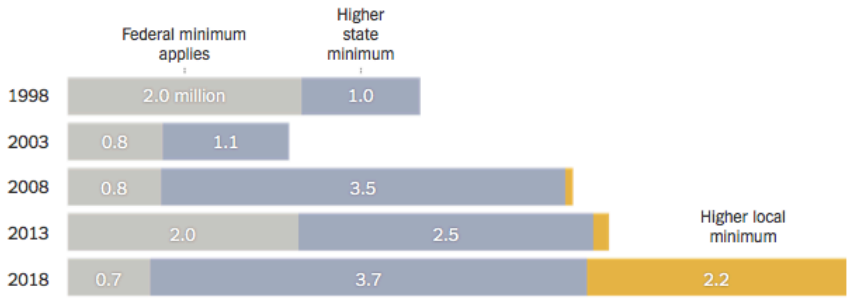
Most Minimum Wage Workers Aren't Bound by the Federal Minimum Anymore

Millions of workers:



Includes farm workers and tipped incomes

Source: Author's analysis of Current Population Survey; data from the Berkeley Center for Labor Research and Education, as well as Kavya Vaghul and Ben Zipperer (2016).

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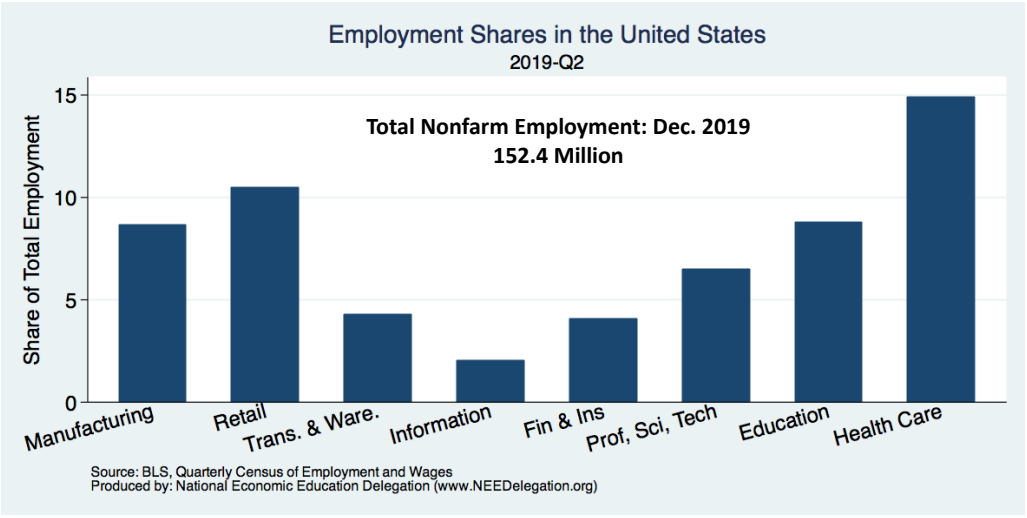
U.S. Employment



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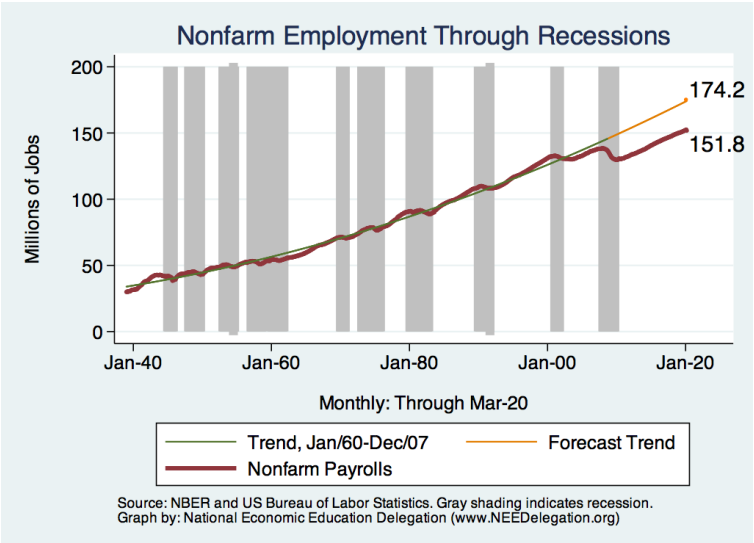
Employment Growth



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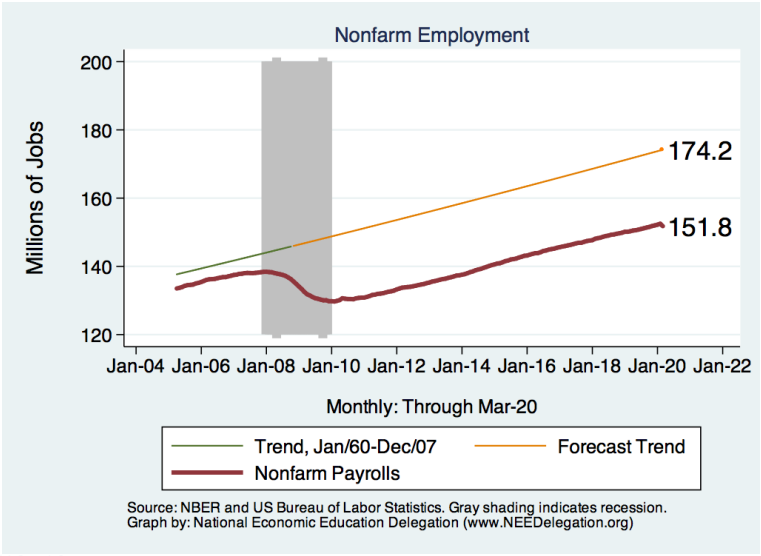
Employment Gap: Up Close



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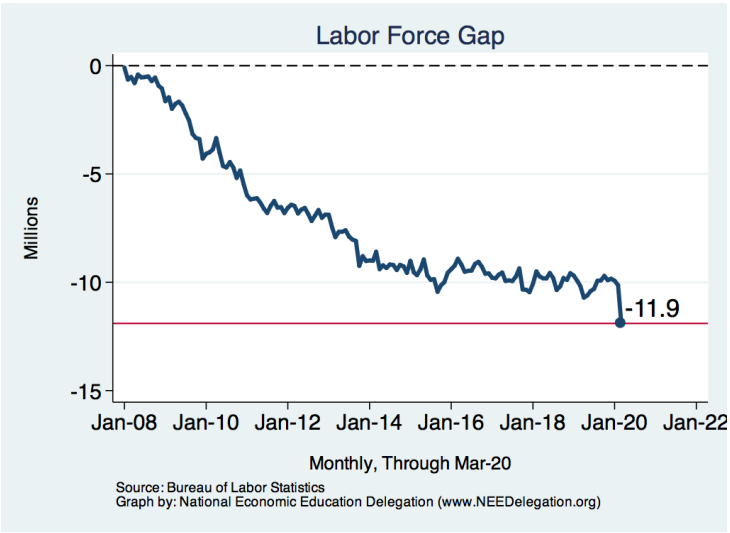
There is a Persistent Labor Force Gap



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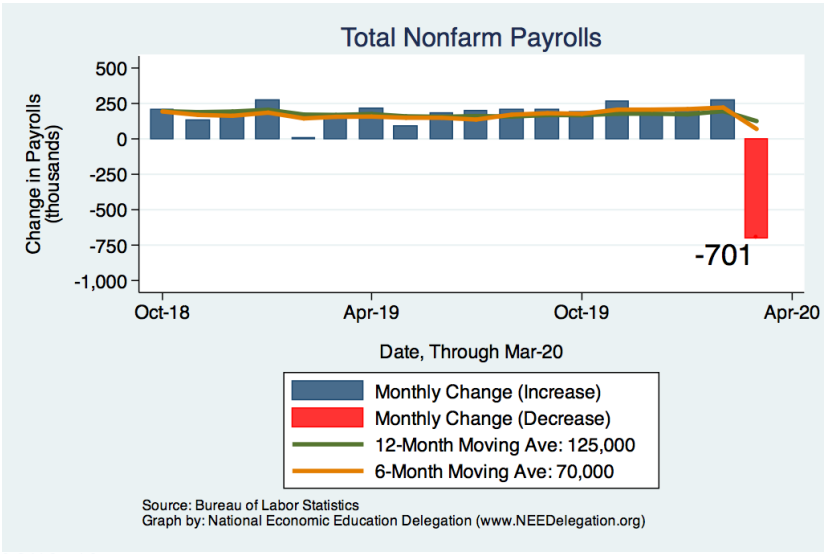
Monthly Changes in Nonfarm Employment



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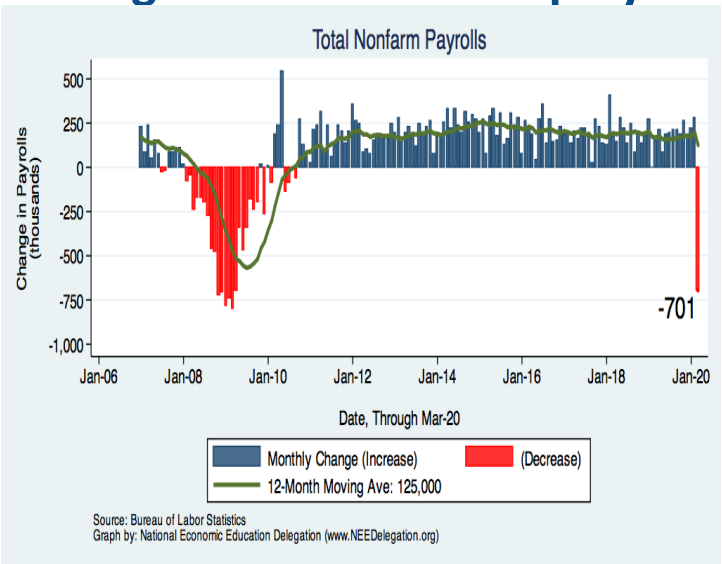
Monthly Changes in Nonfarm Employment



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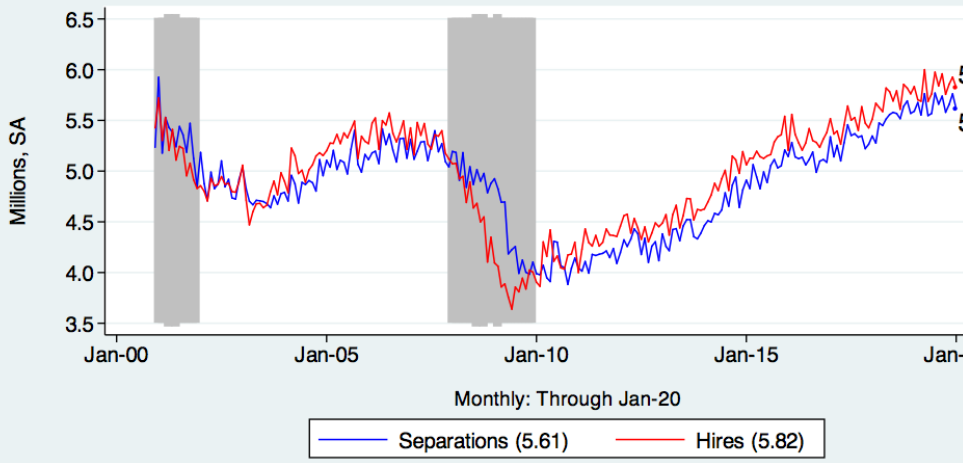
Job Hires and Separations



Source: NBER and BLS. Gray shading indicates recession.
Graph by: National Economic Education Delegation (www.NEEDelegation.org)

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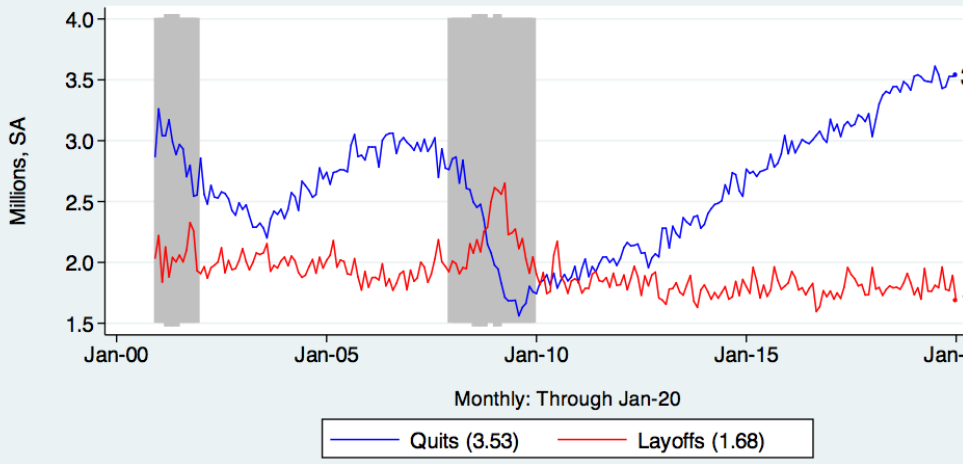
Separations: Quits and Layoffs



Source: NBER and BLS. Gray shading indicates recession.
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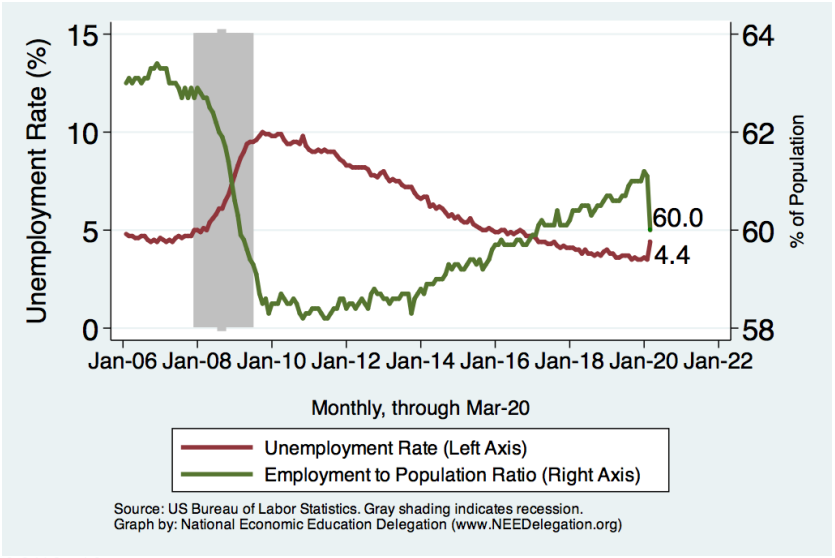
Slow Employment Recovery



Source: US Bureau of Labor Statistics. Gray shading indicates recession.
Graph by: National Economic Education Delegation (www.NEEDelegation.org)

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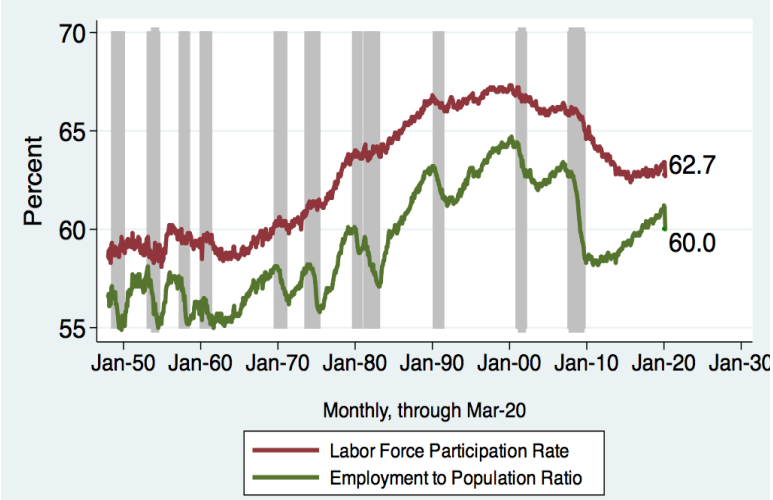
Labor Force Dropouts



Source: US Bureau of Labor Statistics. Gray shading indicates recession.
Graph by: National Economic Education Delegation (www.NEEDelegation.org)

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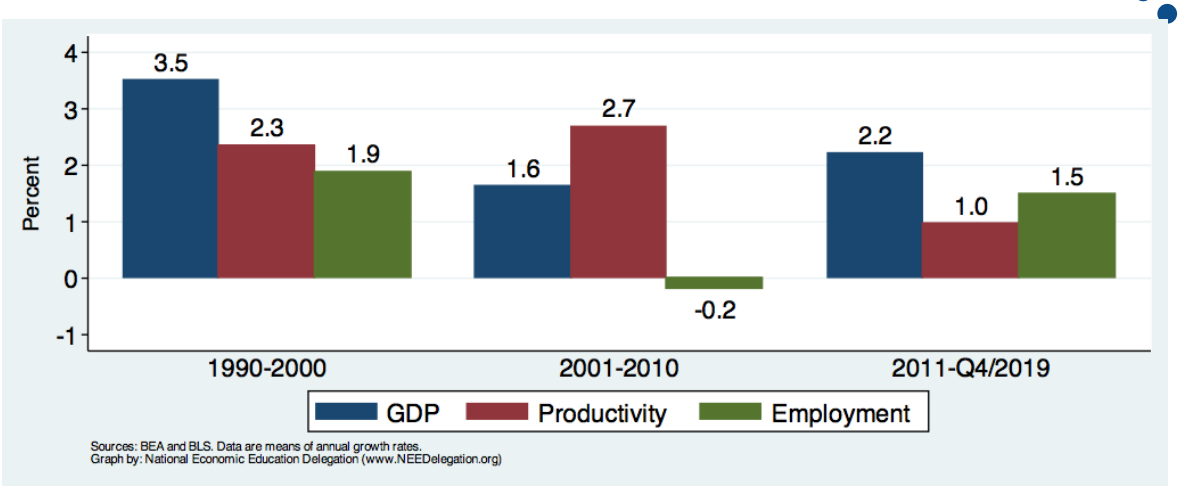
GDP Growth, Productivity, and Employment



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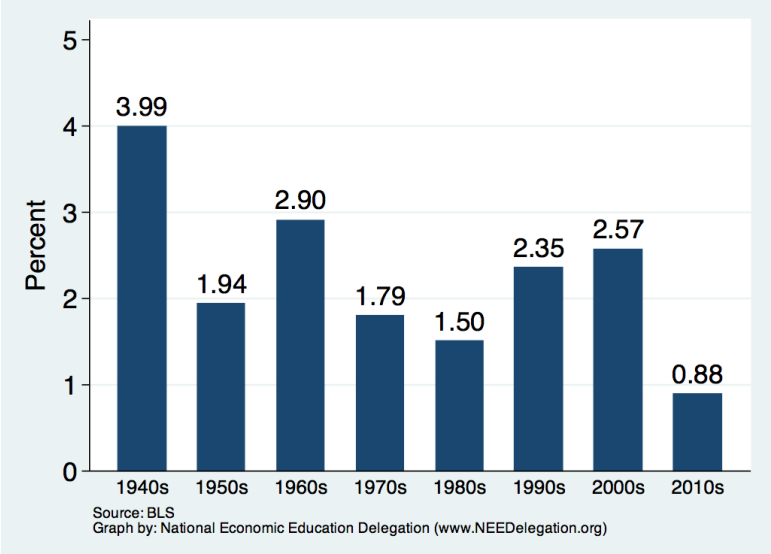
History of Productivity Growth



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Summary

- **GDP growth is primarily fueled by increases in demand for output.**
- **This growth is supported by growth in employment and productivity of the labor force.**
- **Recent years have seen relatively tepid increases in demand for output.**
  - In particular, consumption and government spending have been slow relative to other periods.
- **This tepid growth has lead to slow increases in employment.**
  - As labor markets have tightened, wages have started to grow.
- **Productivity growth has played little role in growing GDP.**
  - Why this is so is not immediately clear.

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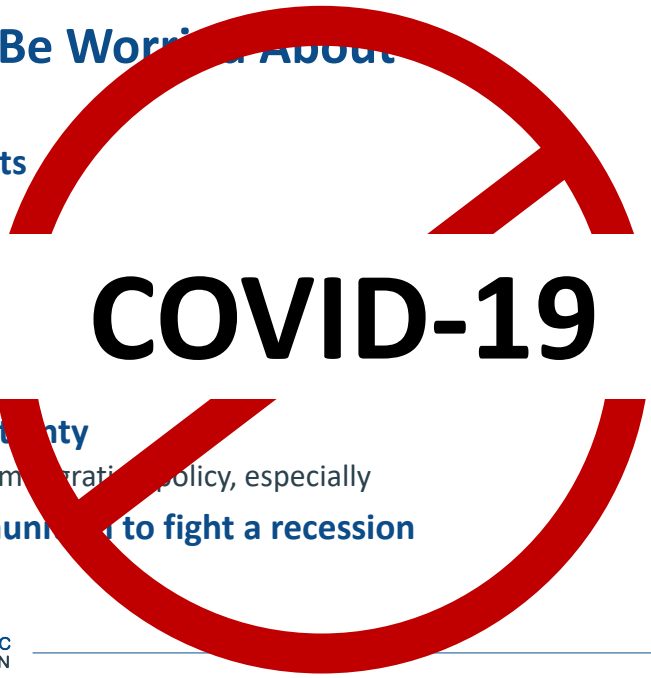
Things to Be Worried About

- **Stock Markets**
- **Yield Curve**
- **Gover**
- **Declin**
- **Incom**
- **Policy Uncert nty**
  - Trade and im rati olicy, especially
- **Lack of ammuni to fight a recession**



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COVID-19: Economic Implications and Policy Response

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Credits and Disclaimer

- **This slide deck was authored by:**
  - Scott L. Baier, Clemson University
  - Jon D. Haveman, NEED
- **Disclaimer**
  - NEED presentations are designed to be nonpartisan.
  - It is, however, inevitable that the presenter will be asked for and will provide their own views.
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Outline

- What is this?
- What does economics offer?
- Economic implications
- Vulnerabilities
- Evidence
- Policy

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What is This?

- A health crisis with enormous economic implications.
- It is:
  - A perfect storm of economic difficulty
    - Supply side
    - Demand side
    - Financial
  - Without a culprit

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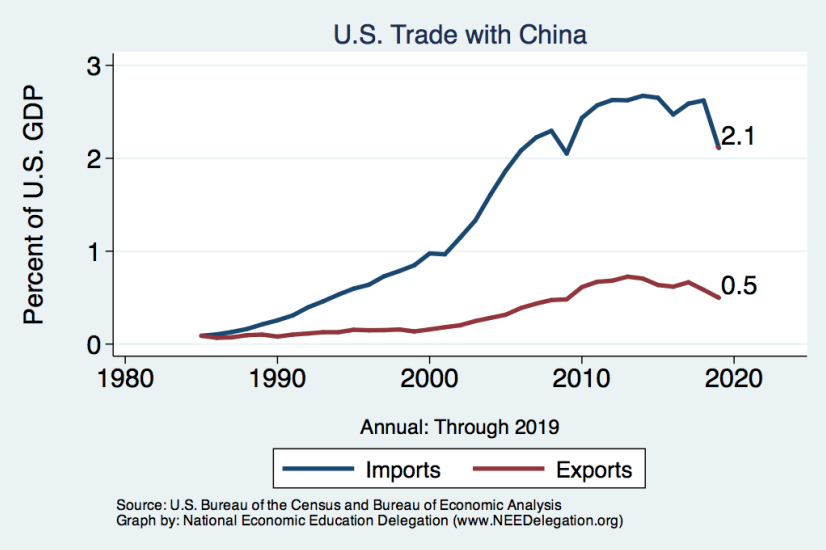
What Does Economics Offer?

- **Insight into the transition of the virus from health to the economy.**
- **Data on the magnitude of economic vulnerability.**
- **Cost benefit analysis of social distancing.**
- **Insight into government response:**
  - Appropriate targets of government policy
  - Evaluation of current measures
    - Fiscal and monetary policies
  - What else might be done and why?

Perception of Implications – Timeline

- **Initially**
  - Limited geographically – hence fallout limited to Manufacturing
    - Supply and supply chains
- **Became clear not contained**
  - Harder hit to supply chains
  - Demand side implications
- **Duration**
  - Financial sector implications

Trade with China is Significant, but Small



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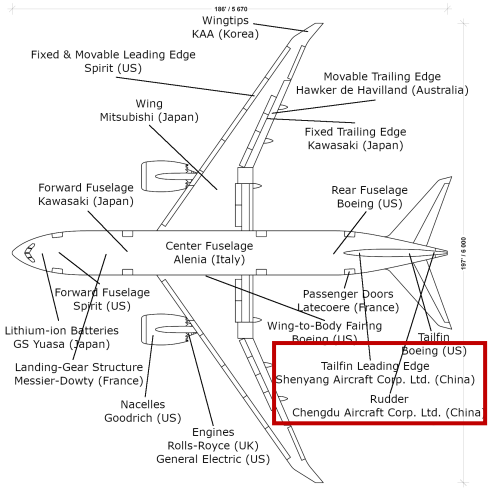
Coronavirus: Supply Chains



- **Boeing 787 Dreamliner**
- **Parts and components from suppliers all over the world:**
  - Japan
  - Italy
  - China
  - Australia
  - …

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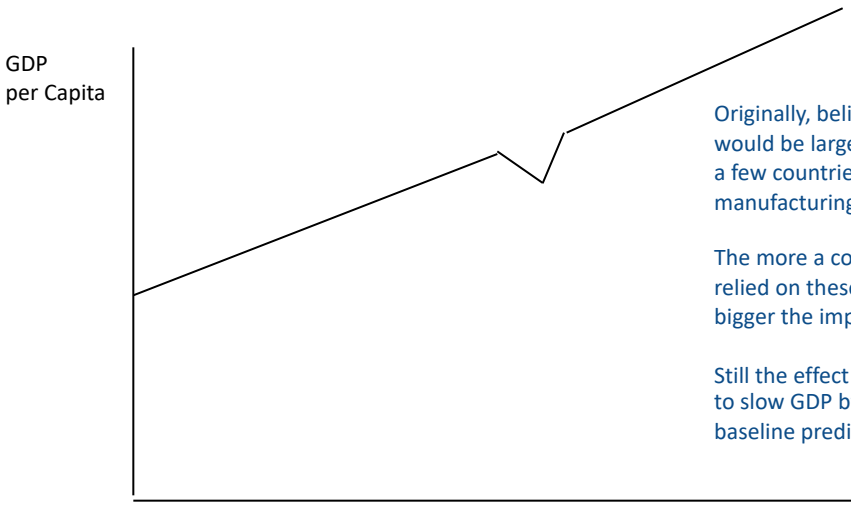
Modest Impact on GDP of COVID-19



Originally, believed that COVID-19 would be largely contained within a few countries and would disrupt manufacturing supply chains.

The more a country's manufacturing relied on these supply chains the bigger the impact on GDP.

Still the effect was likely to be to slow GDP by 0.25 to 0.50 from its baseline prediction.

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The Escalation of the Economic Effects

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Coronavirus: Demand Side

- **Stock market**
  - Postpone major purchases
- **Event cancellations**
  - More broadly tourism
- **Universal pseudo-quarantine**
  - Work from home
  - Eat at home
  - Watch movies at home

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Particularly Vulnerable Industries

Industry	Share of GDP
Arts, entertainment, and recreation	1.1
Management of companies and enterprises	1.9
Other services, except government	2.1
Accommodation and food services	3.1
Transportation and warehousing	3.2
Retail trade	5.5
Educational services, health care, and social assistance	8.7
Manufacturing	11.3
Real estate and rental and leasing	13.3
Total	**50.2**

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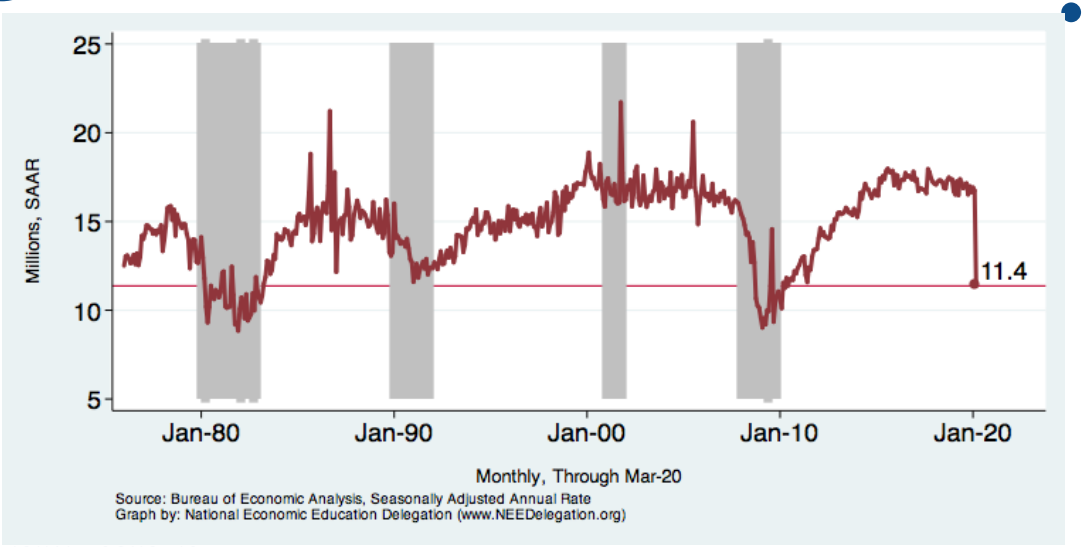
Manuf: Automobile and Light Truck Sales



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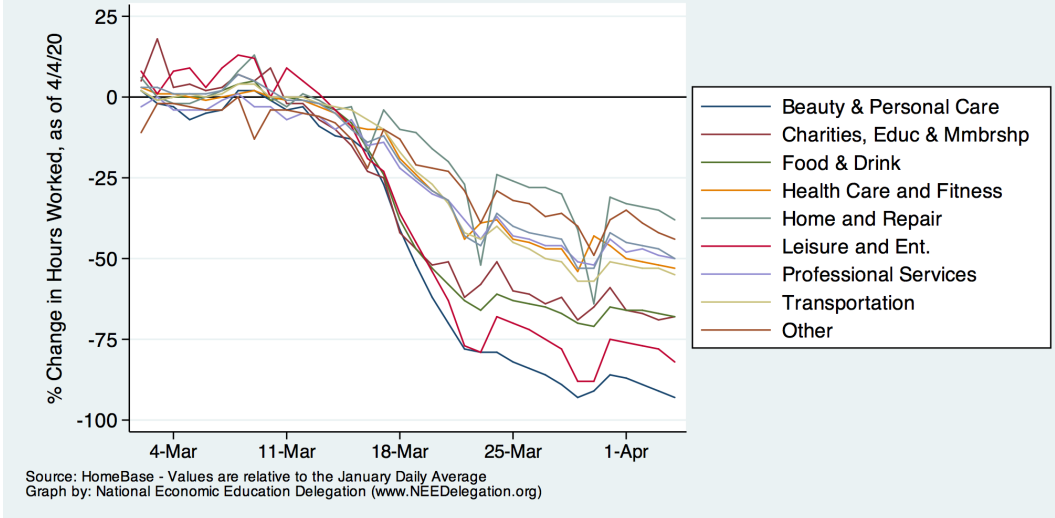
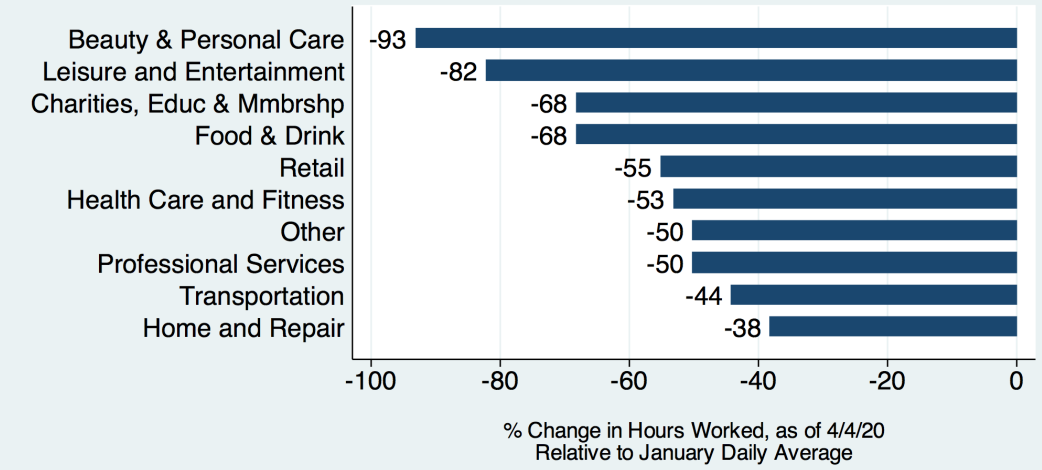
Percent Change Hours Worked



Data Source: Homebase

72

Percent Change Hours Worked



Source: HomeBase
Graph by: National Economic Education Delegation (www.NEEDelegation.org)

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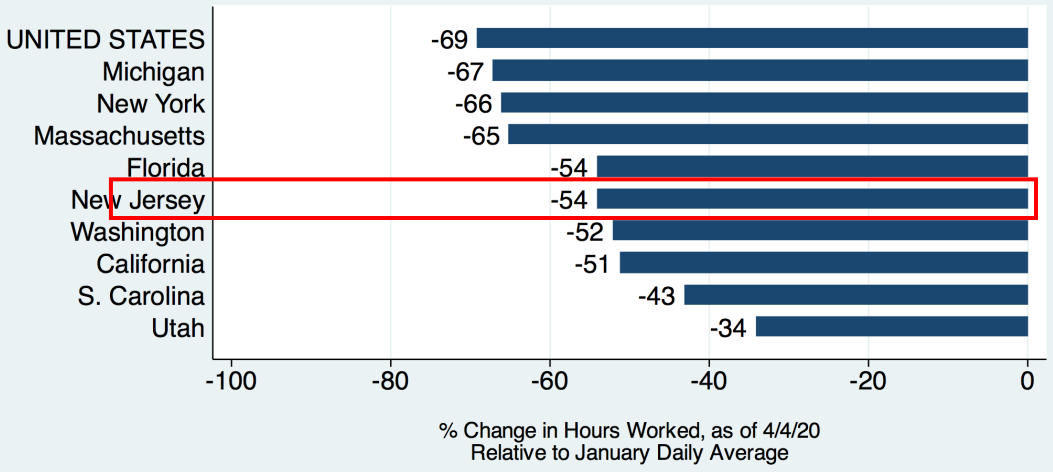
Percent Change Hours: States



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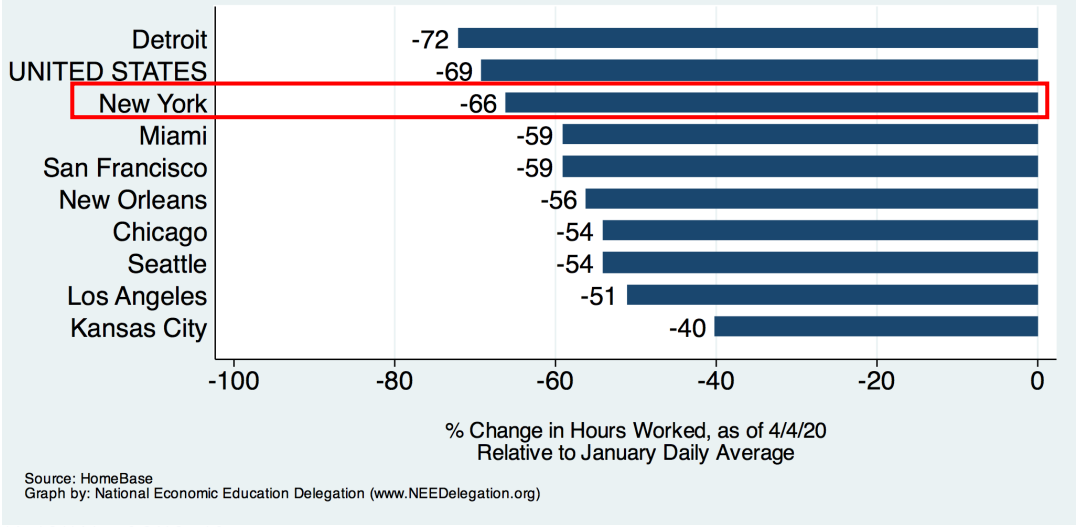
Percent Change Hours: MSAs



Source: HomeBase
Graph by: National Economic Education Delegation (www.NEEDelegation.org)

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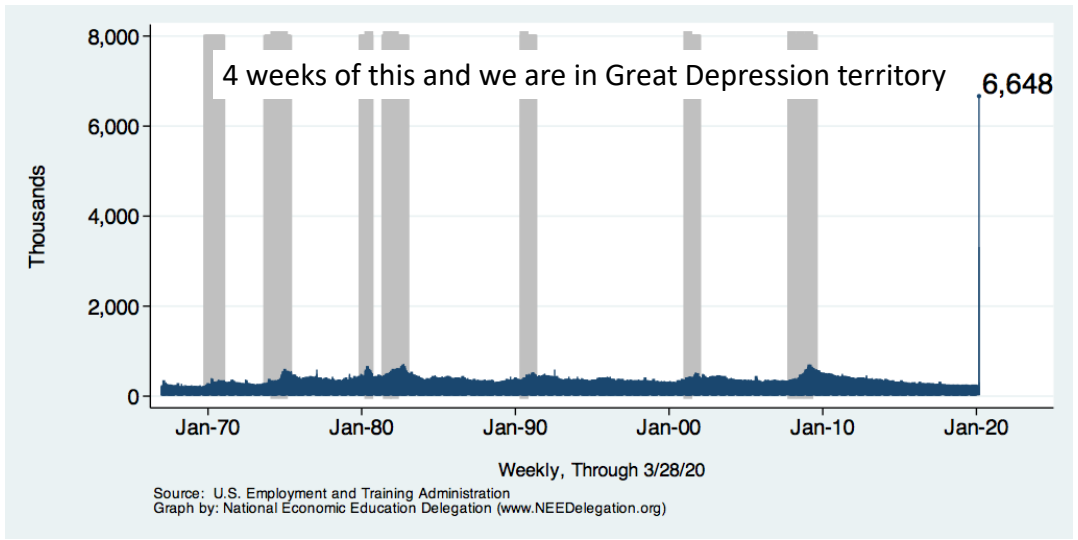
Weekly New Unemployment Claims



Source: U.S. Employment and Training Administration
Graph by: National Economic Education Delegation (www.NEEDelegation.org)

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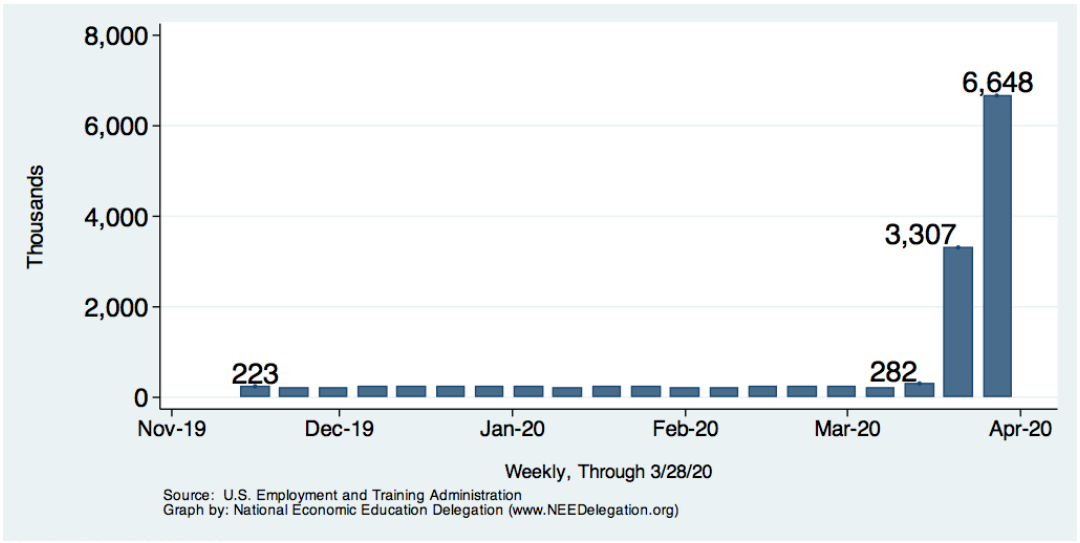
Weekly New Unemployment Claims



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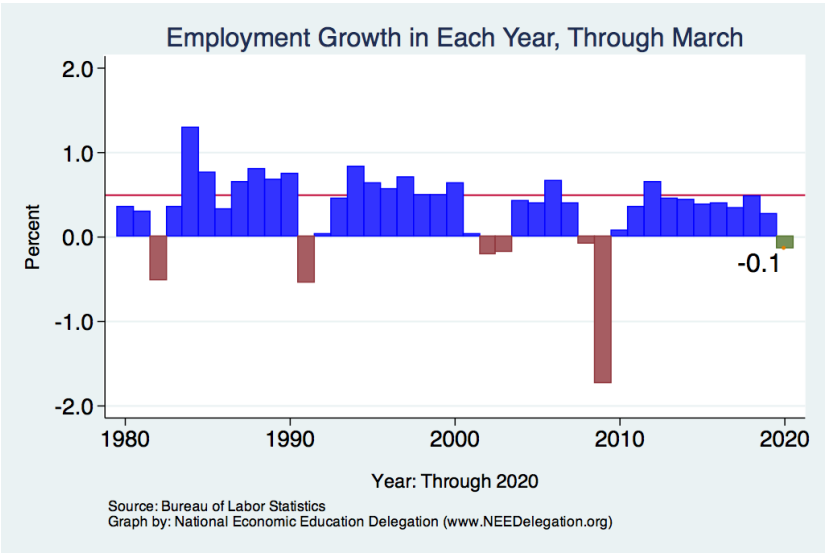
Annual Changes in Nonfarm Employment



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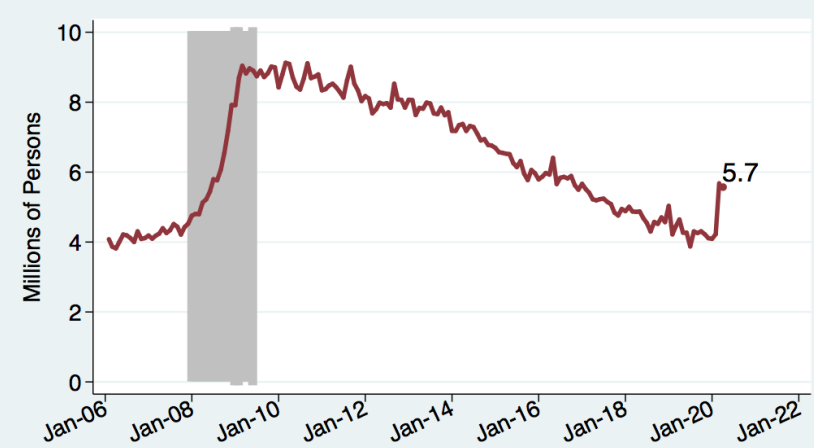
Part-Time Nonfarm Employment



Source: Bureau of Labor Statistics. Gray shading indicates recession.
Graph by: National Economic Education Delegation (www.NEEDelegation.org)

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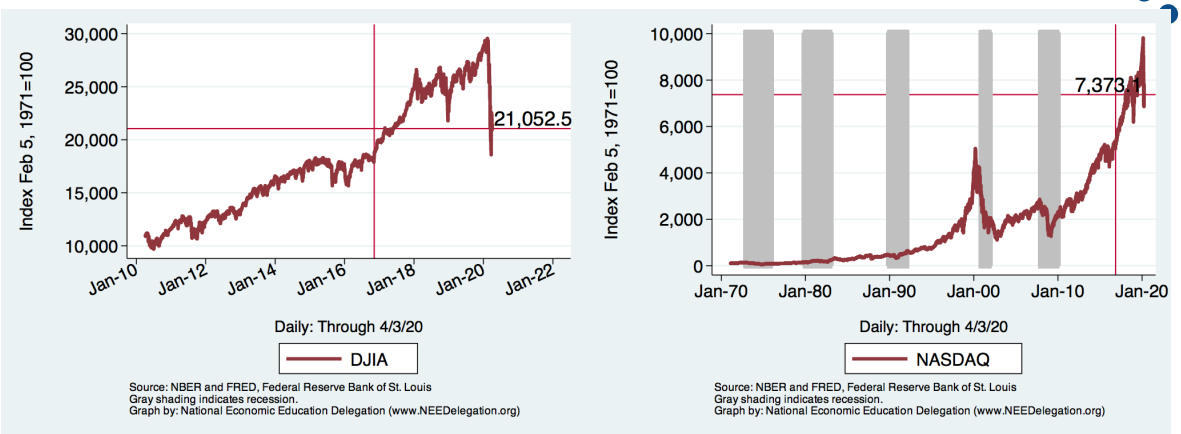
Financial Markets



Source: NBER and FRED, Federal Reserve Bank of St. Louis
Gray shading indicates recession.
Graph by: National Economic Education Delegation (www.NEEDelegation.org)

Source: NBER and FRED, Federal Reserve Bank of St. Louis
Gray shading indicates recession.
Graph by: National Economic Education Delegation (www.NEEDelegation.org)

Big Q: What happens to banks lending standards and credit markets generally?

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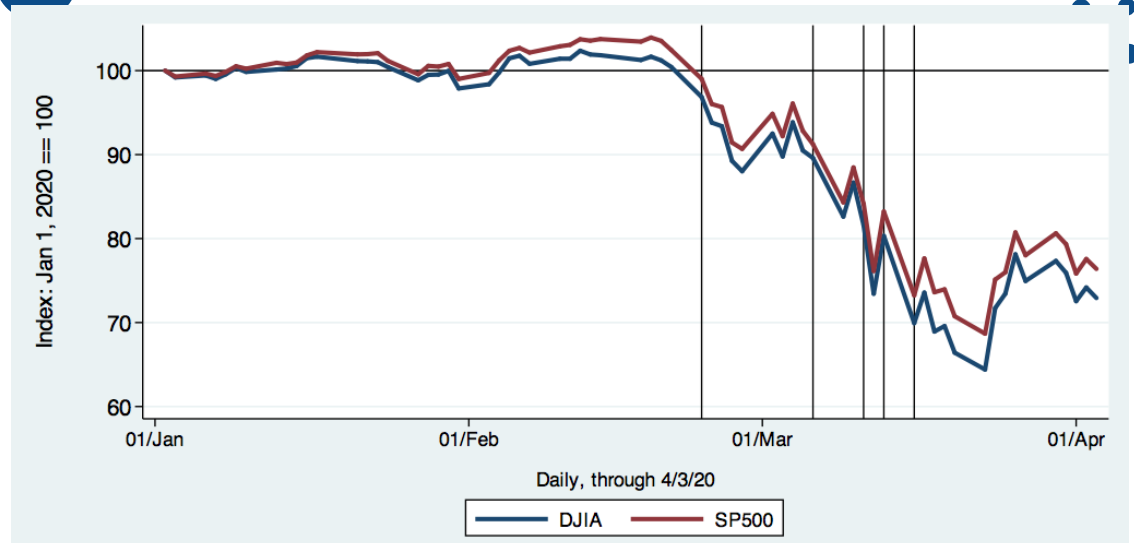
DJIA and S&P 500



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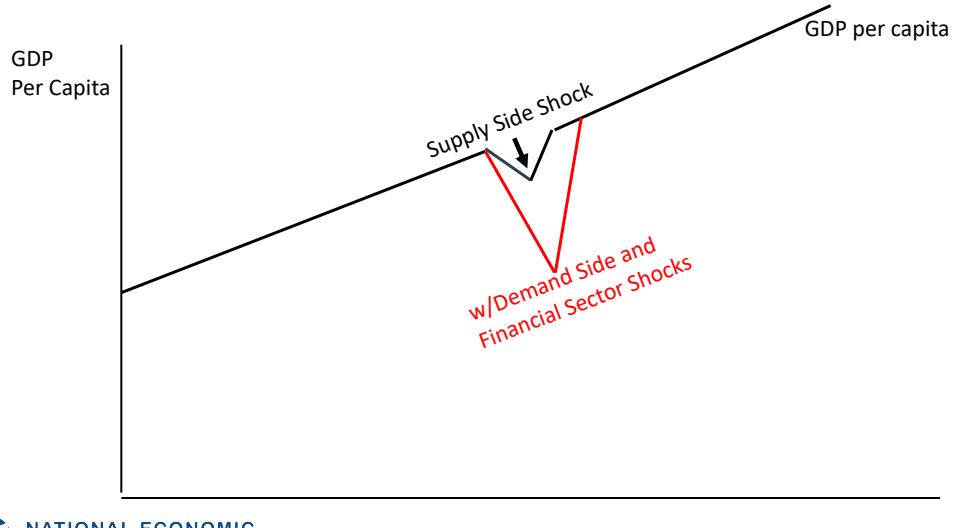
Impact on GDP of COVID-19 – No Social Distancing



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Effects of Social Distancing

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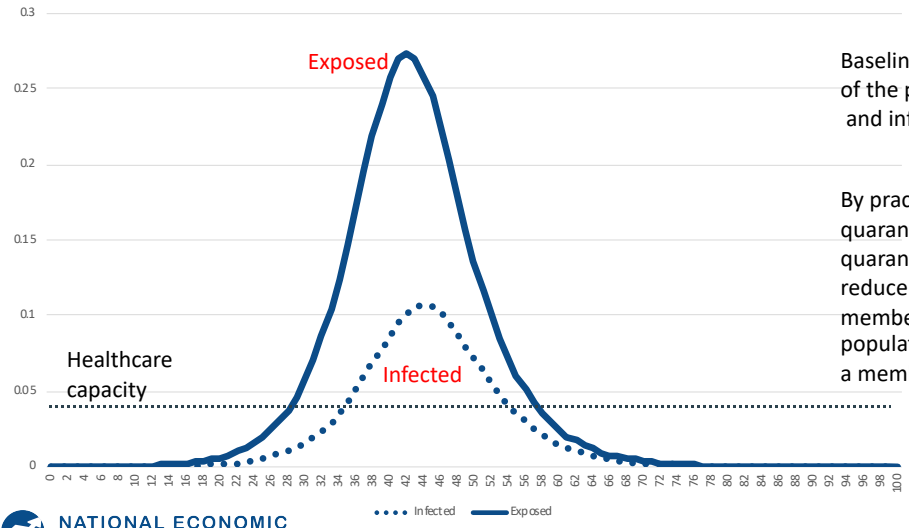
Exposed and Infected – Baseline Case



Baseline case of the fraction of the population exposed and infected.

By practicing social distancing, quarantining the sick, and self-quarantining the exposed, you may reduce the likelihood that (or when) a member of the susceptible population will be in contact with a member of the exposed population.

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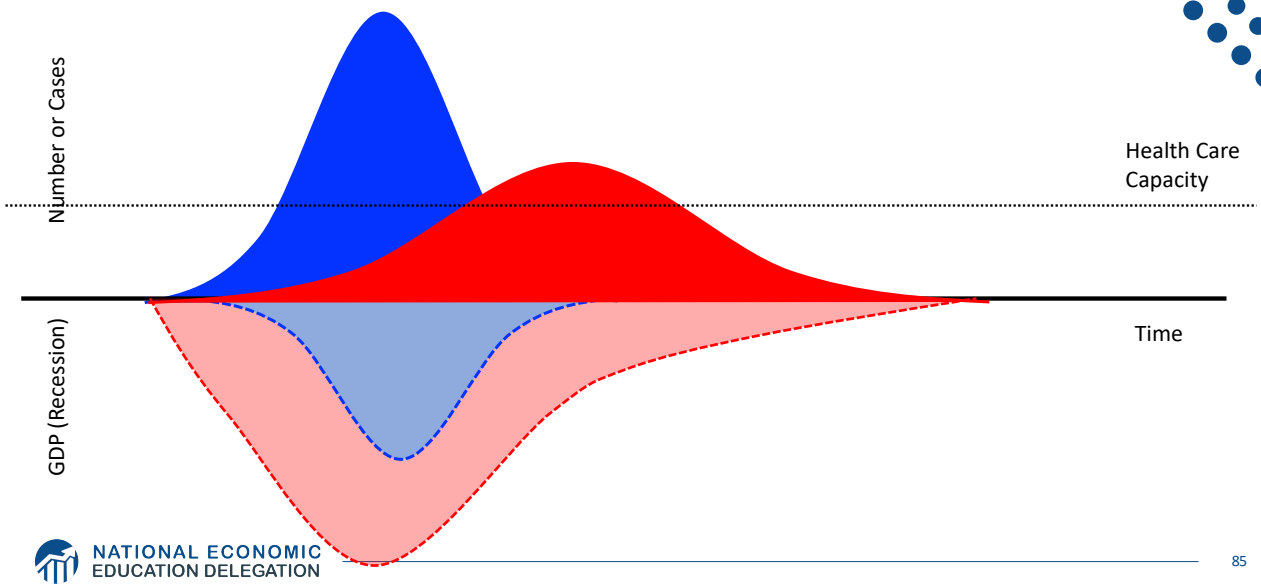
Flattening the Curve and Lengthening the Recession



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Cost Benefit Analysis: Tradeoffs

- **No containment policies**
  - **Reduced** economic activity
  - **More** coronavirus deaths
  - **Non-coronavirus deaths**
- **Stringent containment policies**
  - **Dramatically reduced** economic activity
  - **Fewer** coronavirus deaths
  - **Non-coronavirus deaths(?)**

???

Analysis of Containment Policies

Reduced economic activity < value of additional deaths

Complicated equation – both numerically and philosophically

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Cost Benefit Analysis: Some Additional Info

- **Value of a statistical life: $5-14 million**
  - Depends on what the right value of a life is.
  - Depends on net difference in # of deaths.
- **Size of the economy: ~$2 trillion per month**
  - Depends on economic impact
    - Of containment polices
    - Of unabated virus

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BOTE Cost Benefit Analysis

BOTE: Back Of The Envelope

- **If we evaluate the the value of a statistical life at $7 million, and**
- **we think that social distancing reduces the number of deaths by 600,000**
- **Benefit of Saved Lives is: $4.2 Trillion**
- **Survivors may face long-term health effects – 2 million valued each at $500,000**
- **Survivor Cost: $1 Trillion**
- **Total Benefit of Social Distancing: $5.2 Trillion**

https://twitter.com/BetseyStevenson/status/1242180499566669828

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BOTE Cost Benefit Analysis

BOTE: Back Of The Envelope

- Cost of "Shelter in Place" or "Lockdown"
- The cost of a non-workday reduces unadjusted quarterly GDP by about 0.4%.
- There are about 60+ workdays in a quarter and we lost about 1/8 or March.
- The cost of a "lockdown" is roughly $1.3 Trillion

Benefit: $5.2 trillion > Cost: $1.3 trillion

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http://caseymulligan.blogspot.com

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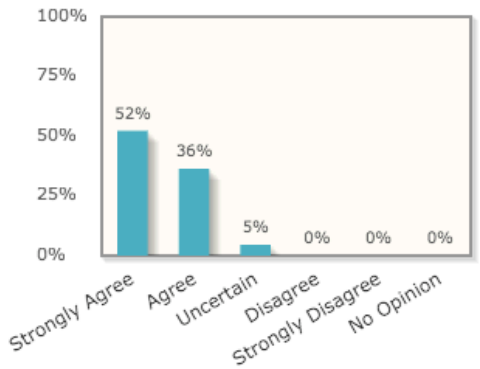
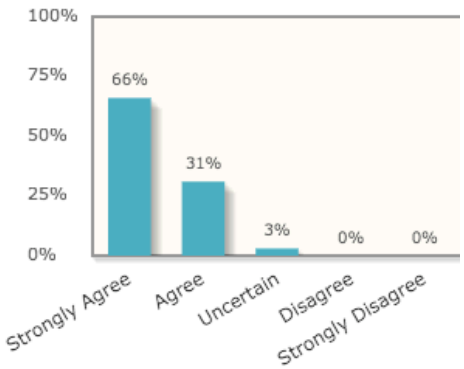
University of Chicago – Experts Poll

Question A: A comprehensive policy response to the coronavirus will involve tolerating a very large contraction in economic activity until the spread of infections has dropped significantly.

Responses



Responses weighted by each expert's confidence



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Potential Economic Costs of Shutdown

- **Unemployment**
  - About one-quarter of workers are affected by stay-at-home orders.
  - Unemployment on this scale has not been seen since the Great Depression.
- **Cascading bankruptcies of small and large businesses.**
  - Businesses face revenue shortfall and are unable to pay their fixed costs and service debt.
- **Long term: disruption from previous growth path.**
  - Perhaps permanent.

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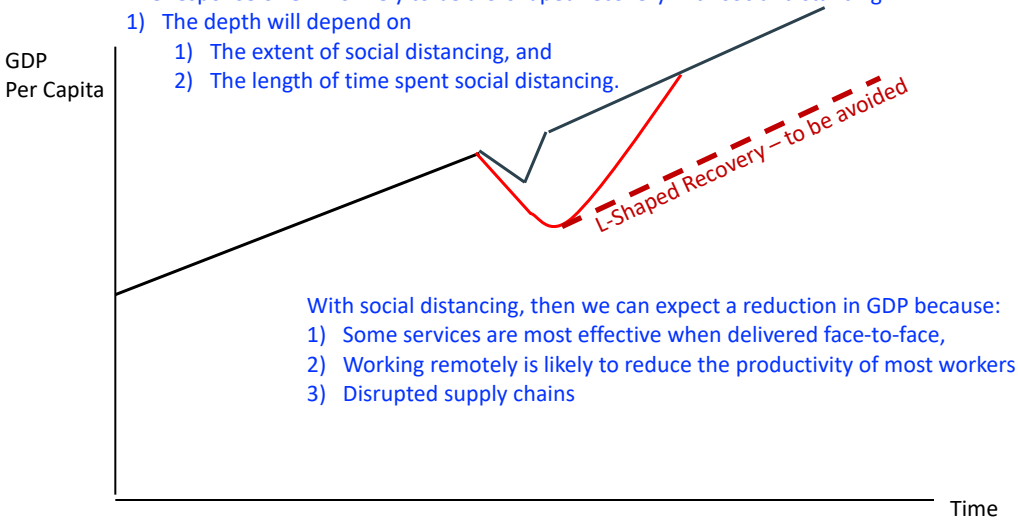
Impact on GDP of COVID-19 – W/Social Distancing

The response of GDP is likely to be a U-shaped recovery with social-distancing

1) The depth will depend on
   1) The extent of social distancing, and
   2) The length of time spent social distancing.



With social distancing, then we can expect a reduction in GDP because:

1) Some services are most effective when delivered face-to-face,
2) Working remotely is likely to reduce the productivity of most workers
3) Disrupted supply chains

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Economic Crisis Tools

Fiscal and Monetary Policy

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Fiscal Policy

- **Government spending**
  - Occurs as a matter of course, but is often increased in a time of crisis – economic or otherwise.
- **Its role in a health crisis:**
  - Infection fighting
  - Disaster relief
  - Stimulate the economy

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Fiscal Policy: This Shock is Different

- **Classical response: Stimulate the economy!**
- **This economic shock is different: "health shock"**
  - with large macroeconomic consequences.
- **Response should be:**
  - target the cause of the problem
  - provide financial support for individuals and for firms.
- **When the crisis is under control -> classical stimulus.**

Priorities for Policy

- **Policies to protect public health**
  - Long run benefits for the economy.
  - Though there may well be short run pain.
- **Policies to:**
  - Protect the economically vulnerable.
  - Policies to maintain structure of the economy.
    - Help firms stay in business, maintain ties with workers
- **Policies to stimulate aggregate demand**
  - Long run – once the economic switch is turned back on

Government Response: Fiscal Response

- **Respond to the impacted sector(s) – health crisis.**
- **Disaster relief**
  - Provide income support for the lower income and most vulnerable.
  - Provide support to maintain employer - employee matches, and
  - Provide support for the sectors that are most exposed to the shock.
- **Economic stimulus**
  - Not yet time.

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Government Response (Phase 2): H.R. 6201

- **Free testing for anyone whose doctor recommends testing.**
- **Expand family and medical leave**
- **Paid emergency sick leave**
- **Additional unemployment benefits**
- **Food assistance: Supplemental Nutrition Assistance Program (SNAP) and Home-Delivered Nutritional Services**

Clearly this is designed to increase testing and support social distancing and (self) quarantines.

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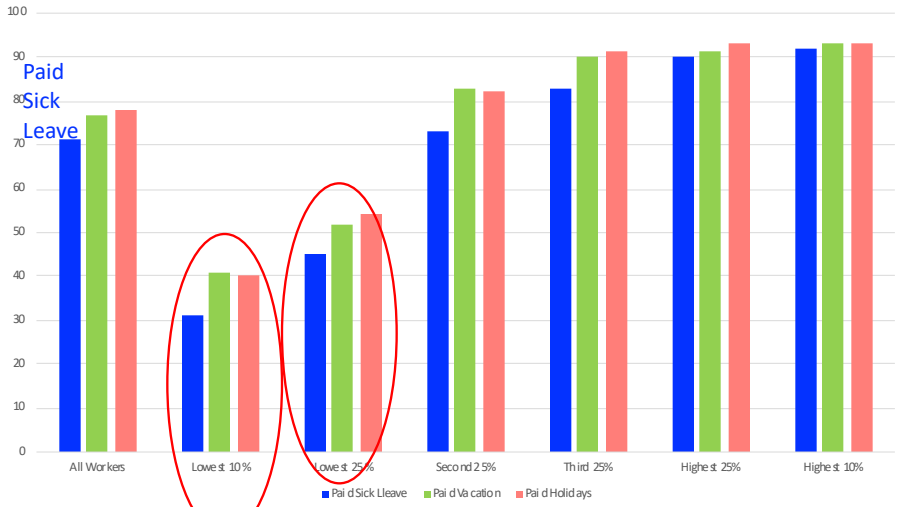
Paid Leave by Income Category



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Fiscal Response: CARES Act (Phase 3)

- **Direct payment to households $1,200 for every adult and $500 for every child – similar to the 2008 rebate but purpose is different.**
- **Small business loans -- $300 billion**
  - <500 employees and designed to cover six (6) weeks of payroll.
- **Assistance for airlines and other industries where revenues have been impacted -- $50 billion.**
- **Additional support for distressed industries -- $150 billion**
- **Payroll tax cut (not in any recent proposal).**

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Fiscal Policy Timeline

Phase	Amount ($ bn)	Action
Phase 1 March 6	$8	Emergency response, health care, vaccine development, prevention
Phase 2 March 18	$100	Paid sick leave, unemployment insurance, free virus testing
Phase 3 Pending	$250 $250 $350 $100 $17 $500 $180 $100	Direct cash payments to families with income cap; $1,200 per adult, $500 per child Enhanced unemployment benefits Small business loans up to 250% of monthly payroll Corporate tax changes Community lending Loans & loan guarantees for businesses, incl. airlines State and local governments & Education Hospitals
TOTAL	$1.5-2.5 Trillion	7-12% of GDP

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Source: J.P. Morgan Asset Management. Data are as of March 23, 2020.

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Thoughts on Policies to Date

- **Direct cash payments**
  - Are they really getting into the hands of those most in need?
- **Payments to large corporations:**
  - Airlines and car and airplane manuf.
  - How effective are these at maintaining the structure of the economy?
- **Enough to maintain employee-employer ties?**
- **Enough for medical care?**
  - The amount spent fighting the virus is relatively small.
  - Offer to pay for all coronavirus related health care expenses?

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Fiscal Policy: Phase 4

- **Stimulate the economy or more economic support?**
  - Duration of "shelter in place" will determine the answer.
- **Stimulate: Plenty of options:**
  - Spending for government programs:
    - Infrastructure, worker training, social programs
  - Expanded unemployment benefits.
  - Cash payments to individuals and businesses.
- **What form should it take?**
  - Depends on why the economy is slow to recover.
    - Supply side: businesses having trouble flipping the on switch?
    - Demand side: consumers reluctant to spend?

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OHMIGOSH: How Do We Pay For It!

- **Controversy: Can we afford it?**
  - Deficit is already running at $1T/year.
  - Debt forecast to increase to 180% of GDP by 2050 (80% today).
    - How much debt is too much?
- **Most economists agree: It doesn't matter!**
  - An important government function is to protect public health.
  - This is currently priority #1.
  - The added debt will be a problem later, but it should also be dealt with later.

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Runs Again

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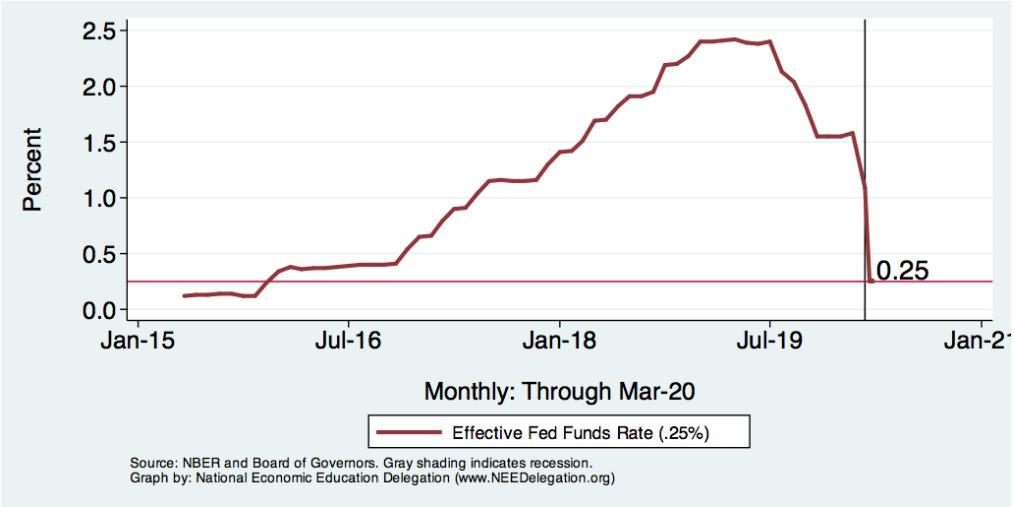
Federal Reserve Response: Federal Funds Rate



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The Most Important Roles of Monetary Policy

I. Macroeconomic Stabilization

- Raise aggregate demand by lowering interest rates.
  1. Federal Funds Rate
  2. Quantitative Easing (QE)

II. "Lender of Last Resort" - Insuring Liquidity in Lending Markets

- The Fed has unlimited access to dollars and can:
  1. Make loans directly or buy new debt issues ("market liquidity")
  2. Provide loans to intermediaries ("funding liquidity")

A Repeat of 2008

I. Macroeconomic Stabilization

1. In December of 2009, the Fed lowered the federal funds rate to essentially zero.
2. In November of 2010, the Fed started the first of 3 waves of QE, which saw the Fed acquire over $2 trillion in long-term Treasuries and mortgage-backs securities

II. Insuring Liquidity in Lending Markets by acting as the "Lender of Last Resort"

1. During late 2008 and into 2009, the Fed used, so-called, section 13(3) authority to make direct loans to banks and other companies.
2. Starting in March of 2008 (TALF), the Fed started a myriad of programs to help lenders finance maintain their lending activities

Only Much Bigger and Faster: Macroeconomic Stabilization:

I. Short-term Interest Rates

1. March 3, the Fed lowers the target range for the federal funds rate from 1.75-1.5 percent to 1.25-1.0 percent.
2. March 15, the Fed lowers the target range to 0.25-0.0 percent, essentially 0.

II. QE

1. March 15, the Fed announces a QE program
    1. $500 billion in Treasuries and
    2. $200 billion in agency mortgage-backed securities.
2. March 23, QE is unlimited and should include commercial mortgage-backed securities

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Monetary Policy Timeline

	Date	Action
Stabilization	March 3	Fed Funds Rate Lowered 1.75-1.5 to 1.25-1
	March 15	Fed Funds Rate Lowered to 0.25-0 Announced QE of $700 billion
Liquidity	March 17	Commercial Paper Funding Facility Primary Dealer Credit Facility
	March 18	Money Market Mutual Fund Liquidity Facility
	March 23	Primary Market Corporate Credit Facility Secondary Market Corporate Credit Facility Term Asset-Backed Securities Loan Facility Unlimited QE
	TBA	Main Street Business Lending Program

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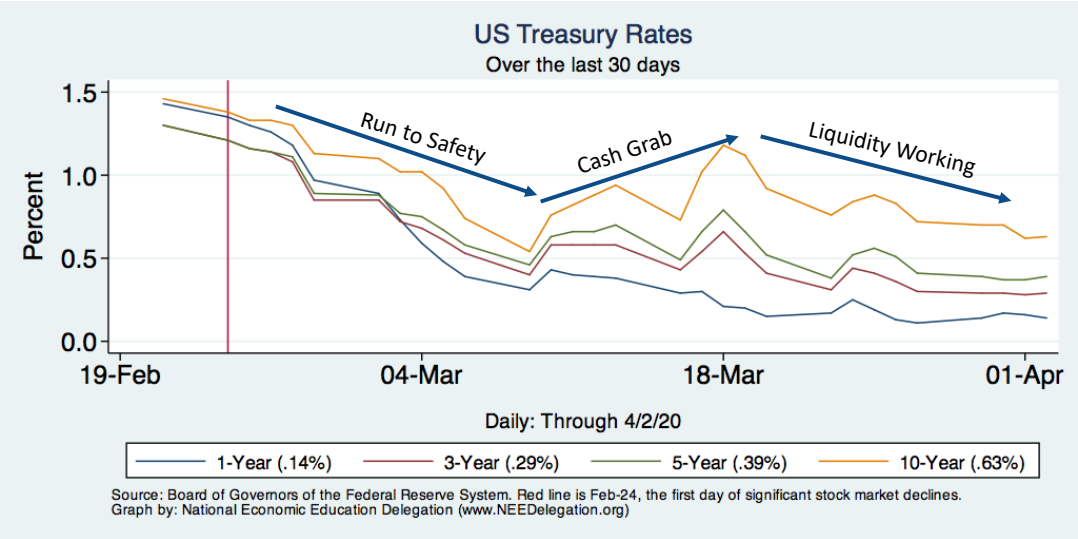
US Treasury Rates: A Safe Haven?



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What is next and what else can be done?

- **How do we pay for it?**
  - Run larger deficits
  - Run the printing press MMT
  - Firms and/or individuals borrow through Treasury
- **Additional fiscal measures.**
  - Buyer of last resort (Piketty and Zucman)
  - Employer of last resort (MMT)
- **Additional cash disbursements.**
- **Ultimately: more fiscal policy to restart the economy.**

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What have we learned? Positive Take-Aways

- **May improve the delivery of some services.**
- **Encourage firms, households, governments to have a business continuity plan.**
- **In an integrated world, this will likely not be the last pandemic…**
  - Improve social insurance for these types of events.
  - Allow more flexibility to governments and firms to respond.
- **Potential learning to be carried forward:**
  - Telecommuting
  - Telehealth
  - The value of the ”walk around the block”.

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Conclusion

- **COVID-19 is a health crisis that has extreme macroeconomic implications.**
  - Negative GDP growth likely for several quarters
- **Fiscal and monetary response:**
  - First: targeted at health crisis.
  - Second: income and employment maintenance.
  - Third: stimulate the economy when health crisis is over.
- **Broad agreement among economists: Cure < Disease**
- **Entirely likely that the economy will be stronger on the other side.**
  - Might take some time to get there.

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Big Open Questions

- **When will the dust settle?**
- **When the dust settles:**
  - How close will ties be between businesses and their pre-CV employees?
  - How much will the business environment change?
    - More automation?
    - More telecommuting?
- **Broadly speaking: How quickly can things bounce back?**
- **What will the overall economic cost be.**

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Teasers: Upcoming Lectures

- **Poverty and Economic Mobility**
- **Immigration Economics**
- **Autonomous Vehicles**

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Thank you!

Any Questions?

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