



Effect of Stay-at-Home orders on Unemployment

A study of US unemployment insurance claims

Juli You | Jose L. Moscoso | Ana B. Barcenas

April 2020



Motivation



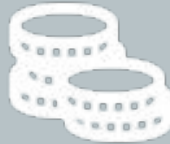
Stay-at-home orders

As of April 6th, 45 out of 50 states have issued stay-at-home orders.



Business closures

Many non-essential businesses have faced a large decrease in sales and revenues.



Solvency and liquidity problems

Small business and large corporations are facing cash outflows.



Job losses

As a result, many workers are being laid off and some companies are imposing hiring freezes.



Unemployment claims

A record number of Americans have filed for unemployment benefits for a second straight week. Almost 10 million in a two-week period.

Unemployment rate

- The unemployment rate rose to 4.4 percent and total nonfarm payroll employment fell by 701,000 in March.
- According to a study published by the Federal Reserve Bank of St. Louis on March 24, the unemployment rate could reach 32% in the second quarter of the year.

Chart 1. Unemployment rate, seasonally adjusted, March 2018 – March 2020

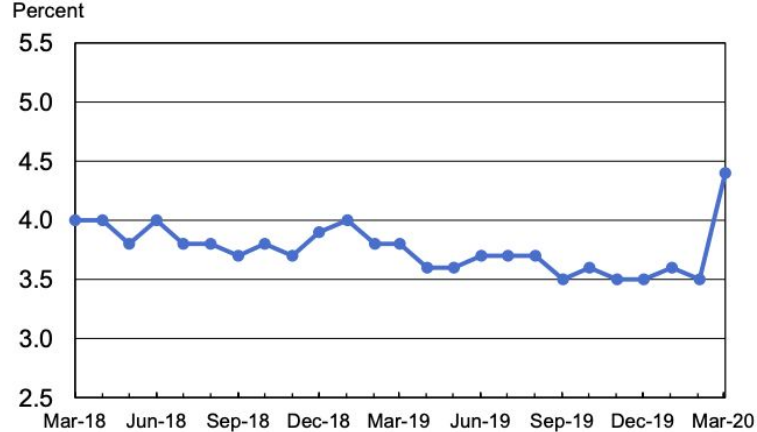
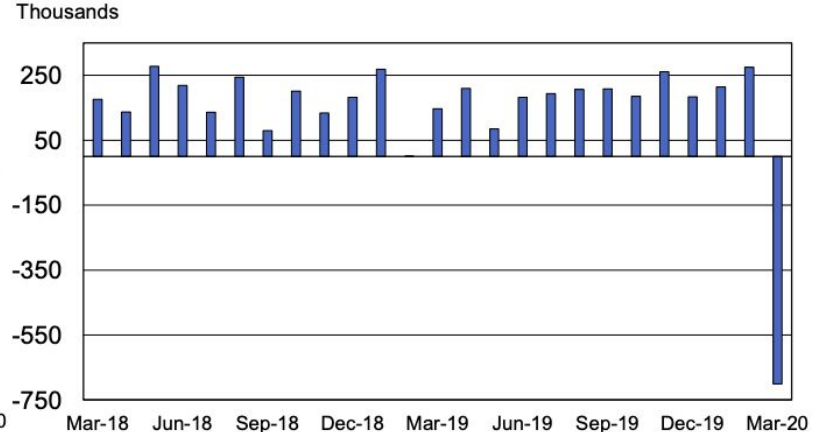


Chart 2. Nonfarm payroll employment over-the-month change, seasonally adjusted, March 2018 – March 2020



Source: U.S. Bureau of Labor Statistics

Project question

1.

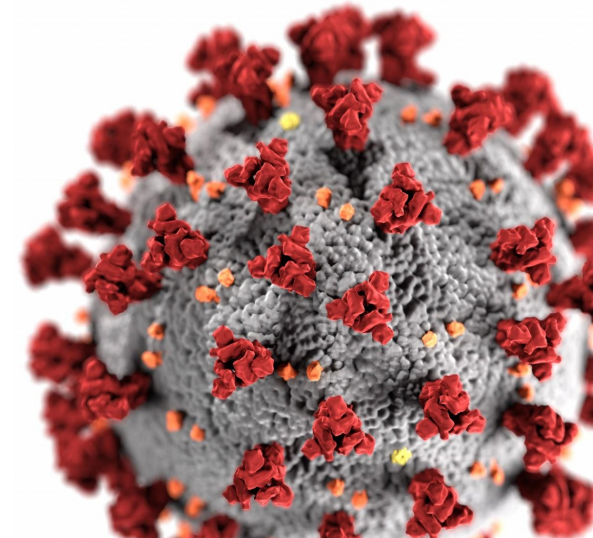
What is the effect of the stay-at-home order on insurance unemployment claims nationwide?

2.

What is the effect of the stay-at-home order on insurance unemployment claims in different states?

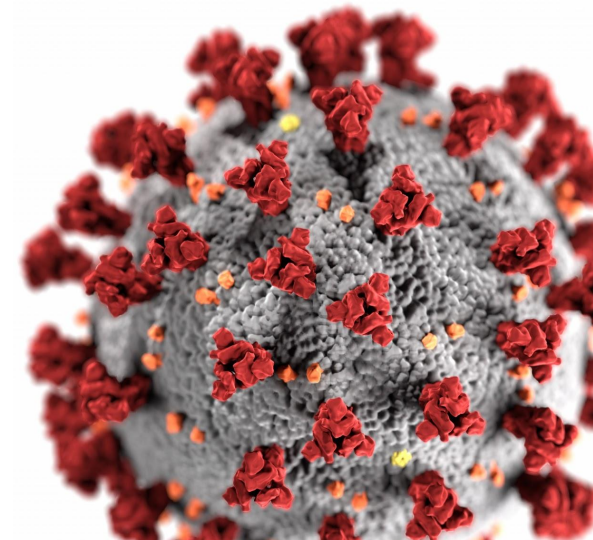
Ideal experiment

- Randomly split US population into half
 - Control group: No Stay-at-Home order imposed
 - Treatment group: Stay-at-Home order imposed
- Independent variable:
 - Binary variable: Stay-at-Home order or not
- Dependent variable:
 - Unemployment rate = (number of unemployment / population) * 100,000



Data

- Which states have Stay-at-Home order & which don't (FINRA website)
- State Stay-at-Home order dates (New York Times)
- State population (World population Data)
- Unemployment claims (US Department of Labor)
- All other control variables in state level



Project design

Nationwide

Pre-post analysis:

- Before Stay-at-Home order
- After Stay-at-Home order

Control other variables with linear regression:

- Education level
- GDP
- Avg. age of population
- % of male citizens

Evaluate the significance of treatment effect (p-value)

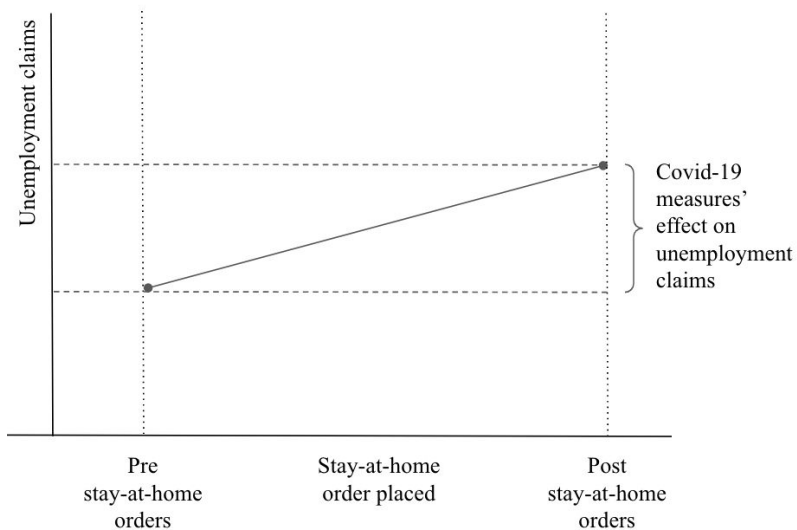
State level

Difference-in-difference analysis:

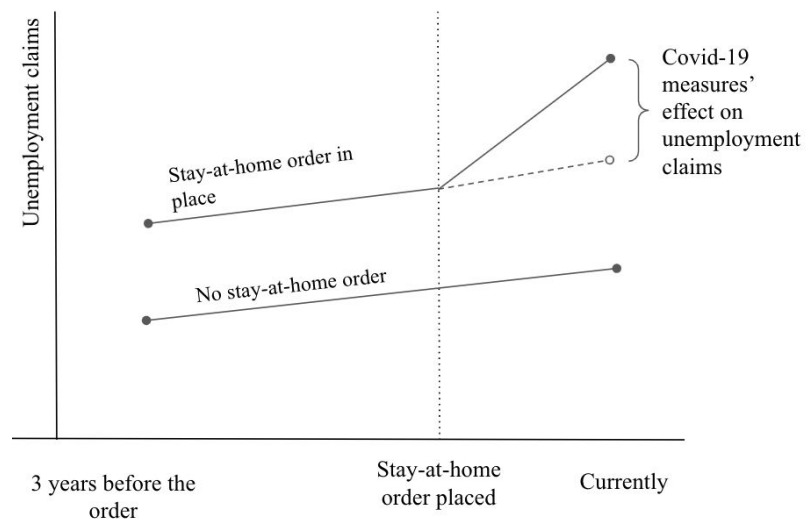
- States with Stay-at-Home order
- States without Stay-at-Home order

Expected results

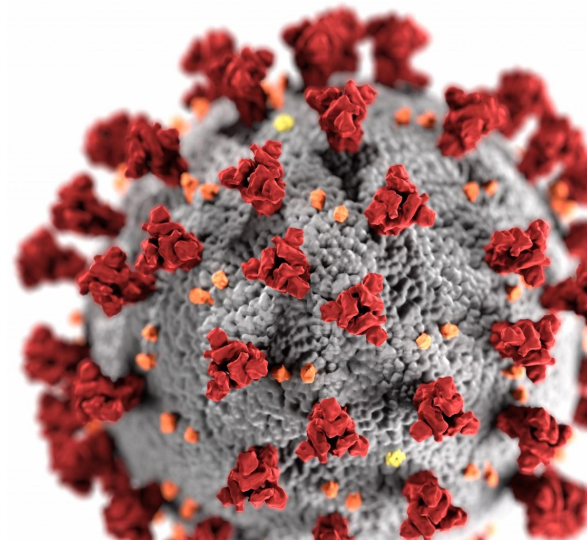
Pre-post analysis



Difference-in-difference



Thank you!



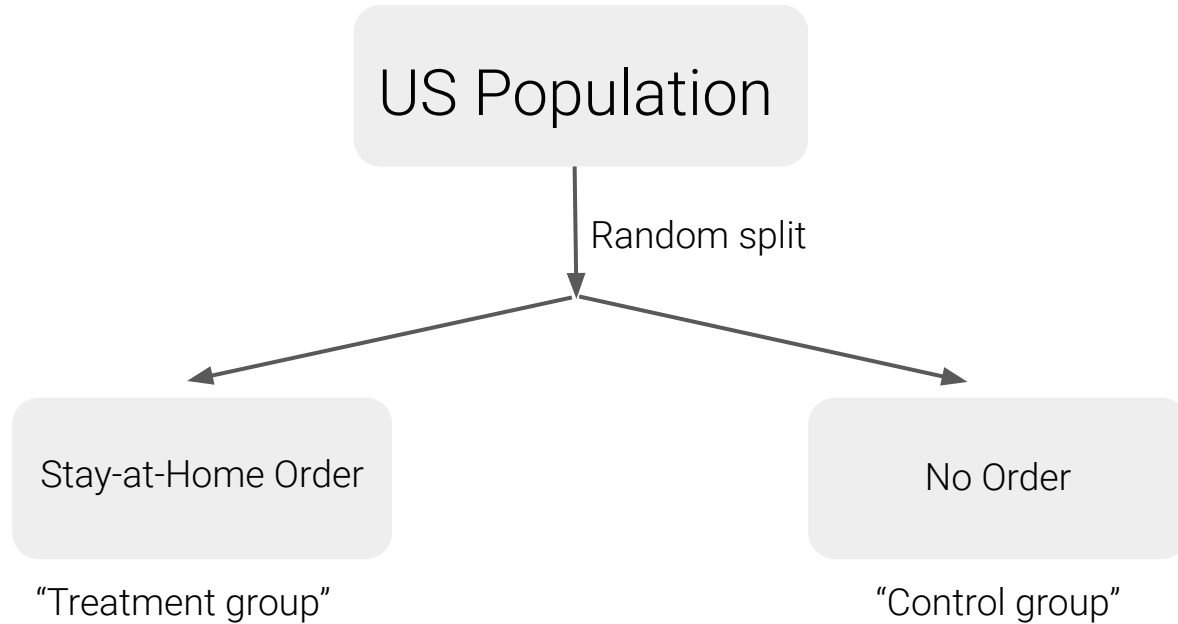
Appendix A.

Example dataset for linear regression

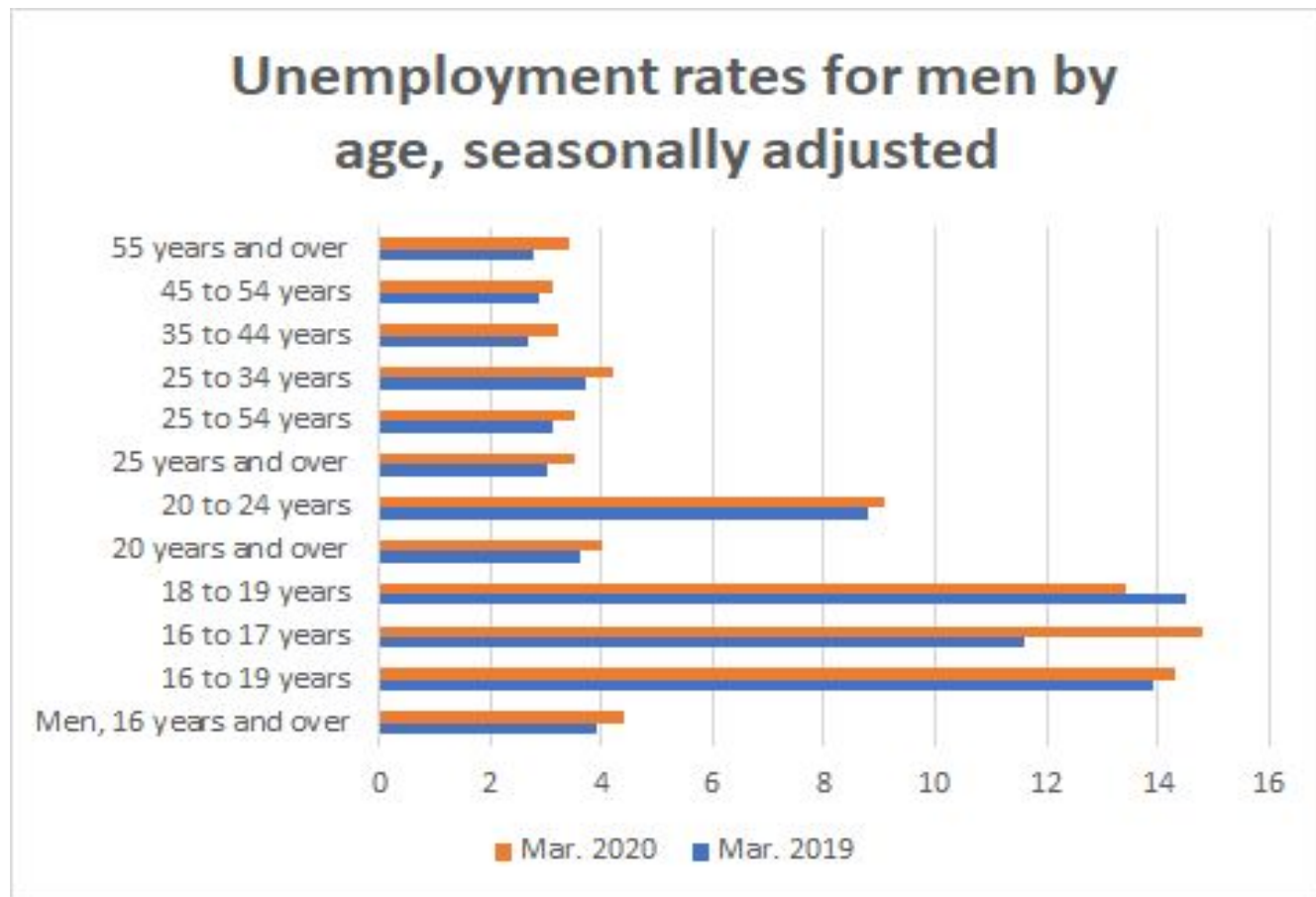
States	Education years on avg	GDP	CONTROL (stay at home order in place)	% female	Avg. age of population in the state
	10	3.5	1	40%	35
	7	4	0	60%	36
	12	4.2	0	45%	40
	9	1	1	40%	39

Appendix B.

Ideal experiment



Appendix C.



Appendix D.

