The Effect of State Level COVID-19 Stay-at-Home Orders on Death Rates

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Biographies

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Jose Marte has a B.A in Clinical Psychology from the Dominican Republic and currently in his Master's in Public Policy at Liberty University. After several years working with missionaries and non-profits in his home country, his studies' interest is more focused on international relations and improving policy in developing countries.

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Kyle is a Ph.D. student of statistics from the University of California Irvine. He spends most of his time working on understanding how changes in the observation patterns of individuals can lead to problems in the semi-parametric modeling of time-to-event data.

Problem Overview

This paper attempts to examine a correlation between lockdown length and COVID-19 case rate, death rate and fatality rate. In March of 2020, the publishing of alarmist epidemiological models prompted government officials to enact sweeping emergency measures (Miltimore 2020). Notably, the Imperial College London model published by epidemiologist Neil Ferguson predicted a "best-case scenario" of 1.1 million COVID-19 deaths in the U.S. by August 2020. This model heightened concern that the hospital system would be overwhelmed, a reason cited by President Trump's Coronavirus Task Force members, Dr. Birx and Dr. Fauci, as justification for the "15 Days to Flatten the Curve" shutdown (Magness 2020). The question of where to place blame, or praise, for the handling of the COVID-19 response, like the spread of the virus, is ongoing. United States politicians almost immediately began pointing the finger at "the other side" from the first days of public awareness of the novel virus. The federal government, and specifically former President Trump have come under fire for their approach to handling the emergency response to the virus's spread and the economic fallout that followed (Yoo 2020).

Despite the easy target, it is not the federal government nor the Executive Branch which bears sole responsibility to deal with public health, both Constitutionally and historically (Olson 2020). State governments hold more power to intervene in the realm of public health and hold the police powers to initiate and enforce local health-related measures (Yoo 2020). This paper will analyze the impact of competing COVID-19-related policies as they relate to the infection rate and death rate. It will also consider population density and population age, extent of testing, intensity of lockdowns as factors impacting death and infection rates.

This has led to the several states reacting in essentially fifty different manners to the ongoing spread of the COVID-19 virus. This is considered by some to be the proof of the resiliency of the federalist system, with states having the best view of on-the-ground conditions and ability to respond quickly to health crises (Olson 2020). Detractors point to this same attribute of decentralized authority as an illustration of the negative side of our federalist form of government, saying the "patchwork response" has enabled the ongoing spread of COVID-19 (Haffajee and Mello 2020). Some go as far as saying federalism is the problem, not the solution in times of crisis and that the states have been abandoned by the federal government's lack of leadership and is reason enough to call for the complete overhaul of the American system of governance (Kreitner 2020).

Root Causes

Since the beginning of the COVID-19 pandemic, the United States government have not been able to maintain a common voice about the crisis. As the situation has developed and conflicting statements about the severity of the COVID-19 pandemic have been published from U.S government officials, this could be potentially dangerous for the population's safety (Yeager 2020). As COVID-19 spread through the United States, state governments began to develop their own policies to slow the spread of the pandemic and established their own lockdown and reopening dates. This is due to the design of the American political system of federalism which permits a large measure of self-rule to the states to make their own decisions, letting them preserve their liberties, and reduce conflict between communities (Nivola 2005). This ability of the states to pursue their own courses of action in certain situations is enumerated in the 10th Amendment (Congress 2020).

Federalism has been a fundamental part of U.S public health authority. The rapid spread of COVID-19 has met a decentralized and piecemeal response, primarily by governors, mayors, and local health departments of each state. In this pandemic, decentralization as part of federalism played an important role on the response of the government towards the virus. During the pandemic, federalism contributed to the flexibility to customize responses for local populations of unique characteristics, help to maintain state budgets, and test new policies (Gordon, Huberfeld, and Jones 2020).

The now infamous "15 Days to Slow the Spread" shutdown launched by President Trump did not end within 15 days in any state that initiated a statewide stay-at-home order (White House 2020). In February of 2020, Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Disease declared that there was a miniscule risk of COVID-19 spread in the U.S. and that private individuals did not need to wear masks, two statements he would later contradict (O'Donnell 2020). Further, President Trump said that the distribution of a vaccine will be available to the public before the end of 2020, contradicting the Centers for Disease Control and Prevention Director Robert Redfield who stated that a vaccine would not be available until next spring. Later President Trump said of the CDC director "he's contradicting himself; distribution is going to be very rapid" (Naylor and Wise 2020). Previously, the nation's top infectious disease expert Dr. Anthony Fauci also contradicted President Trump regarding the severity of the COVID-19 pandemic in the U.S. As President Trump pushed to downplay the surge of cases and pushed to reopen, Dr. Fauci warned in a Wall Street Journal podcast that the states should seriously consider shutting down due to the resurgence of cases (Gan et al. 2020).

During this pandemic, the CDC has been criticized for conflating the results of two different types of coronavirus test, which distorted several metrics and provided the country with an inaccurate picture of the pandemic in the United States (Madrigal and Meyer 2020). These conflicting messages have been barraging the public with a mixture of inconsistent guidance due to the novel nature of COVID-19, which is still relatively poorly understood, coupled with conflicting information from scientist and politicians (Kaiser Health News 2020). Further confusion also centered around policy prescriptions relating to health mandates for mask-wearing and social distancing guidelines. One published study originally concluded that 1,000 counties saw a decrease in hospitalizations after mask mandates were enacted, but the study had to quickly be retracted because the counties analyzed soon saw a reversal with increased hospital rates (Adjodah et al. 2020).

In the summer of 2020 officials who had raised concerns regarding the public health effects of anti-lockdown protests, then turned and condoned or even joined in anti-racism protests shortly thereafter (Diamond 2020). Public officials across the country, including mayors, governors, federal health experts and most recently newly elected President Biden have been observed breaking their own COVID-19-related health rules, mandates and guidelines (Heritage 2021). The "COVID-19 hypocrisy" of public officials regarding health mandates creates skepticism toward health directives and erodes public trust (Sammin 2021).

Competing Interpretations

The state level responses and policy implementations to COVID-19 have varied widely. Many states enforced strict lockdown measures such as California, and New York, while a few resisted state mandated lockdowns all together such as South Dakota and Wyoming (New York Times 2020). Some reopened businesses and lightened restrictions quickly, such as Georgia and Florida, while many states continue to shutter certain sectors over six months later (New York

Times 2020). Observers have even pointed out that within individual states the urban and rural divide is quite distinct, with different population densities and health infrastructure, showing a one-size-fits-all approach does not work at the state level, let alone the national level (Tuccille 2020). A number of states even proceeded to implement policies attempting to block fellow American citizens from interstate travel requiring lengthy quarantine periods or even erecting physical check points at state lines to prevent non-resident travelers (Chertoff 2020).

Researchers note that the spread of COVID-19 from the early hotspots in coastal metro areas to less populated states did not occur until the stay-at-home orders had been lifted in the original virus hot spots (Jones and Kiley 2020). The earliest states to lift lockdowns saw an immediate uptick in interstate travel from states still under lockdown (Shaver 2020). Six months into the pandemic nearly 50% of cases were still only concentrated in a very narrow geographic area, representing just 1% of counties (Gonshorowski and Michel 2020).

As the States began to implement mitigation efforts and stay-at-home orders to counter the effects of the COVID-19 pandemic in the United States. States such as New York, California, Michigan, and decided to adopt strict measures and started to issue stay-at-home orders at earlier times due to the rapid increase of cases in urban areas (Appendix 1). Other states such as Texas, Georgia, and Florida started to implement less strict orders to slow the spread of the pandemic later than the previous group. However, some state governors of states such as South Dakota, Utah, and Iowa decided that the measures taken by the others states such as stay-at-home orders were not a net positive trade-off for their states.

As the COVID-19 pandemic started to impact the U.S, California, Washington, Michigan, New York, and New Jersey were among the states that decided to implement draconian measures as they started implementing stay-at home orders in late March with a minimum of 6 weeks, shut down of all non-essential business, schools, and houses of worship (New York Times 2020).

In contrast, the states of Texas, Georgia, and Florida adopted stay-at-home orders in early April, later than the previous group, and had an approximate length of 4 weeks under these measures which also shut down all non-essential business and reopened by early May. However, unlike the strictest lockdown states, Texas, Florida and Georgia did not implement as strict of policies, exemplified by allowing churches to remain open (Gjelten 2020). Based on the raw data, states with lockdowns of six weeks or more, show higher number of deaths per 100 thousand contrasted with the states under the less strict 4-week lockdowns which had higher infection rates but lower death rates than the 6+ week group (Appendix 1).

In contrast with the two previous groups, the states of South Dakota, Utah, and Iowa were among the few states where the governors did not issue stay-at-home orders and relied on the ability of citizens to make their own decisions on how to best navigate the health risks posed by the COVID-19 (Witte 2020). Based on the raw data from non-lockdown states, these states present similar numbers in the amount of infection cases per 100 thousand compared to the states that had lockdowns lasting less than one month, such as Georgia, Florida and Texas. However, the non-lockdown states had a much lower death rate per 100 thousand. However, one caveat is that the non-lockdown states tended to have lower population density than many of the states with either shorter or longer lockdowns (Appendix 1).

The current polarized political climate has extended itself into COVID-19 response. It is strikingly clear that the extent of lockdowns from state to state has largely been divided along party lines, with Republican governors leaning toward the least restrictions and earlier reopening, while Democrat governors have tended toward extensive restrictions and ongoing lockdowns

(Miltimore 2020). The states that tended to have the longest stay-at-home orders have Democrat governors and the six states with no lockdown or quickest to reopen have Republican governors (NY Times 2020). The Democrats blamed President Trump for his "failure" to meet the crisis and Republicans pointed fingers at Democrats for stalling economic relief packages in Congress and Democrat governors for keeping their states in prolonged lockdowns. Each side casting blame for the continued effects of the virus, from the death toll to the economic fallout (Bowden 2020). The COVID-19 pandemic of course made its way into the 2020 Presidential election rhetoric, with then-Democrat nominee Joe Biden incorrectly decrying 120 million COVID-19 deaths in one interview and millions of dead in another instance (Steinbuch 2020).

Impacts

As the country with the most infections in the world, the United States has suffered wide impacts in several areas by the COVID-19. Through the date used for our statistical analysis, November 4, 2020, the U.S. had experienced just over 225,000 deaths attributed to COVID-19, a tally that surpassed 500,000 deaths at the time of this writing on February 25, 2021 (COVID Tracking Project 2021). The economy has suffered strong repercussions due to the stay-at-home measures taken starting with a 9.5% drop in GDP the following quarter, a measure which had never exceeded a 3% drop (Routley 2020). Also, 50 million people remain unemployed as businesses shut down due to restrictions in most states. Through the CARES Act the government tried to stop the decline in the consumer spending of 12.6% recorded in April. However, payments expired in July 31 and were not renewed. As a counter measure, trillions of dollars were borrowed as an injection of money into the system. Despite the actions, inflation dropped to almost zero-well below the Fed's ideal 2% rate-signaling deflationary pressure (Routley 2020).

The U.S has lost more jobs than in the Great Recession, with an employment reduction by 10 million jobs or 6.5%. Accommodation and Food Services industry had lost 22% of its employment representing 3 million jobs. The Arts, Entertainment, and Recreation industry has lost 800,000 jobs as of December 2020. From February to December 2020, state government employment had dropped 7.2% and a 6.9% drop for local governments which combined represents close to 1.4 million jobs. Also, nine state governments had a 10% employment reduction since February 2021. Further, U.S GDP remains 3.4% lower compared to the end of 2019 following a small drop in the first quarter of 2020, a catastrophic drop for the second quarter, and finally a rebound in the third quarter. Finally, several other industries suffered employment reduction such as Health Care and Social Assistance with 580,000 jobs, Retail lost over 400,00 jobs, Management Services near 80,000 jobs, and Administrative, Support and Waste almost 580,000 and finally Finance and Insurance had an increase of almost 30,000 jobs (Ettlinger, and Hensley 2021).

As COVID-19 change Americans' daily lives, the education system also became strained during this crisis. Students are spending more time at home as many schools remain closed without residential classes, affecting their performance and mental health (Soland et al. 2020). COVID-19 led to school closures and negative outcomes for school children and their parents. Studies show that these detrimental effects may last beyond the immediate. Negative long-term effects of lockdowns could stay with school age children for life (Christakis, Van Cleve, Zimmerman 2020). On the other side, teachers struggle to adapt the educational content to fit an improvise online platform not only for private but also public schools. Parents face the challenge of taking care of their children while still meeting work responsibilities, as they carry the additional load of their children's day to day education (Soland et al. 2020).

Experts note that overall mental health of the population has declined dramatically as an outcome of the solitary nature of stay-at-home orders and ongoing social distancing measures (Kilgore et al. 2020). As multiple sectors in the U.S have been impacted by the pandemic, repercussions in the mental health of the population can be observed, some experts describing this crisis as an epidemiological and psychological situation. Living in isolation, job loss, financial hardship, and grief over the death of loved ones have been main causes for individuals to develop anxiety, depression, panic attacks, and suicide among the population (American Psychological Association 2020).

Closures of universities and loss of income have been pandemic-related consequences that may contribute to poor mental health for young adults, 56% of whom experience symptoms of anxiety and/or depressive disorder. Young adults compared to adults, are more likely to report substance use, 25% vs. 13%, and suicidal thoughts, 26% vs. 11%. During the pandemic, adults exposed to job loss and lower incomes reported an increase of 53% for mental illness compared to only 32% for those without job or income loss. Also, 13% of adults reported new or increased substance use due to the coronavirus-related stress until June 2020, and 11% thoughts of suicide in the past 30 days (Panchal et al. 2021).

The pandemic also collided with the 2020 presidential elections in the U.S as a potential threat that led to changes in voting, methods, preferences and outcomes. Some states decided to postpone primary elections or chose to utilize vote-by-mail as the number of infections continued to increase (John Hopkins University 2020). These measures brought different opinions among society, as Republicans asserted that voting by mail favors Democrat politicians or possible fraud. Also, Democrats explain that the Republican's opposition to mail-in-ballots is because it makes it easier for minorities and immigrants to vote as those groups don't tend to favor the Republican Party (Dickie 2020).

During 2020 presidential elections, 26.6 million mail-in votes were cast out of nearly 53 million total votes. The number of voters who cast their ballots by mail increased this year across several states. Nevada is an example where 98.4% of the more than 491,600 votes in the state primary were mail ballots, while in 2018 it was less than 9%. The COVID-19 pandemic showed a direct effect on mail voting patterns for 2020. Before March 13, the average by-mail share in primaries was 11.3%. After Trump declared the pandemic a national emergency, the average was 51.5%. About 65% of Americans agreed that the option to vote early or absentee should be available to any voter without requiring a documented reason. Also, there was a higher number of Democrats and Democrats-leaning independents than Republicans supporting "no excuse" absentee or early voting (83% vs. 44%). Finally, 58% of Joe Biden supporters said they prefer to send their vote by mail, while only 17% of Trump supporters agreed with this system (Desilver 2020).

MethodologyResearch Question: Did lengthier state-level Lockdowns intended to curb the spread of COVID-19 result in lower infection and death totals than occurred in states with no or shorter lockdowns?

The predictor variable in this study was lockdown time length. We employed multiple quasi-Poisson regression because of the larger number of predictor variables which needed to be controlled. Quasi-Poisson was chosen due to all outcome variables being measured are rates and the need to measure number of days on state under stay-at-home-orders (i.e., lockdowns). The outcome variables were quantitative, measuring death rate and infection case rate. The confounding variables included in our analysis are median age, population density, state population, state health index, prevalence of obesity, COVID testing/100k, COVID cases/100k, COVID deaths/100k, COVID fatality rate, percent of population inactive, percent of population active, mass transit trips per capita, percent American Indian, percent Asian, percent Black, percent Hispanic, percent other race, percent White, and whether the state had a Democrat governor or Republican governor. Further, we tested two main hypothesis and alternatives.

Hypothesis 1 (null): There is no relationship between the predictor variable of longer lockdowns and the outcome variable of COVID-19 death totals

Hypothesis 1: There is an inverse relationship between the outcome variable of longer lockdowns and COVID-19 death totals (the longer the lockdown, the lower the death totals)

Hypothesis 2 (null): There is no relationship between the predictor variable of longer lockdowns and the outcome variable of COVID-19 infection rates

Hypothesis 2: There is an inverse relationship between the outcome variable of longer lockdowns and COVID-19 infection rates (the longer the lockdown, the lower the infection rate)

Results

We estimate that the states with 2-4 weeks of lockdown had 31% lower odds of having confirmed cases of COVID-19 compared to a state with no lockdown where the two states have similar population densities, median ages, health indices, percentage of the population who is inactive, public transit usage, and racial demographic profiles. We estimate that a state with 4-6 weeks of lockdown had a 34% lower odds to have confirmed cases of COVID-19 compared to a state with no lockdown for two states with similar population densities, median ages, health indices, percentage of the population who is inactive, public transit usage, and racial demographic profiles. We estimate that a state with 6+ weeks of lockdown had the a 48% lower odds of having confirmed cases of COVID-19 compared to a state with no lockdown for two states with similar population densities, median ages, health indices, percentage of the population who is inactive, public transit usage, and racial demographic profiles.

We estimate that the states with 2-4 weeks of lockdown had 23% lower odds to have a death from COVID-19 compared to a state with no lockdown where the two states have similar population densities, median ages, health indices, percentage of the population who is inactive, public transit usage, and racial demographic profiles. We estimate that a state with 4-6 weeks of lockdown had a 25% lower odds to have a death due to COVID-19 compared to a state with no lockdown for two states with similar population densities, median ages, health indices, percentage of the population who is inactive, public transit usage, and racial demographic profiles. We estimate that a state with 6+ weeks of lockdown had 15% lower odds to have a death from COVID-19 compared to a state with no lockdown for two states with similar population densities, median ages, health indices, percentage of the population who is inactive, public transit usage, and racial demographic profiles. 6+ weeks of lockdown is the only setting where the odds of dying are statistically higher than in the no lockdown case. This relationship is fairly strongly driven by New York, which is exactly why time series data would be much better for this type of analysis.

Discussion

Our findings regarding a positive or negative correlation between lockdown length and COVID-19 death and infection rates are inconclusive. States with a variety of lockdown policies had a wide variety of death and infection rates. At face value the raw data can easily be interpreted to show states with no lockdown having far lower death rates than many states with longer lockdowns, while states with long lockdowns tended to have lower infection rates, but a higher fatality rate. However, the date of first COVID-19 infection and population demographics are vastly different, leading to incongruous comparisons. Raw data is misleading, but policymakers in such situations will have little reaction time and imperfect data for decision making lending credence to the efficacy of decentralized decision making.

Limitations

The major limitations that this methodology encountered include the ambiguity of whether the death rate caused the need for lockdowns or if the lockdowns contributed to an increased death rate. Furthermore, there is a paucity of states with similar demographics to properly compare the effect of various policy approaches specific to lockdown length.

Recommendations

Our recommendations for further research would to be to utilize time series data to analyze the effect of lockdowns on death and infection rates by controlling for the number of days that transpired from first COVID-19 infection to first day of stay-at-home order. Finally, we recommend the use of metro area or county level data rather than state level data to better understand the differences of various lockdown policies in areas with more similar demographics.

Table A: Descriptive Statistics

Below are the means and standard deviations of the variables provided stratified by the 4 lockdown lengths that are used to define levels of “lockdown severity.” The last two rows include breakdowns of the number of states with a Governor who is Republican vs Democrat.

	No Lockdown	2-4 Weeks	4-6 Weeks	6+ Weeks
	(N=7)	(N=12)	(N=15)	(N=16)
Number Days Home	0 (0,0)	29 (28.5, 34)	46 (40.5, 53)	68 (62, 75)
Median Age	37.7(35.15, 38.3)	37.8(36.95, 39.65	39 (38.15, 41.25)	39.6(38.85, 40.5)
Population Density	25.2(11.35, 47.75	60.55 (24.85, 138.3	89.3 (65.9, 220.8)	224.25 (164.3, 456.2)
State Population	1,929,148.22 (821,103.42, 3,085,003.45)	3,488,924 (2,332,967.66, 5,927,015.2)	5,699,580.93 (2,997,749.76, 6,409,819.27)	8,025,909.72 (2,833,888.69, 11,038,547.23)
Health Index	0.3 (0.22, 0.35)	0.35 (-0.71, 0.03)	0.23 (-0.31, 0.39	0.22 (-0.24, 0.58)
Obesity	33.9 (31.1, 34.6)	34.15 (29.5, 34.6)	30.1 (27.6, 33.05)	30.65 (27.25, 33.25)
Testing/100k	44,336 (29,071, 46,842.5)	35,006.5 (28,048.5, 48,016.5)	47,358 (42,497, 57,037.5)	47,296 (38,019, 59,683)
Cases/100k	3,839 (3,782, 4,888)	3,430.5 (3,252, 3,877.5)	2,800 (1,715.5, 3,375)	2,266 (1,806, 2,643.5)
Deaths/100k	50 (26.5, 60.5)	55 (35.5, 69.5)	45 (31, 74)	59 (38.5, 104)
COVID Fatality Rate	0.01 (0.01, 0.01)	0.01 (0.01, 0.02)	0.02 (0.02, 0.02)	0.03 (0.02, 0.05)
Percent Inactive	25.4 (24.95, 26.65)	29.5 (26.45, 32.05)	25.2 (22, 29.2)	25.25 (24, 28.1)
Percent Active	50.8 (47.95, 53.95	47 (43.75, 51.95)	51.1 (48.8, 57)	50.2 (48.4, 52.75)
Transit Trips/capita	18 (9.5, 25)	19 (8, 44.5)	61 (45.5, 71)	82.5 (47, 90.5)
% American Indian	1 (0.65, 4.15)	0.55 (0.25, 3.5)	0.4 (0.25, 0.7)	0.2 (0.1, 0.35)
% Asian	1.7 (1.4, 2.4)	1.95 (1.3, 4.35)	2.8 (1.9, 3.95)	4.25 (2.8, 7.55)
% Black	3 (1.55, 3.9)	10.35 (4.2, 26.75)	5.5 (3.4, 10.3)	11.45 (5.25, 14.15)
% Hispanic	7.4 (4.75, 10.45)	8.3 (4.75, 12.15)	6.9 (4.7, 18.45)	9.95 (6.2, 16.65)
% Other	2.4 (2.05, 2.7)	2.6 (2, 3.75)	2.7 (2.15, 3.05)	2.55 (2.1, 2.9)
% White	82.3 (78.65, 84.2)	64.55 (54.6, 74.9)	75.6 (56.6, 80.55)	64.85 (58.15, 75.7)
Democrat Gov	0 (0%)	3 (25%)	8 (53%)	13 (81%)
Republican Gov	7 (100%)	9 (75%)	7 (47%)	3 (19%)

Median (IQR = 25 percentile in data, 75 percentiles in data) for everything except “Democrat Gov” and “Republican Gov”
“Democrat Gov” and “Republican Gov” are number in group (% of group)

Table B: COVID Cases per Capita

Table of Results for the model:
In (COVID cases per capita) = b0 + b1 *(2-4week lockdown) +b2 *(4-6week lockdown) +b3 *(6+week lockdown) + b4*(population density) + b5*(median age) + b6*(health index) + b7*(percent inactive) + b8*(Transit Trips Per Capita) + b9*(% of Indigenous) + b10*(% Asian) + b11*(% Non-Hispanic Black) + b12*(% Hispanic) + b13*(Non-Hispanic White)

B0 is uninterpreted.

The interpretation of b1 is: we estimate that the states with 2-4 weeks of lockdown had 31% lower odds of having confirmed cases of COVID-19 compared to a state with no lockdown where the two states have similar population densities, median ages, health indices, percentage of the population who is inactive, public transit usage, and racial demographic profiles.

- Note: 31% = (1 - 0.6929)*100% (and rounded)
- Note: the confidence interval runs from 46% lower odds to 11% lower odds. Thus, (technically) the conclusion can be made that a 2–4-week lockdown was successful in decreasing the rate of COVID-19 cases compared to states that performed no such lockdown.

    - It is very possible that the number and the increase is an artifact of small sample size and some uncollected confounder.
- Note: the odds are defined as (probability an event occurs/(1-probability an event occurs). In this case, that means that the odds of have a confirmed case of COVID-19 is (probability of someone testing positive for COVID-19 in this state)/(1-probability of someone testing positive for COVID-19 in this state)
    - Of important note: the odds are the same as a probability.
        - ODDS =/= PROBABILITY
        - ODDS =/= CHANCE

The interpretation of b2 is: we estimate that a state with 4-6 weeks of lockdown had a 34% lower odds to have confirmed cases of COVID-19 compared to a state with no lockdown for two states with similar population densities, median ages, health indices, percentage of the population who is inactive, public transit usage, and racial demographic profiles.

- Note: 34% = (1- 0.658)*100% (and rounded)
- Note: the confidence interval runs from 52% lower odds to 10% lower odds. Thus, (technically) the conclusion can be made that a 4-6 week lockdown was successful in decreasing the rate of COVID-19 cases compared to states that performed no such lockdown.
    - It is very possible that the number and the increase is an artifact of small sample size and some uncollected confounder.
- Note: the odds are defined as (probability an event occurs/(1-probability an event occurs). In this case, that means that the odds of have a confirmed case of COVID-19 is (probability of someone testing positive for COVID-19 in this state)/(1-probability of someone testing positive for COVID-19 in this state)
    - Of important note: the odds are the same as a probability.
        - ODDS =/= PROBABILITY
        - ODDS =/= CHANCE

The interpretation of b3 is: we estimate that a state with 6+ weeks of lockdown had the a 48% lower odds of having confirmed cases of COVID-19 compared to a state with no lockdown for two states with similar population densities, median ages, health indices, percentage of the population who is inactive, public transit usage, and racial demographic profiles.

- Note: 48% = (1- 0.5175)*100% (and rounded)
- Note: the confidence interval runs from 60% lower odds to 34% lower odds. Thus, (technically) the conclusion can be made that a 6+ week lockdown was successful in decreasing the rate of COVID-19 cases compared to states that performed no such lockdown.

- It is very possible that the number and the increase is an artifact of small sample size and some uncollected confounder.
- Note: the odds are defined as (probability an event occurs/(1-probability an event occurs). In this case, that means that the odds of have a confirmed case of COVID-19 is (probability of someone testing positive for COVID-19 in this state)/(1-probability of someone testing positive for COVID-19 in this state)
    - Of important note: the odds are the same as a probability.
        - ODDS =/= PROBABILITY
        - ODDS =/= CHANCE

	Exponentiated Coefficients	95% Confidence Interval	P-Value
Intercept	2.00E-04	(0, 0.2313)	0.0183
2-4 Week Lockdown	0.6929	(0.5383, 0.8919)	0.0044
4-6 Week Lockdown	0.6580	(0.4797, 0.9026)	0.0094
6+ Week Lockdown	0.5175	(0.404, 0.6628)	0
Population Density	1.0002	(0.9999, 1.0004)	0.1768
Median Age	1.0009	(0.9755, 1.0269)	0.9474
Health Index	0.9558	(0.6623, 1.3793)	0.809
Percent Inactive	1.0091	(0.6623, 1.3793)	0.5817
Transit Usage	1.0010	(0.9949, 1.0071)	0.7519
American Indian	1.0985	(0.9951, 1.2125)	0.0624
Asian	1.0472	(0.9557, 1.1475)	0.3229
NH Black	1.0627	(0.9872, 1.144)	0.1057
Hispanic	1.0549	(0.9803, 1.1352)	0.1534
NH-White	1.0530	(0.9746, 1.1378)	0.1909

Table C: COVID Cases per Capita

ln(COVID deaths per capita) = b0 + b1 *(2-4week lockdown) +b2 *(4-6week lockdown) +b3 *(6+week lockdown) + b4*(population density) + b5*(median age) + b6*(health index) + b7*(percent inactive) + b8*(Transit Trips Per Capita) + b9*(% of Indigineous) + b10*(% Asian) + b11*(% Non-Hispanic Black) + b12*(% Hispanic) + b13*(Non Hispanic White)

B0 is uninterpreted.

The interpretation of b1 is: we estimate that the states with 2-4 weeks of lockdown had 23% lower odds to have a death from COVID-19 compared to a state with no lockdown where the two states have similar population densities, median ages, health indices, percentage of the population who is inactive, public transit usage, and racial demographic profiles.

- Note: 23% = (1 - 0.7672)*100% (and rounded)
- Note: the confidence interval runs from 45% lower odds to 8% higher odds. Thus, no conclusion can be made about an increase of 23% lower odds meaning anything at all. It is very possible that the number and the increase is an artifact of small sample size and some uncollected confounder.
- Note: the odds are defined as (probability an event occurs/(1-probability an event occurs). In this case, that means that the odds of have a death due to COVID-19 is (probability of someone dying from COVID-19 in this state)/(1-probability of someone dying from COVID-19 in this state)

        - Of important note: the odds are the same as a probability.
            - ODDS =/= PROBABILITY
            - ODDS =/= CHANCE

The interpretation of b2 is: we estimate that a state with 4-6 weeks of lockdown had a 25% lower odds to have a death due to COVID-19 compared to a state with no lockdown for two states with similar population densities, median ages, health indices, percentage of the population who is inactive, public transit usage, and racial demographic profiles.

- Note: 25% = (1 - 0.7539)*100% (and rounded)
- Note: the confidence interval runs from 49% lower odds to 12% higher odds. Thus, no conclusion can be made about an increase of 25% lower odds meaning anything at all. It is very possible that the number and the increase is an artifact of small sample size and some uncollected confounder.
- Note: the odds are defined as (probability an event occurs/(1-probability an event occurs). In this case, that means that the odds of have a death due to COVID-19 is (probability of someone dying from COVID-19 in this state)/(1-probability of someone dying from COVID-19 in this state)
    - Of important note: the odds are the same as a probability.
        - ODDS =/= PROBABILITY
        - ODDS =/= CHANCE

The interpretation of b3 is: we estimate that a state with 6+ weeks of lockdown had 15% lower odds to have a death from COVID-19 compared to a state with no lockdown for two states with similar population densities, median ages, health indices, percentage of the population who is inactive, public transit usage, and racial demographic profiles.

- Note: 15% = (1 -0.8522)*100% (and rounded)
- Note: the confidence interval runs from 44% lower odds to 30% higher odds. Thus, no conclusion can be made about an increase of 15% lower odds meaning anything at all. It is very possible that the number and the increase is an artifact of small sample size and some uncollected confounder.
- Note: the odds are defined as (probability an event occurs/(1-probability an event occurs). In this case, that means that the odds of have a death due to COVID-19 is (probability of someone dying from COVID-19 in this state)/(1-probability of someone dying from COVID-19 in this state)
    - Of important note: the odds are the same as a probability.
        - ODDS =/= PROBABILITY
        - ODDS =/= CHANCE

	Exponentiated Coeffecients	95% Confidence Interval	P-Value
Intercept	0	(0,0)	0
2-4 Week Lockdown	0.7672	(0.5469, 1.0762)	0.1249
4-6 Week Lockdown	0.7539	(0.5067, 1.1215)	0.1633
6+ Week Lockdown	0.8522	(0.5594, 1.2982)	0.4563
Population Density	1.0002	(0.9996, 1.0009)	0.4651
Median Age	1.0503	(0.9997, 1.1035)	0.0513
Health Index	1.3635	(0.8202, 2.2666)	0.2318
Percent Inactive	1.075	(1.0196, 1.1335)	0.0074
Transit Usage	1.0086	(1.0016, 1.0155)	0.0152
American Indian	1.268	(1.0619, 1.5141)	0.0087
Asian	1.1954	(1.0228, 1.3972)	0.0249
NH Black	1.1804	(1.0459, 1.3322)	0.0072
Hispanic	1.1611	(1.0312, 1.3074)	0.0136
NH-White	1.1612	(1.0261, 1.3141)	0.0178

Table D: COVID Cases per Capita

ln(COVID deaths per case) = b0 + b1 *(2-4week lockdown) +b2 *(4-6week lockdown) +b3 *(6+week lockdown) + b4*(population density) + b5*(median age) + b6*(health index) + b7*(percent inactive) + b8*(Transit Trips Per Capita) + b9*(% of Indigineous) + b10*(% Asian) + b11*(% Non-Hispanic Black) + b12*(% Hispanic) + b13*(Non Hispanic White)

Note: interpretations will be the same. But now we have increased odds of dying per confirmed case of COVID-19.
Also Note: 6+ weeks of lockdown is the only setting where the odds of dying are statistically higher than in the no lockdown case. This relationship is fairly strongly driven by New York, which is exactly why I think time series data are much better for this type of analysis.

	Exponentiated Coefficients	95% Confidence Interval	P-Value
Intercept	0	(0, 2e-04)	1E-04
2-4 Week Lockdown	1.1945	(0.7631, 1.87)	0.4369
4-6 Week Lockdown	1.2164	(0.7196, 2.056)	0.4646
6+ Week Lockdown	1.7156	(1.0297, 2.8586)	0.0382
Population Density	1.0002	(0.9996, 1.0007)	0.5417
Median Age	1.0454	(0.9948, 1.0985)	0.0795
Health Index	1.4447	(0.8372, 2.4931)	0.1863
Percent Inactive	1.0625	(1.0078, 1.1203)	0.0246
Transit Usage	1.0064	(0.9981, 1.0147)	0.1302
American Indian	1.1399	(1.0083, 1.2887)	0.0365
Asian	1.129	(1.0052, 1.2681)	0.0407
NH Black	1.0985	(1.0211, 1.1819)	0.0118
Hispanic	1.0872	(1.0144, 1.1653)	0.0181
NH-White	1.0906	(1.0092, 1.1786)	0.0284

For both analyses, quasi-Poisson regression was used to model the rate of deaths per capita and cases per capita while also accounting for the mean variance relationship and overdispersion in

the data. Confidence intervals and p-values are reported using a robust variance estimator due to the belief that the counts are not truly Poisson and that there is potential problem with the variance estimates as is.
The below are using 2019 data that does not include any measure of "hispanic"

ln(COVID cases per capita) = b0 + b1 *(2-4week lockdown) +b2 *(4-6week lockdown) +b3 *(6+week lockdown) + b4*(population density) + b5*(median age) + b6*(health index) + b7*(percent inactive) + b8*(Transit Trips Per Capita) + b9*(% of Indigineous) + b10*(% Asian) + b11*(% Black) + b12*(White)

	Exponentiated Coefficients	95% Confidence Interval	P-Value
Intercept	0.0213	(0.0061, 0.074)	0
2-4 Week Lockdown	0.7045	(0.5574, 0.8905)	0.0034
4-6 Week Lockdown	0.671	(0.4881, 0.9226)	0.0141
6+ Week Lockdown	0.5078	(0.3905, 0.6603)	0
Population Density	1.0002	(1, 1.0004)	0.0859
Median Age	0.9955	(0.9705, 1.0212)	0.7297
Health Index	0.9314	(0.6279, 1.3815)	0.7238
Percent Inactive	1.0109	(0.9777, 1.0454)	0.524
Transit Usage	1.0017	(0.9952, 1.0081)	0.6162
American Indian	1.0306	(1.005, 1.0569)	0.0188
Asian	0.9957	(0.9931, 0.9984)	0.0016
Black	1.0119	(0.9998, 1.0242)	0.0535
White	1.0045	(0.994, 1.0151)	0.4014

ln(COVID deaths per capita) = b0 + b1 *(2-4week lockdown) +b2 *(4-6week lockdown) +b3 *(6+week lockdown) + b4*(population density) + b5*(median age) + b6*(health index) + b7*(percent inactive) + b8*(Transit Trips Per Capita) + b9*(% of Indigineous) + b10*(% Asian) + b11*(%Black) + b12*(White)

	Exponentiated Coefficients	95% Confidence Interval	P-Value
Intercept	0	(0, 1e-04)	0
2-4 Week Lockdown	0.7458	(0.5388, 1.0323)	0.077
4-6 Week Lockdown	0.7054	(0.4801, 1.0364)	0.0754
6+ Week Lockdown	0.7876	(0.5182, 1.1971)	0.2637
Population Density	1.0004	(0.9997, 1.001)	0.2551
Median Age	1.0472	(0.9902, 1.1076)	0.1063
Health Index	1.3713	(0.7811, 2.4074)	0.2715
Percent Inactive	1.0776	(1.0196, 1.139)	0.0081
Transit Usage	1.0098	(1.0025, 1.0172)	0.0087
American Indian	1.0589	(0.9914, 1.1309)	0.0885
Asian	0.9978	(0.9904, 1.0053)	0.5667
Black	1.0164	(0.9923, 1.041)	0.185
White	0.9985	(0.9842, 1.0131)	0.8426

In (COVID deaths per case) = b0 + b1 *(2-4week lockdown) +b2 *(4-6week lockdown) +b3 *(6+week lockdown) + b4*(population density) + b5*(median age) + b6*(health index) + b7*(percent inactive) + b8*(Transit Trips Per Capita) + b9*(% of Indigineous) + b10*(% Asian) + b11*(% Black) + b12*(White)

	Exponentiated Coefficients	95% Confidence Interval	P-Value
Intercept	5.00E-04	(0, 0.0072)	0
2-4 Week Lockdown	1.128	(0.7474, 1.7026)	0.5662
4-6 Week Lockdown	1.1183	(0.6832, 1.8302)	0.6566
6+ Week Lockdown	1.6241	(0.983, 2.6834)	0.0584
Population Density	1.0003	(0.9997, 1.0008)	0.3245
Median Age	1.0451	(0.9881, 1.1053)	0.1234
Health Index	1.5169	(0.8706, 2.6429)	0.1413
Percent Inactive	1.0591	(1.0067, 1.1142)	0.0267
Transit Usage	1.0066	(0.9982, 1.015)	0.1228
American Indian	1.0257	(0.9713, 1.0831)	0.3617
Asian	1.0025	(0.9961, 1.009)	0.4453
Black	1.0076	(0.9886, 1.0269)	0.4358
White	0.9953	(0.9814, 1.0094)	0.512

Appendix 1

	California	Michigan	New York	New Jersey	Texas	Georgia	Florida	South Dakota	Utah	Iowa
No Lockdown	0	0	0	0	0	0	0	1	1	1
16 Days-1 month	0	0	0	0	2	2	0	0	0	0
1 month-1.5 month	3	0	0	0	0	0	3	0	0	0
1.5 months-Indefinite	0	4	4	4	0	0	0	0	0	0
Lockdown Duration	3	4	4	4	2	2	3	1	1	1
Length of Stay at Home (Days)	47	67	84	81	29	29	32	0	0	0
Median Age	37	39.8	39.2	40.2	35.1	37.2	42.4	37.7	31.2	38.5
Population Density (per mile square)	253.7	176.7	412.8	1207.8	111	184.6	400.7	11.7	39	56.5
Health Index	0.398	-0.209	0.512	0.553	-0.204	-0.447	-0.213	0.149	0.628	0.289
Obesity	26.2	36	27.1	25.7	34	33.1	27	33	29.2	33.9
Extent of testing per 100k November 3	47383	49136	75102	52285	28425	34071	47358	29716	44336	28426
Cases per 100k	2363	2080	2647	2726	3194	3466	3784	5538	3776	4238
COVID case total November 4	934672	207763	517015	242825	916773	364589	805924	48854	119375	133762
COVID death total November 4, 2020	17666	7761	33324	16371	18194	8029	16890	446	602	1765
COVID case fatality rate	0.0189	0.037	0.064	0.067	0.020	0.022	0.021	0.009	0.005	0.013
COVID deaths per 100,000	44	77	170.62	183	63	76	79	50	19	55
Percent of Non-Exercising adults	20	27.2	27.2	29	32.1	31	29.2	24.9	21.1	25
Percentage of active adults (150 min exercise per week)	57.5	49.5	49.3	48.9	41.9	46.1	49.5	50.8	54	50.2
Transit trips per capita (US DOT score)	86	50	99	99	52	65	61	9	31	41
Political Affiliation of Governor (1=D, 2=R)	1	1	1	1	2	2	2	2	2	2
American Indian or Alaska Native Alone	0.81	0.57	0.38	0.21	0.5	0.4	0.28	8.57	1.1	0.8
Asian Alone	14.84	3.28	8.64	9.64	4.99	4.14	2.79	1.3	2.39	2.41
Black or African American Alone	5.78	13.73	15.85	13.55	12.26	31.94	16.02	2.36	1.15	4.1
Native Hawaiian And Other Pacific Islander	0.39	0.02	0.04	0.04	0.09	0.07	0.08	0.23	0.96	0.06
Some other race alone	13.73	1.14	8.55	6.43	5.91	3.03	3.35	0.67	3.85	1.01
Two or More Races alone	5.01	3.03	3.34	2.98	2.88	2.68	2.94	2.79	3.23	2.16
White Alone	59.44	78.22	63.2	67.15	73.37	57.75	74.54	84.07	87.32	89.87

References

American Psychological Association. "Psychological Impact of COVID-19". Accessed September 14, 2020. https://www.apa.org/topics/covid-19/psychological-impact.

Bowden, John. 2020. "Pelosi hits Trump, White House over stalled coronavirus negotiations". *The Hill*. August 23, 2020. https://thehill.com/homenews/sunday-talk-shows/513274-pelosi-hits-trump-white-house-over-stalled-coronavirus.

Braverman, Kevin. 2020. "Gov. Kemp advises against elderly people going to church." 11 Alive. March 12, 2020. https://www.11alive.com/article/news/health/coronavirus/gov-kemp-advises-against-elderly-people-going-to-church/85-299b76f1-f14b-49ae-96e0-1269c9cdeead

Butcher, Johnathon and Burke, Lindsay. 2021. "The Education Lesson From COVID Lockdowns: School Choice Is Imperative for Every Child." https://www.heritage.org/education/commentary/the-education-lesson-covid-lockdowns-school-choice-imperative-every-child

Carter, Joe. 2015. "3 questions to counter arguments from the economic left." Acton Institute. November 12, 2015. https://blog.acton.org/archives/83316-3-questions-to-counter-arguments-from-the-economic-left.html

Chertoff, Meryl. 2020. "The Right to Travel and National Quarantines: Coronavirus Tests the Limits". *Georgetown Law*. 2020. https://www.law.georgetown.edu/salpal/the-right-to-travel-and-national-quarantines-coronavirus-tests-the-limits/.

Christakis, Dimitri, Van Cleve, and Zimmerman, Frederick. 2020. "Estimation of US Children's Educational Attainment and Years of Life Lost Associated With Primary School Closures During the Coronavirus Disease 2019 Pandemic." *JAMA Network Open.* November 23, 2020. doi:10.1001/jamanetworkopen.2020.28786

Congress. 2020. "Amdt 10.1 Tenth Amendment: Historical Background." Constitution Annotated. Accessed October 10, 2020. https://constitution.congress.gov/browse/essay/amdt10_1/.

COVID Tracking Project. 2021. "Totals for the US." The Atlantic. Accessed February 28, 2021. https://covidtracking.com/data/national.

Desilver, Drew. 2020. "Mail-in Voting Became Much More Common in 2020 Primaries as Covid-19 Spread." *Fact Tank.* (Fall). https://www.pewresearch.org/fact-tank/2020/10/13/mail-in-voting-became-much-more-common-in-2020-primaries-as-covid-19-spread/.

Dhaval Adjodah, Karthik Dinakar, Samuel P. Fraiberger, George W. Rutherford, David V. Glidden, Monica Gandhi 2020. “Decrease in Hospitalizations for COVID-19 after Mask Mandates in 1083 U.S. Counties." medRxiv 2020.10.21.20208728; doi: https://doi.org/10.1101/2020.10.21.20208728

Dickie, Gloria. 2020. “Trump vs. Biden: How COVID-19 Will Affect Voting for President”. *Scientific American*. (June). https://www.scientificamerican.com/article/trump-vs-biden-how-covid-19-will-affect-voting-for-president1/.

Diamond, Dan. 2020. “Suddenly, Public Health Officials Say Social Justice Matters More Than Social Distance.” Politico. June 4, 2020. https://www.politico.com/news/magazine/2020/06/04/public-health-protests-301534.

Ettlinger, Michael, and Jordan Hensley. 2021. “Covid-19 Economic Crisis: By State”. *University of New Hampshire.* (Spring). https://carsey.unh.edu/COVID-19-Economic-Impact-By-State.

Frølund, Claus. 2020. “Yes, There Are Tradeoffs between Disease Prevention and Economic Destruction.” Mises Institute. April 7, 2020. https://mises.org/wire/yes-there-are-tradeoffs-between-disease-prevention-and-economic-destruction

Gabbatt, Adam. 2020. “New U.S Measures Threaten Civil Rights Amid Coronavirus Pandemic”. *The Guardian*. (March). https://www.theguardian.com/world/2020/mar/31/civil-liberties-us-coronavirus-outbreak-policies.

Gan, Nectar, Steve George, Laura Smith-Spark, Ed-Upright, Meg Wagner, and Melissa Macaya. 2020. “July 10 Coronavirus News”. *CNN*, July 10, 2020. https://www.cnn.com/world/live-news/coronavirus-pandemic-07-10-20-intl/h_f0c44648e43819d8501c8e682acd498a.

Gjelten, Tom. 2020. “States Consider Whether Religious Services Qualify As 'Essential.'” *NPR.* April 1, 2020. https://www.npr.org/sections/coronavirus-live-updates/2020/04/01/825667542/states-consider-whether-religious-services-qualify-as-essential.

Gonshorowski, Drew and Michel, Norbert. 2020. “Just 1% of U.S. Counties Have Had Nearly Half of All COVID-19 Deaths.” Heritage Foundation. September 22, 2020. https://www.heritage.org/public-health/commentary/just-1-us-counties-have-had-nearly-half-all-covid-19-deaths

Gordon, Sarah, Nicole Huberfeld, and David Jones. 2020. “What Federalism Means for the US Response to Coronavirus Disease 2019”. *JAMA Health Forum*. (May). https://jamanetwork.com/channels/health-forum/fullarticle/2766033.

Hayek, F.A. 1991. *The Fatal Conceit: The Errors of Socialism.* Chicago: University of Chicago Press.

Heritage Foundation. 2021. “COVID Hypocrisy: Policymakers Breaking Their Own Rules.” Heritage Foundation. https://www.heritage.org/data-visualizations/public-health/covid-hypocrisy-policymakers-breaking-their-own-rules/.

Fischer, Kahlib J. 2020. "Biblical Principles of Government and Criminal Justice." *Liberty University Journal of Statesmanship & Public Policy*: Vol. 1: Iss. 1, Article 3. https://digitalcommons.liberty.edu/jspp/vol1/iss1/3

Johns Hopkins University. “COVID-19 Likely to Weigh on U.S Elections Turnout, Outcomes”. Accessed September 14, 2020. https://hub.jhu.edu/2020/04/16/covid-19-2020-presidential-election-democratic-primary/.

Jones, Bradley and Kiley, Jocelyn. 2020. “The Changing Geography of COVID-19 in the U.S.” Pew Research Center. December 8, 2020. https://www.pewresearch.org/politics/2020/12/08/the-changing-geography-of-covid-19-in-the-u-s/

Kreitner, Richard. 2020. “When Confronting the Coronavirus, Federalism Is Part of the Problem”. *The Nation*. April 1, 2020. https://www.thenation.com/article/politics/federalism-coronavirus-problem-government/

Kaiser Health News. 2020. “Conflicting COVID Messages Create Cloud of Confusion Around Public Health and Prevention”. *U.S News*, June 19, 2020. https://www.usnews.com/news/healthiest-communities/articles/2020-06-19/conflicting-coronavirus-messages-create-confusion-misinformation.

Killgore, William D., Cloonan, Sara A., Taylor, Emily C., and Natalie S. Dailey. 2020. "Loneliness: A Signature Mental Health Concern in the Era of COVID-19." *Psychiatry Research* 290, (2020): 113117-113117.

Kuyper, Abraham. “Sphere Sovereignty.” Public Address at Free University, October 20, 1880. Translated by George Kamps. Accessed February 14, 2021. https://www.scribd.com/document/316848766/Abraham-Kuyper-Sphere-Sovereignty-pdf.

Madrigal, Alexis, Robinson Meyer. 2020. “How Could the CDC Make That Mistake?”. *The Atlantic*. May 21, 2020. https://www.theatlantic.com/health/archive/2020/05/cdc-and-states-are-misreporting-covid-19-test-data-pennsylvania-georgia-texas/611935/.

Magness, Phillip. 2020. "Twelve Times the Lockdowners Were Wrong." American Institute for Economic Research. December 26, 2020. https://www.aier.org/article/twelve-times-the-lockdowners-were-wrong/.

McDemortt, Jackie, and Lana Ulrich. 2020. "COVID-19 and the Constitution – Key Takeaways". *National Constitution Center*. (April). https://constitutioncenter.org/interactive-constitution/blog/covid-19-and-the-constitution-key-takeaways.

Mello, Michelle M. "Thinking Globally, Acting Locally — the U.S. Response to Covid-19." *The New England Journal of Medicine* 382, no. 22 (May 28, 2020), http://ezproxy.liberty.edu/login?qurl=https%3A%2F%2Fwww.proquest.com%2Fdocview%2F2407348231%3Faccountid%3D12085.

Miltimore, Jon. 2020. "Why Conservatives and Liberals Are Responding to COVID-19 in Such Different Ways". *Foundation for Economic Freedom.* May 20, 2020. https://fee.org/articles/why-conservatives-and-liberals-are-responding-to-covid-19-in-such-different-ways/

Monsma, Steve. 2008. *Healing For A Broken World.* Wheaton, IL: Crossway Books.

Naylor, Brian, Alana Wise. 2020. "Contradicting The CDC, Trump Says COVID-19 Vaccine Could Be Ready by End of Year". *NPR, (*September): https://www.npr.org/sections/coronavirus-live-updates/2020/09/16/913560563/cdc-director-says-covid-vaccine-likely-wont-be-widely-available-until-next-year.

New York Times. 2020. "See How All 50 States Are Reopening (and Closing Again)". New York Times. Accessed September 15, 2020. https://www.nytimes.com/interactive/2020/us/states-reopen-map-coronavirus.html

Nivola, Prieto. 2020. "Why Federalism Matters". *Brookings.* (October). https://www.brookings.edu/research/why-federalism-matters/.

O'Donnel, Jayne. 2020. "Top disease official: Risk of coronavirus in USA is 'minuscule'; skip mask and wash hands." USA Today. February 17, 2021.

Olson, Walter. 2020. "Constitutionally, Religious Gatherings Must Enjoy the Same Rights As Protest Gatherings". *Cato*. June 8, 2020. https://www.cato.org/blog/religious-assemblies-must-enjoy-same-rights-public-protests.

Olson, Walter. "Federalism and the Coronavirus Lockdown; Trump can't Order the Country Back to Normalcy by April 30 Or any Day. that's for States to Decide." *Wall Street Journal (Online),* Mar 30, 2020. http://ezproxy.liberty.edu/login?qurl=https%3A%2F%2Fwww.proquest.com%2Fdocview%2F2384319047%3Faccountid%3D12085.

Panchal, Nirmita, Rabah Kamal, Cynthia Cox, and Rachel Garfield. 2010. "The Implications of Covid-19 for Mental Health and Substance Use". KFF. (Spring).

https://www.kff.org/coronavirus-covid-19/issue-brief/the-implications-of-covid-19-for-mental-health-and-substance-use/.

Polumbo, Brad. 2021. “4 Life-Threatening Unintended Consequences of the Lockdowns.” Foundation for Economic Education. August 25, 2020. https://fee.org/articles/4-life-threatening-unintended-consequences-of-the-lockdowns/

Routley, Nick. 2020. “Charts: The Economic Impact of COVID-19 in the U.S So Far”. Visual Capitalist. (July). https://www.visualcapitalist.com/economic-impact-of-covid-h1-2020/.

Sammin, Kyle. 2021. “Politicians’ COVID Hypocrisy Destroys People’s Faith In Government.” The Federalist. January 11, 2021 https://thefederalist.com/2021/01/11/politicians-covid-hypocrisy-destroys-peoples-faith-in-government/.

Selin, Jennifer. 2020. “How the Constitution’s Federalist Framework is Being Tested by Covid-19”. *Brookings*. (June). https://www.brookings.edu/blog/fixgov/2020/06/08/how-the-constitutions-federalist-framework-is-being-tested-by-covid-19/.

Shaver, Katherine. "Smartphone Data shows Out-of-State Visitors Flocked to Georgia as Restaurants and Other Businesses Reopened: Researchers Say the Data shows the Potential Perils of Reopening States Piecemeal Amid the Coronavirus Pandemic." The Washington Post. May 7, 2020. http://ezproxy.liberty.edu/login?qurl=https%3A%2F%2Fwww.proquest.com%2Fblogs%2C-podcasts%2C-websites%2Fsmartphone-data-shows-out-state-visitors-flocked%2Fdocview%2F2399620884%2Fse-2%3Faccountid%3D12085

Soland, Jim, Megan Kuhfeld, Beth Tarasawa, Angela Johnson, Erik Ruzek, and Jing Liu. 2020. “The Impact of COVID-19 on students Achievement and What it means for Educators”. Brookings. (May). https://www.brookings.edu/blog/brown-center-chalkboard/2020/05/27/the-impact-of-covid-19-on-student-achievement-and-what-it-may-mean-for-educators/.

Sowell, Thomas. 2009. *Applied Economics: Thinking Beyond Stage One*. New York: Basic Books.

Steinbuch, Yaron. 2020. “Joe Biden says there are ‘120 million dead from COVID’ in latest gaffe”. *New York Post.* June 26, 2020. https://nypost.com/2020/06/26/joe-biden-wrongly- says-we-have-120-million-dead-from-covid/

Sullum, Jacob. 2020. “Do Pandemic-Inspired Bans on Religious Services Violate the First Amendment? Circuit Courts Are Split”. Reason. May 27, 2020. https://reason.com/2020/05/27/do-pandemic-inspired-bans-on-religious-services-violate-the-first-amendment-circuit-courts-are-split/

Tuccille, J.D. 2020. “Stop Ignoring the Different Needs of Rural Areas and Cities Responding to COVID-19”. *Reason.* March 25, 2020. https://reason.com/2020/03/25/stop-ignoring-the- different-needs-of-rural-areas-and-cities-responding-to-covid-19/

White House. 2020. “15 Days to Slow the Spread.” White House. March 16, 2020. https://trumpwhitehouse.archives.gov/articles/15-days-slow-spread/

Witte, Griff. 2020. “South Dakota’s governor resisted ordering people to stay home. Now it has one of the nation’s largest coronavirus hot spots." Washington Post. April 13, 2020. https://www.washingtonpost.com/national/south-dakotas-governor-resisted-ordering-people-to-stay-home-now-it-has-one-of-the-nations-largest-coronavirus-hot-spots/2020/04/13/5cff90fe-7daf-11ea-a3ee-13e1ae0a3571_story.html

Yoo, John. 2020. “Pandemic Federalism”. National Review. March 20, 2020. https://www.nationalreview.com/2020/03/pandemic-federalism/