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Citizen Mobility, Lockdowns, and the Limits of Political Leadership

Abstract

This article addresses the effectiveness of government mandates on citizen mobility and whether mandated lockdowns contained the Covid-19 virus from March 2020-June 2021. All states and nations in this study (with the exception of Sweden) used legal strictures to constrain mobility in attempting to contain Covid-19 hospitalizations and deaths per million. Of 13 cases examined here there were three statistically significant relationships between mandated lockdowns and hospitalizations and deaths per million, and these correlations are negative. Mandated lockdowns decreased citizens' movement, but lockdown efficacy decreased over time. State mandated lockdowns did not have a statistically significant impact on decreasing the spread of Covid-19 deaths or hospitalizations. In addition, the more stringent the lockdowns, the greater the economic damage.

Policy Implications

When confronted with the Covid-19 pandemic, most decision-makers quickly adopted a series of non-pharmaceutical interventions including "stay at home" orders meant to isolate the citizenry from one another to halt the spread of the virus. Two policy questions arise: did the stay-at-home orders reduce mobility and did reduced mobility significantly constrain the spread of the virus? During the first 16 months of the Covid-19 pandemic, our evidence shows mobility decreased but mandated lockdowns did not reduce the spread of the virus and the tighter the lockdown the higher the economic cost. In spite of lockdowns, the virus remained resilient until vaccines were developed and distributed. In hindsight, the widespread lockdown policies implemented in our sample of countries and U.S. states amounted to a significant policy failure.

Keywords: Covid-19; pandemic; lockdown policies; Asia; Europe; United States.

Introduction

Since the Black Plague of 1347 governments have sought, with varied success, to halt the spread of pandemics by restricting foreigners, closing city gates, setting up hospitals, cleaning affected areas, quarantining the infected, and wearing masks. When the Covid-19 pandemic struck the city of Wuhan, Chinese authorities locked down the population and cut it off from the outside world, effectively halting economic activity to curb mobility in order to suppress the spread of the virus. As the contagion spread to other countries, variations of the Wuhan lockdown model

were adopted around the world. In the end, at least 186 countries worldwide responded to Covid-19 with a mix of government-mandated containment measures and voluntary behavior changes (Herby, 2021). Government mandates varied but included combinations of stay-at-home orders, social distancing, mask wearing, household quarantines, shop and school closures, prohibitions of mass gatherings, and travel restrictions. Most governments in the spring of 2020 thought that quick, comprehensive, and resolute action, along the lines of what the Chinese government had done in Wuhan, would contain the spread of the virus. Scholarly studies investigating the *early* effects of lockdowns (i.e., between March and August 2020), however, emphasized that more intrusive government interventions did not meet the expectations of the governments that promulgated them. Mandated behavior changes accounted for "9% of the total effect on the growth of the pandemic stemming from behavioral changes, whereas the remaining 91% of the effect was due to voluntary behavior changes." (Herby, 2021:1).

This article is a preliminary comparative discussion of the effectiveness of government-mandated and voluntary containment measures in selected countries in Europe (i.e., Germany, Italy, Sweden, and the United Kingdom), Asia (i.e., Indonesia, Japan, and Korea), and parts of the United States (U.S.) (i.e., California, Florida, Iowa, Maryland, New York, and North Dakota) in the early stages of the pandemic, that is, February-March 2020 to June 2021. In this article, countries and states are non-randomly selected. Their choice was motivated by the severity of the Covid -19 pandemic, in terms of deaths and hospitalizations per million, as well as the type and severity of the national and local government lockdown responses. Understanding whether interventions have *effectively* controlled the pandemic is particularly relevant because of the divergent economic and social costs associated with them.

1. Data and methodological approach

We considered six non-randomly selected countries: Germany, Indonesia, Italy, Japan, South Korea, Sweden, the UK and six states in the U.S., (California, Florida, Iowa, Maryland, New York, and North Dakota). We focused our research on country-cases from Europe, North America, and Asia because of the specific characteristics of Covid-19 penetration in these regions. Reliable data showed high Covid-19 penetration in Europe and North America and much lower penetration in Asia. Because of uncertain data reliability, neither India nor China have been included in this study. California, New York, and Maryland instituted and extended lockdowns to fight the pandemic, whereas Florida, Iowa and North Dakota were selected because they pursued non-pharmaceutical measures less enthusiastically.

Data on Covid-19 cases, hospitalizations, and deaths were gathered from open access databases. We used data from Oxford University-based Our World In Data Covid-19 Pandemic Dataset (https://ourworldindata.org/coronavirus) and data from the Johns Hopkins University-based Covid-19 Dashboard (https://coronavirus.jhu.edu/map.html) for Asia, US states, and European countries.

To assess mobility for each of the countries and US states included in our research, we used Apple and Google Maps usage data, which became publicly available on January 13, 2020, and February 15, 2020 respectively. (https://www.google.com/covid19/mobility/ https://covid19.apple.com/mobility). Our choice of mobility data is consistent with public health officials' and academics' research protocols to measure the impact of social distancing policies

and public health messaging during the Covid-19 pandemic.[1] We used Apple Maps driving data for the U.S., Japan, Indonesia, and South Korea, and Google Maps data for Germany, the U.K., Sweden, and Italy. The movement data represent the percent change in movement since January 13, 2020 (in the case of countries for which Apple Maps data were used) and since February 15, 2020 (in the case of countries for which Google Maps data were used). We mapped movement data on lockdown restrictions and hospitalizations and deaths per million over time. Because both the pandemic and the policies designed to halt it varied over time, we studied a 16-month period to capture changes in mobility and the impact on the spread of the virus over time. Our timeline starts on February 1, 2020, and ends on June 30, 2021, just prior the onset of the Delta variant. Finally, we tested the impact of lockdown restrictions on movement, hospitalizations, and deaths by running a series of Pearson's correlations, with a two-sides, 95 percent confidence interval.

Lockdown logic assumes that decreasing human mobility will decrease the probability of exposure to the virus because the number of individuals interacting will decrease. Several caveats are in order here that underline the complexity of our findings. Geographic mobility and exposure to disease are not the same thing. Most exposures occur within households rather than in public. Also, nursing home residents constitute the single group contributing most disproportionately to the death toll but they are, by definition, immobile. Governments tend to mandate restrictions only after a virus is already spreading through the population, often ignoring the lag time between infection and the appearance of symptoms. No social entity can be entirely locked down. Hospitals must remain open, along with grocery stores, pharmacies and other

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[1] https://science.sciencemag.org/content/368/6487/145.2

essential services. Lockdowns are occupationally and class biased. Those who have the means and skills to commute digitally from home can lock down, but only if other persons deliver their groceries, supply the electricity, and provide medical care and police and fire protection.

Lockdowns can only be maintained for a time before economic privation and blatant inequality make lengthening lockdowns politically and economically unsustainable. Both individuals and governments lift the restrictions when hospitalizations and deaths begin to decline, even though the virus may still be spreading. On-again, off-again restrictions on mobility muddle the picture for both citizens and policy analysts. It is difficult to disentangle the effects of legally mandated from voluntary declines in mobility. If the government mandates a lockdown while citizens on their own volition decrease mobility, it remains nearly impossible to disaggregate the impact of government mandates from individual volition.

In the era of Covid-19 lockdown has become a "contentious term" (Tarrow 2013: 267-274). Lockdown has been used to refer to all sorts of mobility constraints: border closings; restrictions on local and international travel; closures of businesses and limits on business hours; and stay at home orders. Each kind of lockdown option can have been enforced (or not) and implemented in different combinations within and across countries. Consistent with the literature on the early pandemic, in this article the term *lockdown* should be understood in the context provided by each of our case studies with appropriate references.

Movement data are a proxy for individual and group acceptance (or resistance) to continued confinement. When lockdowns are mandated, mobility should decline substantially. Mobility may decrease even before governments adopt legal restrictions because large numbers of citizens may elect to reduce their personal risk by voluntarily staying home. Likewise, mobility should return to pre-pandemic levels when governments relax restrictions. Interestingly,

mobility may also rise before government restrictions are eased indicating that substantial numbers of people have elected to accept the exposure risk inherent in returning to individual mobility.

Consistent with other research focusing on the early stages of the pandemic, we examine the interrelationship among lockdown policies, mobility patterns, and per capita death rates in selected states and nations. If two otherwise similar states have introduced different degrees of lockdown but still have a relatively similar disease pattern, this may indicate either that lockdown policies have had limited impact or that rates of infection are being driven by variables we have not been able to measure. If in otherwise similar states or nations similar lockdown policies produce different infection rates, this might also lead us to question the efficacy of the lockdown policies the two states share in common.

While acknowledging the possible limitations of our own methodological approach, our findings provide independent confirmation to findings emerging from other investigations which utilize different methodologies. Herby found that that mandated behavior changes accounted for "9% of the total effect on the growth of the pandemic stemming from behavioral changes, whereas the remaining 91% of the effect was due to voluntary behavior changes." (Herby, 2021: 1) Farboodi et al. found that the desire to avoid falling ill explains about 70% of the effect of the total social response, while voluntary behavior explains up to 23% (2020: 35). Similarly, Courtemanche et al. (2020) found that voluntary behavior accounts for about half of the effect on the spread of the infection. Chetty et al. stated that "people significantly reduced their consumption in areas with high numbers of infected cases and within industries that require physical contact" (2020: 16; 20), while Goolsbee and Syverson indicated that declining consumer traffic may be closely linked to the number of COVID-19 deaths in a particular region/

city, often before lockdowns were implemented (2020). Using a sample of 108 countries, Bonardi et al. (2020) found no clear effect of stricter lockdowns being more effective than softer lockdowns in preventing COVID-19-deaths. Echoing these findings, Haug et al. (2020) leveraged computational techniques merging statistical, inference and artificial intelligence to assess the effectiveness of non-pharmaceutical interventions in 226 countries, and demonstrated that less disruptive and costly non-pharmaceutical interventions (NPI) can be as effective as more intrusive, drastic, ones such as national lockdowns. They indicated that the effectiveness of NPIs depends on the local context such as timing of their adoption. Allcott et al. (2020) argued that while lockdowns per se may not be particularly effective, the signal value of lockdowns is important because it can encourage the population to change its behavior in the direction desired by the political leaders.

Alexander and Karger (2020), Nguyen et al. (2020), Barrios et al. (2020), Maloney and Taskin (2020), and Chen et al. (2020) found that mandated behavior changes in the form of an economic lockdown resulted in little or no effect on the spread of Covid-19. Courtemanche et al. (2020) find very limited effects of closing entertainment-related businesses and schools, and no effect of closing schools or banning larger public gatherings. Chaudhry et al. (2020) find no effect on the number of deaths as a result of early closure of borders, lockdowns and widespread testing. Goolsbee and Syverson (2020) show that "one of the effects of mandated lockdowns was a shift in consumption activities from *non-essential* activities to *essential* activities, and from large and busy businesses to those that were smaller and less busy" (2020). Meunier (2020), Alcott et al. (2020), Nickbakhash et al., and Klein et al. (2020) investigated the impact of exogenous variables and showed that that the social response to the pandemic, both voluntary

and mandated behavior changes, could be the result of seasonal patterns of coronavirus, population density and demographics, and holiday times.

Lockdowns can encourage the population to change behaviors in the direction desired by leaders. However, it is not possible to distinguish between the *signaling effect* of the lockdown, which encourage voluntary behavior changes, and the more direct regulatory effect of the lockdown. This distinction is important because the policy implications are different. If the encouraged voluntary behavior – as a consequence of a signal from the government – is important, then the policy implication is that the government should send the cheapest signals possible. If you can obtain the same effect by recommending working from home at a well-attended press conference as you can by closing all non-essential activities, then that is clearly preferable from an economic and a societal perspective.

2. Expectations Confounded by Realities

Theoretically, people should react to a rising level of infection in society by reducing their social interactions thereby reducing the disease spread rate of the pandemic. Likewise, a falling level of infection is likely to induce people to increase their social activity thereby increasing the growth rate, at least in the early stages of a pandemic. Of the 13 cases presented in this article there were no statistically significant relationships that support the theory that lockdowns reduce deaths and hospitalizations per million. Analysis reveals only three statistically significant relationships between mobility and hospitalizations and deaths per million, and these relationships are negative, casting doubt on the ability of widely adopted lockdowns to curb this particular pandemic. Out of the 10 correlations that do not reach statistical significance, eight are negative on both hospitalizations and deaths per million. Our findings replicate those cited earlier cited,

which found scant support for the thesis that mandated mobility restrictions significantly reduced

hospitalizations or deaths per million from Covid-19.

Table 1. Summary Correlation Results for Movement and Deaths and Movement and Hospitalizations				
	Movement - deaths correlation	Movement – death 95% CI	Movement - hospitalizations correlation	Movement - hospitalizations 95% CI
United States				
Iowa	-.26	-.30 to -.20	-.29	-.36 to -.22
California	-.14	-.19 to -.07	-.27	-.34 to -.19
Florida	.16	.09 to .23	-.26	-.34 to -.19
Maryland	-.23	-.51 to -.07	-.50	-.58 to -.43
New York	-.63**	-.67 to -.59	-.76**	-.80 to -.72
North Dakota	-.17	-.23 to -.12	-.26	-.33 to -.18
Europe				
Germany	-.56	-.62 to -.52	n.a.***	n.a.
Italy	-.66 **	-.71 to -.61	-.64 **	-.68 to -.60
Sweden	-.22	-.27 to -.15	-.50	-.56 to -.44
United Kingdom	-.70 **	-.73 to -.66	-.73**	-.76 to -.70
Asia				
Japan	-.05	-.12 to .02	n.a.	n.a
Indonesia	.39	.30 to .47	n.a.	n.a
South Korea	-.44	-.50 to -.39	n.a.	n.a
Confidence Interval = 95% two-sided (from 1000 bootstrap repetition of the correlation) *** denotes significance (the 95% Confidence Interval does not contain absolute values of .70 or lower)* **** hospitalization per million were not available for four of the seven countries included in the research*				

Correlations alone do not reveal all we need to know about either mobility or why

variations in mobility have not produced the desired impact on the spread of the virus. New York

state, Italy, and the UK pursued broadly similar lockdown policies designed to curtail mobility to

stop the spread of the virus. Each acted early and strenuously to halt mobility to crush the virus.

Mobility decreased, either for voluntary reasons or because of state mandates, but as mobility

declined, deaths and hospitalizations kept rising. In March 2020, New York became the epicenter of the worldwide pandemic, and it, and neighboring states, locked down their citizens to the maximum practicable extent, but the plague raged on. As we shall see, the same pattern repeated itself in Italy and the UK.

2.1 New York State: Intermittent Lockdowns

The 20 million residents of the State of New York were hit early and hard by Covid-19 deaths and hospitalizations in March-April 2020, and in a second, much more muted wave in December 2020-January 2021 (see Figure 1).[2] On March 22, 2020, only a week after President Trump declared Covid-19 to be a national emergency, Governor Cuomo closed all non-essential services, limited the use of public transport and called for social distancing. New York State, like other government entities, adopted severe restrictions when the total deaths in the state were still moderate (249), and yet New York began re-openings in mid-May 2020, when nearly 28,000 had perished. As the red and black vertical lines in Figure 1 graphs indicate, no state (in the U.S. or country in Europe or Asia) exceeded New York State in its attempt to modulate Covid-19 and its economic impact. The early declaration of a lockdown and the later announcement of a let-up, and subsequent restrictions and releases, were obviously not driven entirely by the number of deaths and hospitalizations. Rather than mobility restrictions quickly crushing Covid-19, the graphs show deaths per million charged upward after the restrictions were declared. Political leaders were balancing the pandemic, which refused to observe the lockdown, against the needs of an economy in a state where unemployment doubled between March 2020 and January 2021 (See Figure 1 and Table 3). In the State of New York mobility was lowest when

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[2] To avoid duplication, deaths per million are used in this and other graphs. Hospitalization per million yield the same basic findings.

hospitalizations/deaths were highest. Disease peaks seem to have decreased mobility rather than mobility restrictions effectively containing the disease.

Figure 1. New York State: Mobility and Deaths per Million
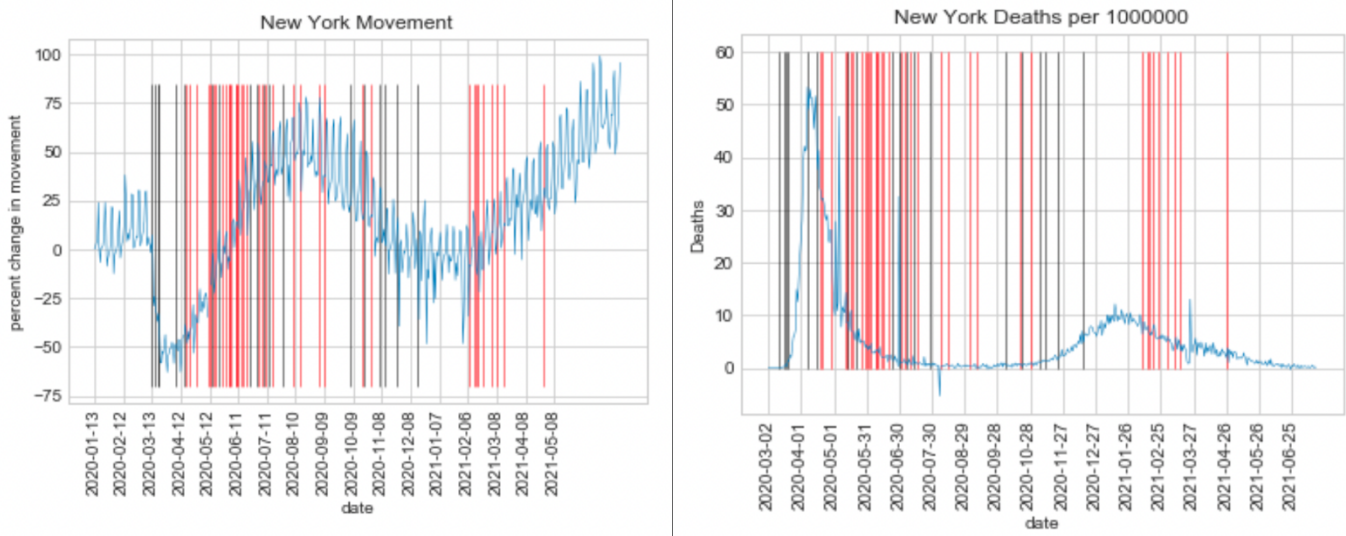
*Black vertical lines** = lockdown impositions; **Red vertical lines** = lockdown relaxation

After the Governor's first announced "pause" in mid-March 2020, mobility fell by 50 percent but had climbed back to pre-pandemic levels by May 2020. From that point onward, mobility increased, only falling by, at most, 25 percent during the less severe spike in December 2020-January 2021. New Yorkers took the lookdown mandate very seriously and decreased mobility, when the most severe spike occurred in April 2020. However, they seemed partially to ignore Governor Cuomo's pleadings to stay put during the December 2020-January 2021 Covid-19 spike. New Yorkers were gauging the personal threat posed by the pandemic and increasing

or decreasing their mobility accordingly. When they perceived the state of the pandemic as less dangerous, New Yorkers traveled more but slowed down when the dangers became self-evident. Governor Cuomo's initial call for New Yorkers to "pause" appears to have been effective but the slowdown in travel may have stemmed from the spike rather than the lockdown proclamation and the Governor's lockdowns became less potent with the passage of time. By the end of June 2021, New York State registered 2,790 deaths per million whereas states such as California and Florida were 1,628 and 1,887, and the national average for the United States was 1,891 deaths per million. For whatever reasons, New York State fared relatively poorly in coping with Covid-19.

2.2 Italy: Active Regional and National Lockdowns

Italy was the first European country to feel the full brunt of Covid 19, detecting the first cases on January 30, 2020. On February 23, 2020, a color-coded system was instituted nationwide, depending on infection rates, availability of hospital and ICU beds, ranging from white (very low risk), yellow (low risk), orange (high risk), and red (very high risk)**.** Simultaneously, a government decree[3] imposed a nearly complete lockdown on 10 municipalities in Lombardy and one in Veneto, which at the time had the highest Covid-19 incidence. On March 9, 2020, more extensive lockdown measures were imposed, including a nationwide closure of all schools and universities and non-essential industrial and commercial activities, partial closure of public offices, and the prohibition of any gatherings in churches and museums. Italians were only allowed to leave their homes to shop for essential items and to walk their pets (but no further

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[3] Italy, Decreto del Presidente del Consiglio dei Ministri 23 Febbraio 2020. Disposizioni attuative del decreto-legge 23 febbraio 2020, n. 6, recante misure urgenti in materia di contenimento e gestione dell'emergenza epidemiologica da COVID-19. (20A01228) GU Serie Generale n.45 del 23-02-2020. https://www.gazzettaufficiale.it/eli/id/2020/02/23/20A01228/sg

than two blocks from their residences).[4] Violation of lockdown orders carried fines ranging between 400 and 1000 Euros, and jail time.[5] Legal decrees were required because the Italian Constitution does not allow restrictions of citizens' movement. Prime Minister Conte resorted to Churchill-like rhetoric, declaring this to be Italy's "darkest hour"[6] to justify his government's decision to declare a national emergency. This was the first time in Italian history that a legislature approved a decree authorizing a nation-wide lockdown.

Two things occurred as a result. Mobility decreased sharply, by 60 percent, but the death rate per thousand stubbornly kept rising until late March 2020, before declining to pre-lockdown levels in May 2020 (see Figure 2). By the time the nation-wide lockdown measures were rescinded on May 4, 2020, mobility had already begun rising and it continued to do so until it rose 20 percent above pre-pandemic levels during the summer of 2020.

As mobility increased during the summer, Covid-19 deaths and hospitalizations decreased. Mobility began to decrease again in September 2020, before the Government issued second round of country-wide lockdown measures, on November 15, 2020. During the second hospitalization/death peak, between November 2020 and March 2021, mobility did decline, but only by 20 percent, indicating that the population was no longer quite as responsive to government orders (see Figure 2). This was true even though the death and hospitalization rates were higher between November and December 2020 than during the Spring 2020 surge. Following the imposition of stricter nation-wide lockdown measures between December 19,

[4]https://www.ilmessaggero.it/italia/coronavirus_giuseppe_conte_discorso_integrale_che_cosa_ha_detto_regole_oggi_ultime_notizie-5106811.html

[5] https://edition.cnn.com/world/live-news/coronavirus-outbreak-03-25-20-intl-hnk/h_f808c3f021a4b8020e0ac62004e090dc

[6] https://www.ft.com/content/7e5ee68e-6200-11ea-b3f3-fe4680ea68b5

2020 and January 6, 2021, mobility briefly increased before plunging and remaining below the pre-pandemic level until late April 2021. When deaths rose, the Italian population lowered its mobility. As the pandemic receded, mobility began rising even before the government enunciated relief from mobility restrictions. It is difficult to conclude from the strong negative correlation, and from the mobility graphs presented here, that government mobility restrictions had the impact sought by policy makers. As elsewhere, the rise and decline of the disease was remarkably independent of government dictates, and pandemic conditions only improved markedly when vaccines became widely available.

Figure 2. Italy: Mobility and Deaths per Million
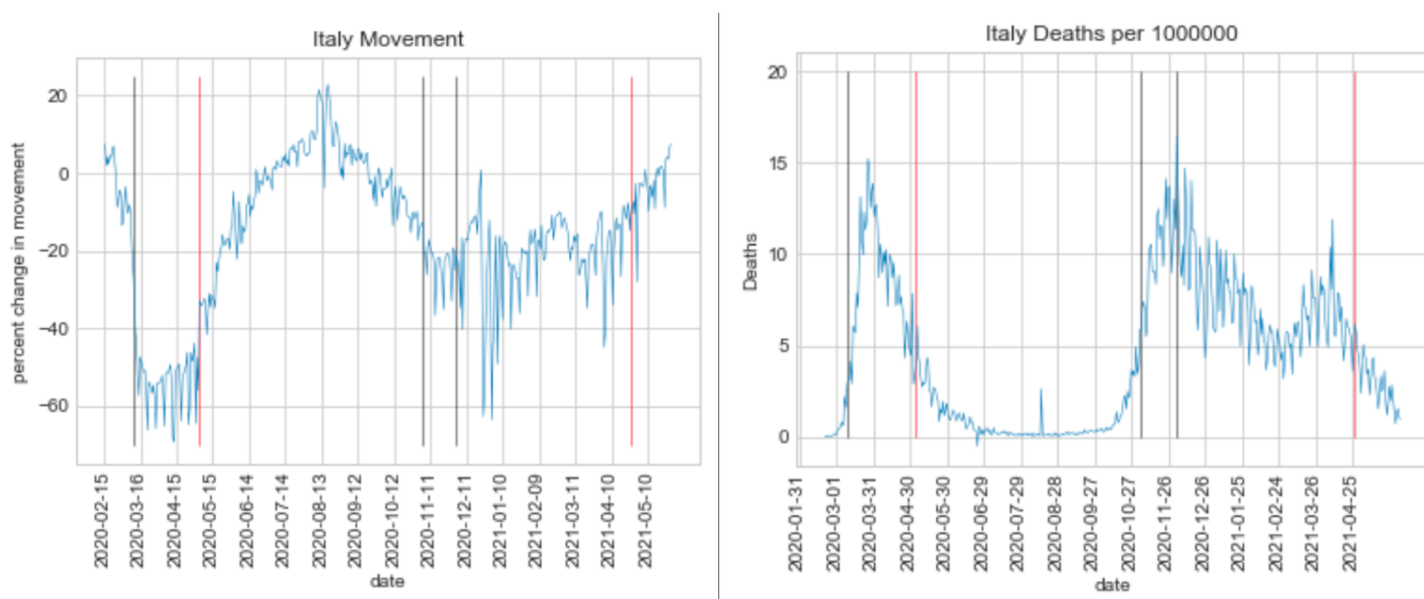
* **Black vertical lines** = lockdown impositions; **Red vertical lines** = lockdown relaxation

2.3. United Kingdom: Consistent Restrictions

As shown in Figure 3, the UK was particularly effective in using lockdowns to suppress public mobility, but disease and death rose and subsequently subsided without regard for the firm lockdowns that had been put in place. Mobility began to decrease before the March 16-23, 2020 series of lockdown orders, and in contrast to New York State and Italy, mobility stayed basically below pre-pandemic levels from March 2020 to mid-May 2021. Just as in New York, Italy, and elsewhere, lockdowns were ordered in the UK when the Covid-19 death toll was still minimal. Theaters shut on March 16, 2020, when there were only 55 deaths. There were still relatively few deaths (578) on March 26, 2020, when schools, restaurants, pubs and gyms were shuttered. The formal lockdown regulation stated, "No person may leave the place where they are living without reasonable excuse."[7] The seriousness of the disease became suddenly tangible when Prime Minister Boris Johnson fell ill in April 2020 and nearly died. Penalties, including heavy fines, were imposed for violating social distancing. A sitting Member of Parliament was arrested, and the Health Secretary was forced to resign for violating lockdown policies.

In spite of press speculation and initial reluctance within the Cabinet, the lockdowns in Britain came early (March 2020) and mobility stayed below pre-pandemic levels until May 2021, even in periods of relative relaxation of government restrictions. Road traffic fell 73 percent by the beginning of April 2020. The Prime Minister was clearly torn between a desire to be reassuring and the necessity of confronting the contagion. In addition, the government was acutely aware of the lockdown's debilitating impact on the British economy which shrank in the second quarter of 2020 by 21.4% compared to the second quarter of 2019 (see Table 2). The government re-opened gradually during the summer of 2020 but reimposed lockdown measures

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[7] https://www.cps.gov.uk/legal-guidance/coronavirus-health-protection-coronavirus-restrictions-england-regulations-2020

that affected 25% of the population in late September 2020, and was forced to issue a second nationwide lockdown, on October 31, 2020, when the death toll reached 50,000. A third nationwide lockdown became effective at the very beginning of 2021, in spite of the fact that Britain had begun a vaccination campaign on December 8, 2020. Prime Minister Johnson began speaking of "getting back to normal*"* in his "roadmap to freedom" speech on March 27, 2021,[8] but was forced to backtrack by the arrival of the Delta variant.

In spite of achieving mobility levels consistently remaining below the pre-pandemic norm, the virus itself stubbornly refused to yield to the well-implemented local or national lockdowns. By July 1, 2021, Britain had suffered 1,891 deaths per million, less than Italy at 2,109, but approximately the same as the U.S. (1,830), whose lockdown policy effectiveness varied substantially across time and from state to state. In the UK, consistently reduced mobility did not halt the disease. Until mid-2021, when the vaccines were widely distributed, the virus kept winning.

**Figure 3. United Kingdom: Mobility and Deaths per Million**

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[8] https://www.bbc.com/news/health-57157496
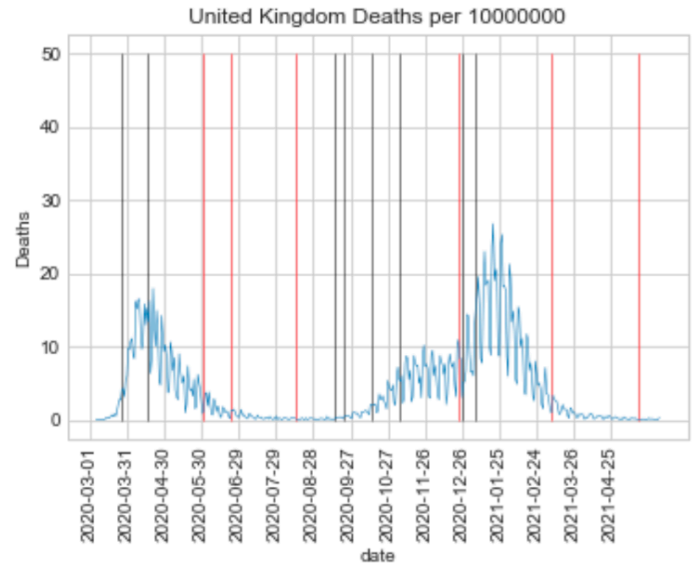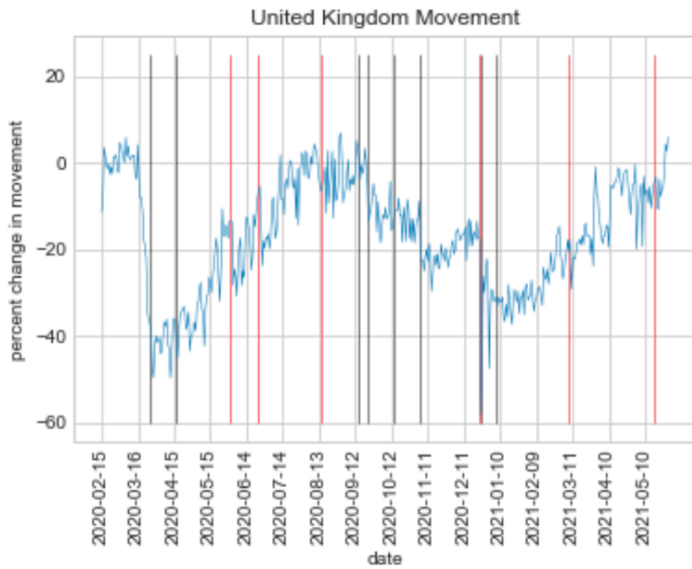
* **Black vertical lines** = lockdown impositions; **Red vertical lines** = lockdown relaxation

2.4. Anticipatory Mobility Declines and Less Compulsory Lockdowns

Our data show anticipatory declines in mobility, followed by lockdowns, relaxations of restrictions, re-impositions of restrictions and lockdown fatigue. As highlighted in the literature on the early phase of the pandemic, declining movement occurred, before formal government lockdowns were implemented. We found anticipatory declines in movement in Germany, Indonesia, Italy, Japan, Korea, and the UK (see Figure 4).[9] Government lockdown declarations, and the publicity accompanying them, provided signal value to the general public thereby increasing the voluntary impact, for at least the first round of lockdowns.

Figure 4. United Kingdom: Mobility February - June 2020

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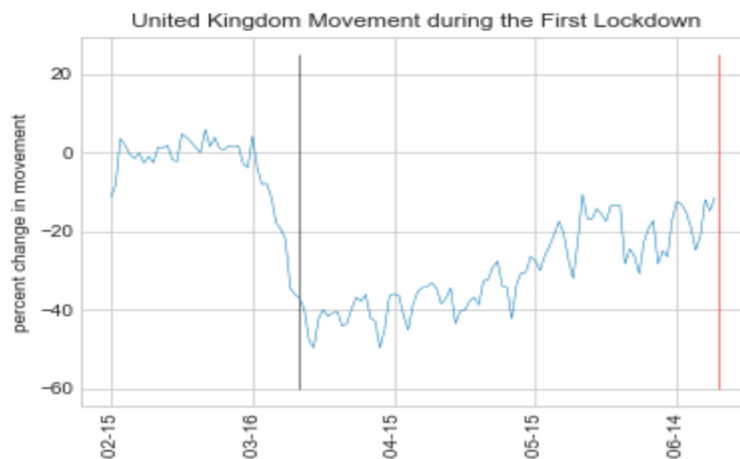
[9] The mobi
initial lock
lockdown
more sharp

2.5 Japan and Korea: Less Compulsory but Effective Lockdowns

In Asia, hospitalizations and deaths per million are substantially less than in the U.S. and Europe. By July 1, 2021, there had been only 39 deaths per million in Korea, and 117 in Japan, and 216 in Indonesia, in contrast with 2,109 in Italy, 1,891 per million in the UK, and 1,830 in the U.S.[10] Part of the disparity may result from testing differences per capita.[11] Japan's cumulative testing rate is only one-twenty fifth that of the UK. In Korea, testing remains one-fifteenth that of the U.K. and Indonesia achieved less than 2% of the UK test rate. Even though part of the discrepancy between Asia and Europe and the U.S. results from a dearth of testing, Covid-19 was much less successful in spreading in Asia. Neither Korea nor Japan imposed the kind of

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[10] Even during the late summer and early fall of 2021, after the arrival of the delta variant, there were only 45 and 127 deaths per million in Korea and Japan in comparison to the United Kingdom with 1,957 deaths per million.

[11] By July 1, 2021, Japan conducted 124 tests per 1,000 people whereas the U.S. conducted 1,423 and the UK 3,102 tests per 1,000 inhabitants. The U.S. conducted 11.5 times as many tests as Japan, and the UK conducted 25 times as many tests per thousand as Japan. China remains a giant unknown here, perhaps because of authoritarian efficiency in stamping out the virus or because of administratively imposed gag orders on reporting Covid-19 infections. See Our World in Data, July 1, 2021.

universal lockdowns implemented in New York, the U.K. and Italy. Korea and Japan avoided full national lockdowns, kept their industrial establishments running, and depended primarily on voluntary rather than mandated behavior changes. As a result, damage to the economy in Japan was roughly half that of the UK and Italy during the same time period, and the Korean GDP hardly declined at all in the second quarter of 2020 (see Table 2). Indonesia's geographic expanse, and its more rural and less industrial economy, precluded a tight lockdown and partially shielded its economy from sharp decline (see Table 2). Less formal and fulsome lockdowns served Indonesia, Japan, and Korea well, if not better, than the more comprehensive lockdowns in Europe and the U.S.

Movement trends in South Korea demonstrate that voluntary behavior was a more significant factor than government mandates during the pandemic. After its initial decline in January of 2020, mobility remained low even after infection rates had fallen and government restrictions had eased in late April 2020. During the global spike in infections and deaths between December 2020 and January 2021, Koreans kept their mobility consistently low, irrespective of government closings and openings. In Japan *loose* restrictions have been just as effective as mandatory lockdowns in shifting public behaviors. Mobility in Japan decreased by forty percent in response to non-compulsory restrictions, achieving the same drop as Korea but without harsh edicts.

Nothing lasts forever, particularly in a pandemic. The efficacy of both compulsory and non-compulsory restrictions declined over the course of the pandemic. In Korea mobility had been increasing in the summer and fall of 2020 and it dropped by only 15% between December 2020 and January 2021, in comparison with the earlier 50% drop in February and March 2020. Neither the surge in infections and deaths, nor government pronouncements elicited as much

obedience as they had earlier in the pandemic. Likewise, in Japan there was only a 15% decline

in mobility in response to the Prime Minister Suga's declaration of emergency in January 2021.

Indonesians returned to near pre-pandemic mobility in spite of government assertions and the

increasing spread of the virus in late 2020. As the pandemic progressed, people grew less

responsive to both compulsory and non-compulsory social distance restrictions.

Figure 6. Japan and Korea: Mobility and Deaths per Million
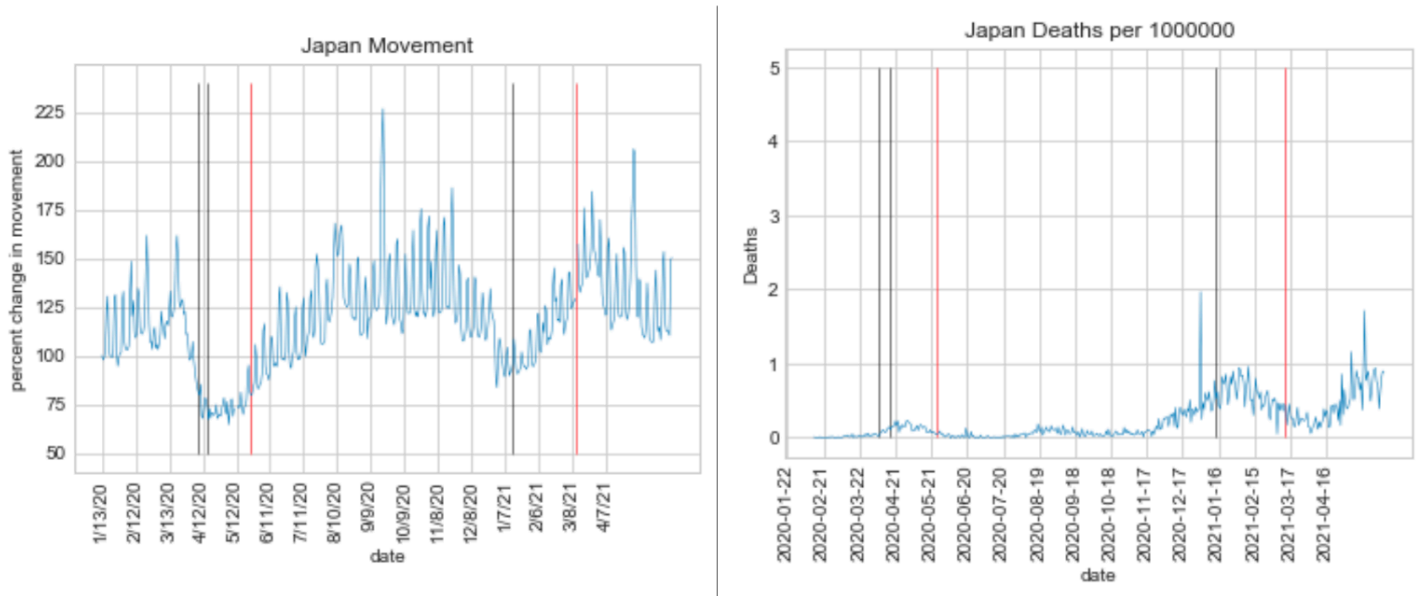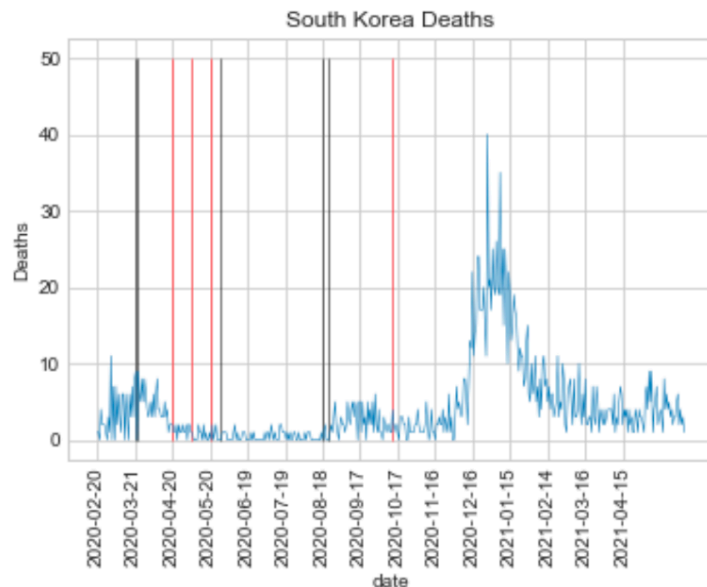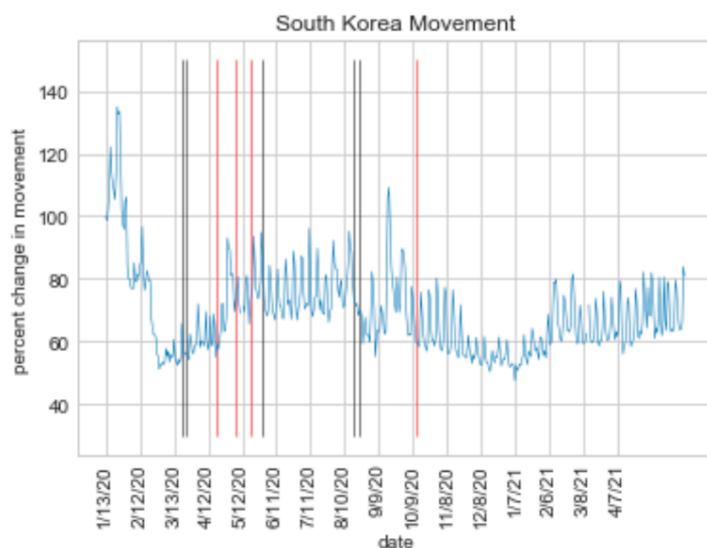
South Korea Movement

South Korea Deaths

In neither Japan nor Korea is there a significant relationship between their successful suppression of mobility and the course of the disease. In both instances, mobility remained low and relatively constant, but this did not prevent the rise in deaths per million that arrived, as elsewhere around the world, in the period December 2020 and January 2021. Indonesian mobility returned to a pre-pandemic norm even as deaths per million rose sharply in late 2020 and early 2021. The virus followed its relentless calendar regardless of mobility restraints.

3. Lockdown Fatigue

During March 2020, many governments around the world issued orders to curb mobility. In all cases there was a substantial decline in physical movement at or around the first lockdown, but public declarations seemed to fall on increasingly deaf ears, unless and until deaths and hospitalizations reached new high points, especially between November 2020 and January 2021.

The data point to lockdown fatigue in many but not all places. The U.S. federal system supplies a particularly good laboratory for observing degrees of lockdown during the pandemic.

3.1 California, Iowa, North Dakota, Maryland, and Florida

California remains important because of its large population (40 million) and because of its nimble responses to the virus. On March 13, 2020, President Trump declared a National Emergency, leaving masking, social distancing, and lockdown orders to individual states. Two days later (March 15, 2020), Governor Newsom of California closed bars, wineries, restaurants, and urged seniors to isolate themselves at home (see Figure 7). Four days later, on March 19, 2020, he announced a stay-at-home order for all of California, even though there were only 178 new infections that day and there had been only a total of 18 deaths up to that point statewide. The Governor maintained the lockdown until May 4, 2020, when he announced progress and partial re-opening (on a day when there were 1,096 new infections and 2,280 deaths from Covid-19). The pandemic kept increasing. On June 18, 2020, the Governor declared a mask mandate followed by another full shutdown in early July 2020, when total deaths had reached 6,442. In September and October 2020, there were partial relaxation orders. On November 16, 2020, when deaths had increased to 18,393, the Governor re-imposed full restrictions. In California, declaring or lifting lockdowns seemed relatively independent of infections and deaths.

 Figure 7: California: Mobility and Death per Million

California movement

California deaths per 1000000
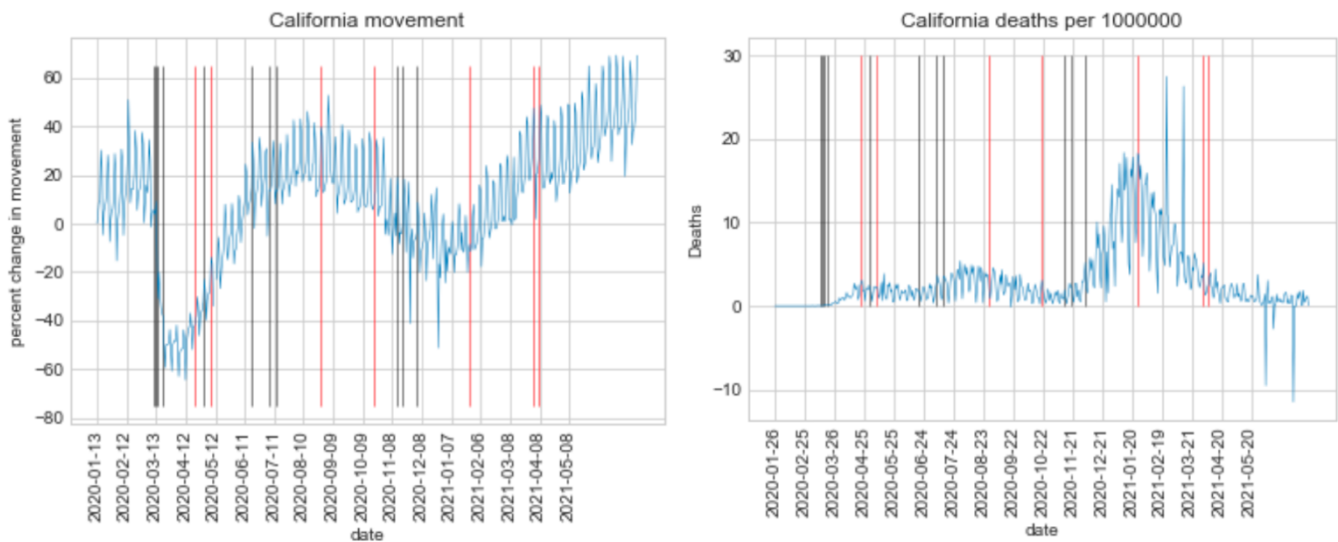
* **Black vertical lines** = lockdown impositions; **Red vertical lines** = lockdown relaxation

Two things should be noted. After the first lockdown declaration, movement around the state fell by approximately 50%, indicating that the general population was obeying the Governor's injunction. However, in May 2020, the Governor loosened some of the restrictions and mobility began to increase and it kept going up, in spite of his shutdown order of July 6, 2020. Movement kept rising until it again declined to below pre-pandemic levels in December 2020. The absence of a decline in movement in the period mid-June to mid-November indicates that individuals were acting autonomously in calculating their own risks and largely ignoring the government. Summer may have trumped the virus-risk for many Californians. When the Governor again shut down the state in mid-November 2020, movement fell, but is this because of the Governor or because individuals and families were responding to the readily available death and hospitalization numbers as well as the natural winter decline in travel? On November 16, 2020, total deaths reached 18,393 (1,000 times as high as when the governor issued his first

lockdown order), but mobility refused to be as constrained as before, indicating serious levels of lockdown fatigue.

At the outset of the pandemic in the U.S., regardless of political party affiliation, political leaders felt compelled to get out ahead of events. The governors of California, Florida, Iowa, Maryland, New York, and North Dakota all began closing down their economies, even before President Trump, on March 23, declared a national emergency (see Figures 1, 8 and 9). On March 9, 2020, the conservative Governor of Florida declared a state of emergency, eight days after Florida reported its first case of Covid-19. The Republican Governor of Iowa declared an emergency and closed the schools on March 15, ten days before the state recorded its first Covid-19 fatality. On March 12, 2020, the Republican Governor of Maryland declared an emergency after announcing the state's very first case of Covid-19. The Republican Governor of North Dakota followed suit on March 13. Shutdown orders were issued by the Democratic Governors of California and New York on March 15 and March 22, 2020. All of the first-round lockdowns dramatically restrained movement. Lockdowns gave way to official easing but when disease increased between December 2020 and January 2021, mobility again decreased but only marginally in Iowa, Maryland and North Dakota and did not consistently fall below the pre-pandemic norm. After the initial lockdowns, citizens in general became less responsive to government mandates and seemed to ignore, at least partially, the evident rapid spread of disease and death.

Figure 8: Iowa and North Dakota: Mobility and Death per Million
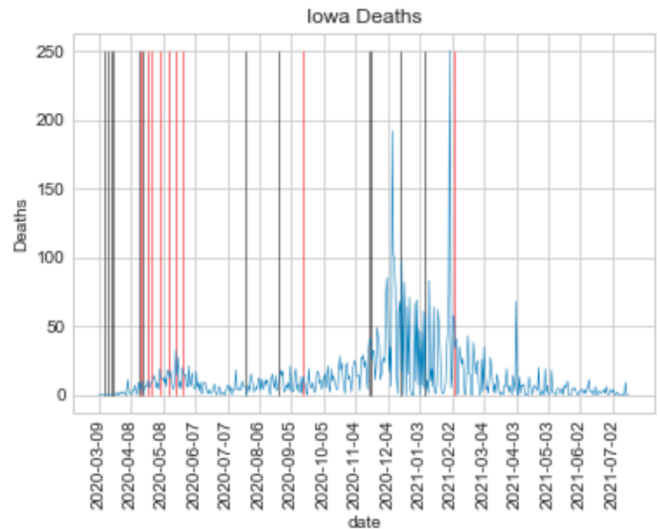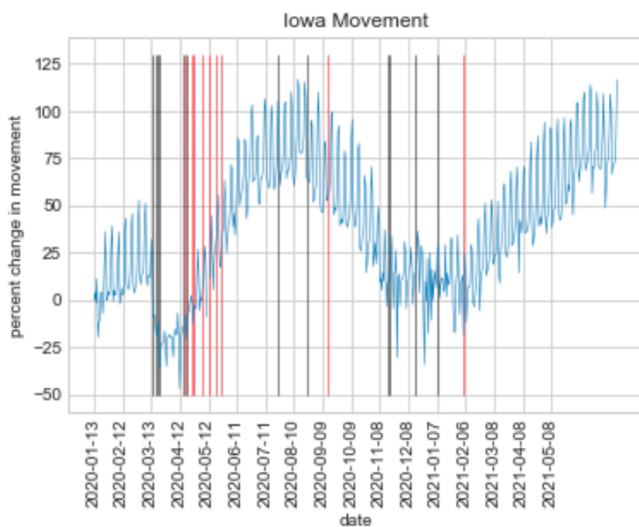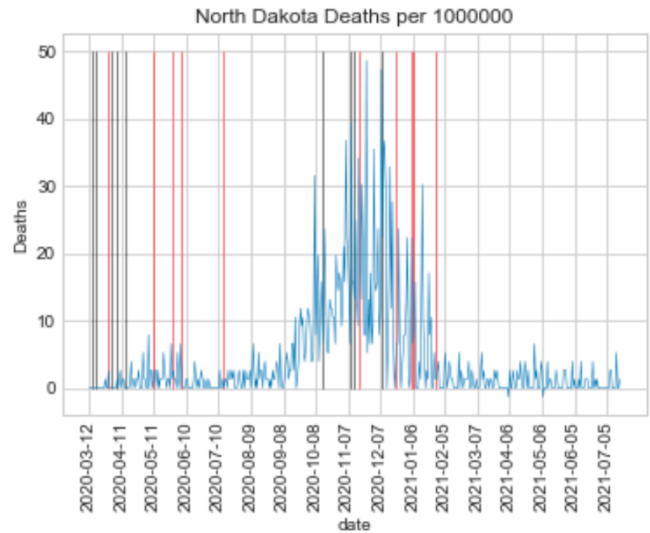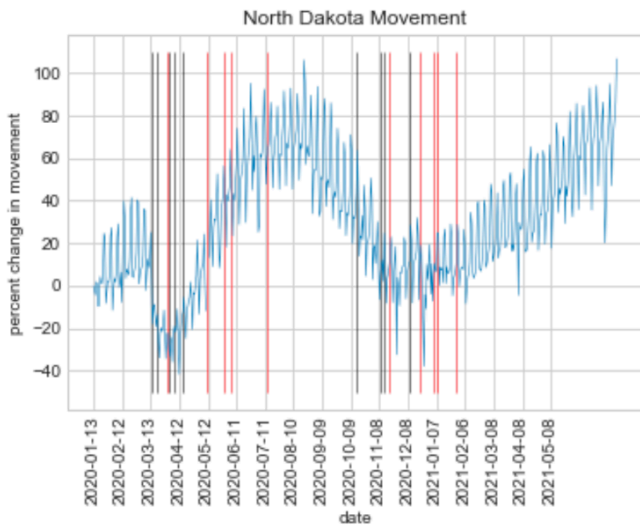
* **Black vertical lines** = lockdown impositions; **Red vertical lines** = lockdown relaxation

Florida, with a population of 22 million, is an obvious example of lockdown fatigue (see Figure 9). Mobility began to descend before the initial lockdown orders of the Governor and other officials in March 2020, and it declined by an impressive 60 percent in response to the first lockdown orders. Mobility returned to the pre-pandemic norm, even during the first disease peak,

in the summer of 2020, and mobility did not descend during the second disease surge in Florida, in January 2021. Lockdowns were issued but mobility was sustained or even grew. In all four states the late December 2020 and early January 2021 government restrictions had, at best, a minimal impact on citizen mobility. It is as if the public, as a collectivity, had decided to take risks and increase its mobility.

Figure 9. Florida: Mobility and Death per Million
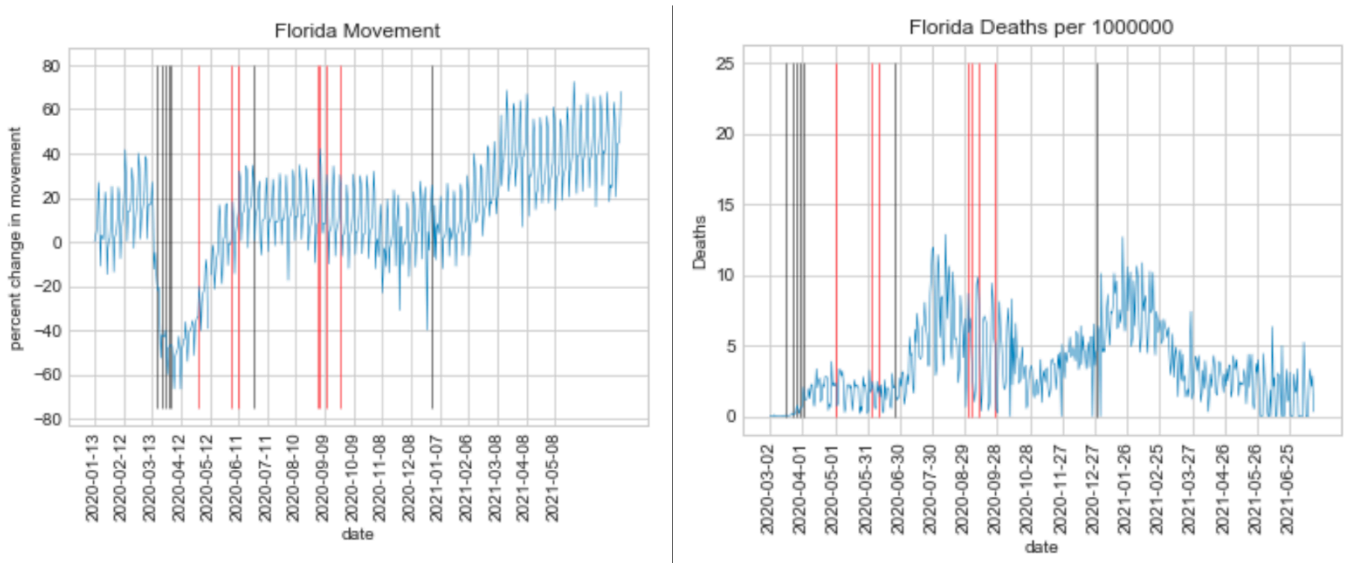
 ***Black vertical lines** = lockdown impositions; **Red vertical lines** = lockdown relaxation*

4. Sweden: The Control Group

Sweden offers an interesting (albeit imperfect) test case because, other than shutting down high schools and universities, and limiting the sale of alcohol after 10:00 pm, the government simply encouraged the citizens to take reasonable precautions against the virus and to avoid large

gatherings. Although quarantines are possible in specific situations such as particular buildings, the Swedish constitution does not allow restrictions on citizen movement in peacetime, making a British style nationwide lockdown out of the question. In Sweden, all health decisions were removed from the hands of political leaders, but even the health authorities had no power to enforce their recommendations. In Sweden the authorities made no attempt to police the pandemic. On March 16, 2020, the Public Health Agency advised citizens over 70 years to limit social contacts, and the general public was advised to work from home to the extent possible. Roughly 50 percent began working from home, but restaurants, bars, public parks and hair salons remained open throughout the pandemic. Primary schools were left open to ensure full staffing for health care facilities, whose workers otherwise might have stayed home to tend their children. By mid-April 2020 Sweden had registered 1,300 deaths, disproportionately in nursing homes. The basic assumptions behind the Swedish public health responses were that containment needed to be designed for the long term, because Covid-19 was "not a sprint but a marathon,"[12] and voluntary behaviors were likely to be more effective in the long term than a Chinese-style lockdown. Public health authorities trusted citizens to follow procedures voluntarily. When vaccines became available they were rapidly rolled out with 80 percent of nursing home residents receiving at least one shot by February 11, 2021. Viewed across the period from March 2020 to July 1, 2021, Sweden's death rate per million was 1,434, lower than Italy (2,109), UK (1,891), and U.S. (1,830), but approximately 20 percent higher than the death rate in Germany, and much higher than in Norway and Denmark, all of which implemented strict lockdown measures.

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[12] Foreign Minister Ann Linde. See David Keyton, "Sweden steadfast in strategy as virus toll continues rising," Associated Press, May 26, 2020.

The Swedish case constitutes a rudimentary control group for the impact of lockdowns on mobility (see Figure 10). With no lockdowns, Swedish mobility decreased in the initial Covid-19 surge, in March and April 2020. Mobility picked up during the summer travel season but decreased sharply between November 2020 and January 2021, when most Swedish cases and deaths occurred. As indicated in Figure 2, Italy's strict lockdown resulted in a more dramatic initial decrease in mobility, followed by increases in mobility when warmer weather arrived, and the virus receded. The same basic pattern appeared in Sweden. By April 2020, Swedish car and pedestrian traffic were down by 70 percent, without any government lockdown. Without any government mandate Swedish mobility declined in response to a combination of advice from the Public Health Ministry and citizen-based risk calculations. In most of the 13 countries and states included in our research, mobility decreased when death and disease spread, and mobility increased as disease abated. This appears to be true with or without government-imposed lockdowns.

Figure 10. Sweden: Mobility and Deaths per Million

Sweden Movement (left chart) and **Sweden Deaths per 1000000** (right chart)
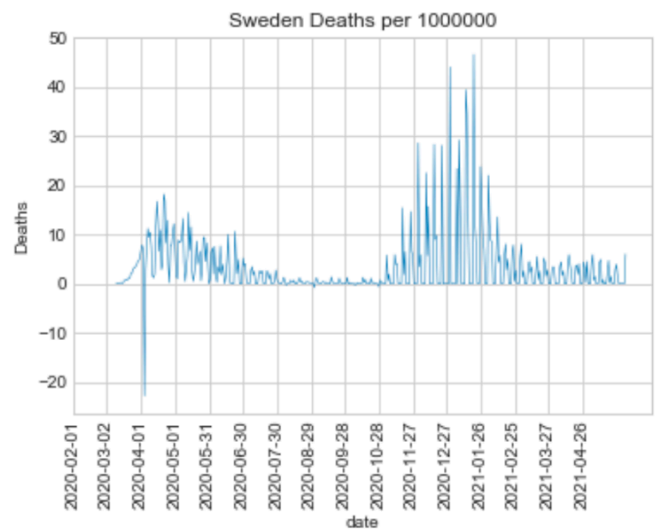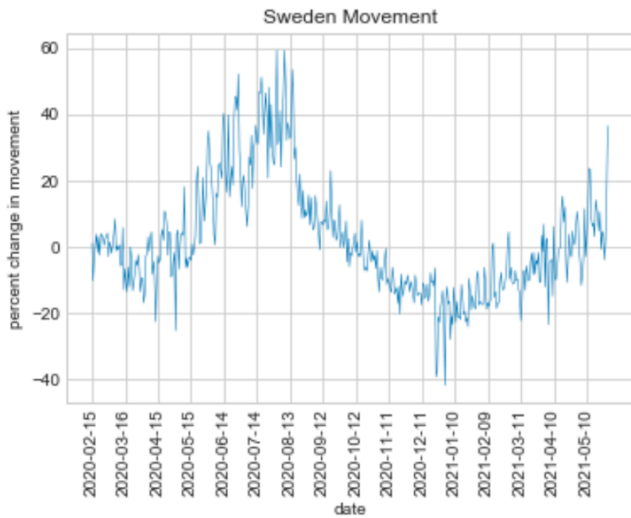
*Black vertical lines = lockdown impositions; Red vertical lines = lockdown relaxation

The Swedish graph for deaths per million has roughly the same shape as the corresponding graphs for Italy, Germany, the UK, Japan and Korea, California, Iowa, North Dakota, Maryland, and Florida, indicating that the variety of public health measures taken worldwide did not alter the timing of the arrival of hospitalizations and deaths. Similarity in death peaks raises the possibility that the overall outcomes of the pandemic might have been similar in timing, if not the absolute magnitude, in other places without lockdowns.

5. Economic Consequences

At the time when this article was drafted, the corona virus was still rapidly spreading worldwide. Beyond global health, the pandemic exacerbated economic and social problems. Misery and attendant social and health consequences came not only from Covid-19 but from poverty and social disruption. The economic and social burdens were not evenly distributed by income, education, race or residential density, despite generous and well-intentioned compensatory

government programs. There were large disparities also among the countries and states in this study. Only a portion of these differences can be attributed to variation in lockdown policies but in general the more stringent the lockdown, the greater the scope of the economic downturn and the greater the long-term social damage. Burdens and risks were borne disproportionately by those who could not telecommute and instead either remained unemployed or took greater risks of contracting the virus in order to provision those staying at home. All governments enacted unprecedented monetary policies and expanded budgets and social programs to cushion the economic contraction but where lockdowns intentionally shut down major categories of economic activity, those working in retail and service industries were particularly hard hit. [13]

The second quarter of 2020 illustrates the substantial differences among countries in the severity of the economic impact. Italy and the United Kingdom suffered major declines in GDP, 18.2 and 21.4 percent respectively. In contrast countries with less stringent lockdown policies (see Japan, Korea, Sweden and the United States) had more modest but still significant economic declines.

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[13] See congressional research service footnote at the bottom of old p. 27

Table 2. Quarterly National Account

	Q1-2020	Q2-2020	Q3-2020	Q4-2020	Q1-2021	Q2-2021
Germany	-1.9%	-11.3%	-3.7%	-2.9%	-3.1%	9.4%
Indonesia	2.6%	-5.2%	-3.4%	-2.2%	-1.0%	7.2%
Italy	-5.8%	-18.2%	-5.2%	-6.5%	-0.7%	17.3%
Japan	-2.2%	-10.1%	-5.5%	-0.9%	-1.3%	7.61%
South Korea	1.5%	-2.7%	-1.0%	-1.1%	1.9%	5.9%
Sweden	0.1%	-8.1%	-1.8%	-1.8%	-0.1%	19.8%
United Kingdom	-2.2%	-21.4%	-8.5%	-7.3%	-6.1%	22.2%
United States	0.6%	-9.1%	-2.9%	-2.3%	0.5%	12.2%

Quarterly growth rates percentage of Real GDP, change over same quarter, previous year
Source: Authors' calculations based on original data from OECD Statistics

An alternative measure of economic pain can be found in monthly unemployment data supplied by the U.S. Bureau of Labor Statistics. During the period March 2020 to January 2021, monthly unemployment doubles, or nearly doubles, in California, New York, Maryland, and North Dakota. Lockdowns had less striking effects on unemployment in farm states such as Iowa and North Dakota. In Florida, the state where mobility data show resistance to remaining locked down, there was hardly any increase in economic misery (at least as measured by unemployment).

Table 3. Covid-19 Impact on Unemployment in Selected US States

	March 2020	January 2021	March 2021	July 2021	March 2020 – January 2021
Florida	4.9%	4.8%	4.7%	5.1%	**-0.1%**
California	4.5%	9%	8.3%	7.6%	**+4.5%**
Iowa	2.9%	3.5%	3.7%	4.1%	**+0.6%**
Maryland	3.5%	6.4%	6.2%	6.0%	**+3.7%**
New York	3.9%	8.8%	8.5%	7.6%	**+4.2%**
North Dakota	2.3%	4.5%	4.1%	3.9%	**+2.2%**

Unemployment by state, seasonally adjusted
Source: Bureau of Labor Statistics, U.S. Department of Labor

The US economy as a whole shrank by 3.5 percent in 2020, the worst annual negative growth rate since World War II. Average unemployment rose quickly from a historically low 3.7 percent in 2019 to 14.7 percent in April 2020, but fell to 6.7 percent in December 2020. The Fed announced the restarting of large asset purchase programs, and to help provide credit to businesses, households, and communities it introduced several lending facilities, including the *Main Street Lending Program*, the *Coronavirus Preparedness and Response Supplemental Appropriation Act*, the *Family First Coronavirus Response Act*, the *Coronavirus Aid Relief and Economic Security Act*, and the *Paycheck Protection Program Flexibility Act*. The Federal Reserve's swift action is seen as playing a key role in mitigating the pandemic's economic damages, even though the prospects of a quick recovery were highly unlikely. Real GDP has rebounded, and labor market conditions have improved following the partial/complete lifting of local lockdown.

At the end of 2020, the Euro-area and the European Union (EU) had more than 15 million confirmed cases and 370,000 deaths, with Italy, France, and the UK each with 2 million

confirmed cases, and Germany a little less than 2 million cases. EU institutions, and the

European Central Bank (ECB) in particular, responded by easing monetary policies, and making

liquidity accessible to firms and households, including a series of *Pandemic Emergency Long-*

term Refinancing Operations as well as the *Pandemic Emergency Purchase Programme*, and the

Debt Mutualization Recovery Fund. These monetary measures were financed with additional

assigned revenues to the EU budget. In Germany, GDP contracted by 5 percent, and to cushion

against the economic damage the government implemented unprecedented measures, including

state-aid, credits, subsidies, and guarantees to affected industries to fund short-time work in an

effort to reduce the labor costs of companies by up to 50 percent without the need to resort to

layoffs. Thanks to these measures, whose total cost amounted to about € 1,200 billion, the

unemployment increase was contained (rising to 5.9 percent in 2020 from 5 percent in 2019),

and mass bankruptcies were avoided. An additional € 130 billion in fiscal spending program was

devised, which included a 3 percent cut in value added tax, further relief in other taxes, and large

investments in digitalization infrastructure and technologies. In Italy, the first European country

hit hard by Covid-19, the GDP contracted 10 percent in 2020, and the unemployment reached 9.8

percent in the same year. The government tried to mitigate the impact of the pandemic through a

set of measures aimed at sustaining the national health service, SMEs, and households' income.

In the UK, Covid-19 caused a GDP contraction of more than 10 percent in 2020, with

unemployment surpassing 5 percent, the highest level since 2016. The magnitude of the

economic shock was larger than elsewhere in Europe. The UK economy was particularly

vulnerable to Covid-19 because of underlying structural weaknesses including a high share of

employment in social consumption sectors, and a labor market with a high incidence of

precarious jobs without adequate sick pay provisions. As in most of continental Europe, the UK

government responded to the coronavirus induced recession with fiscal programs, including the *Coronavirus Job Retention Scheme* for workers, the *Coronavirus Business Interruption Loan Scheme* and the *Bounce Back Loan Scheme* for small and medium-size companies. Moreover, the Bank of England, building on the knowledge acquired during the 2008 global financial crisis also engaged in quantitative easing and revamped the *Term Funding Scheme for SME Lending*. Finally, Sweden, with no lockdown did relatively well economically in 2020, with a GDP decline of 2.2%, compared with the UK (10%), Italy (10%), Germany (5%), and the U.S. (3.5%).

Covid-19's economic impact on Japan, Korea and Indonesia remained modest in comparison to that of Germany, Italy, the UK (see Table 2). The much lower Covid-19 infection rates allowed the three countries to enact substantially less intrusive lockdown and recovery procedures. The economy of Japan shrank by 4.8 percent in 2020. The government and the Bank of Japan implemented a series of fiscal and monetary policies prioritizing the service sectors and SMEs rather than large firms or the industrial sector in the form of supplementary budget allocations for a total of ¥ 67.4 trillion. The coordinated measures of the Bank of Japan added stability to the financial markets and kept long term interest rates at lower levels in Japan. The government and the Bank of Korea also reacted to the pandemic through speedy and massively accommodative policies, emphasizing the preemptive nature of these actions in light of the fact that Korea did not have lockdown policies similar to those seen in other Asian and European countries. In 2020, GDP in Korea contracted only 1 percent and the unemployment increased very slightly to 4 percent from 3.8 percent in 2019.

In Indonesia, the President's Directives 4/2020 refocused development activities, reallocation of government budget, and procurement of goods and services for rapid and accelerated response to COVID- 19 to ensure food security, strengthen the health sector through

basic health services and national insurance scheme for COVID-19 patients, reducing taxes for selected commodities, and implement strategies for ensuring compensation for those most affected by the Covid-19 crisis.

6. Political Leadership and Covid-19: Modulating Responses

In early 2020, leaders - from presidents, to prime ministers, to governors, to mayors, to local health and educational officials - found themselves charged with quelling Covid-19. They were told by experts to expect massive, near-term death tolls.[14] Public sentiment concluded: Covid-19 was a terrible problem; someone must be held responsible for it, and the government must fix it. This left democratic leaders in a quandary: either vigorously promote non-pharmaceutical interventions, like lockdowns, or tell the public there is little that can be done other than caring for the sick while awaiting a vaccine. China's purported success with lockdowns and predictions of impending doom left political leaders all over the world with little alternative but to issue lockdown orders. The twin objectives of most democratic governments became curbing the infection through non-pharmaceutical interventions and crafting nuanced public messaging that created sufficient anxiety to obtain public acceptance of government sponsored shutdowns.

 The policy changes of the UK illustrate how political leaders sought to ride the tiger of public opinion. PM Boris Johnson's government and the best British scientists, as late as the beginning of March 2020, were following a modified herd immunity strategy until the government completely reversed course in response to the dire prognostications of Neil Ferguson of Imperial College London.[15] Neil Ferguson's March 16, 2020 paper predicted 510,000 deaths

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[14] See Neil Ferguson et al., "Report 9: Impact of Non-Pharmaceutical Interventions (NPIs) to reduce COVID-19 Mortality and Healthcare Demand", March 16, 2020.

[15] Neil Ferguson et al., "Report 9: Impact of Non-Pharmaceutical Interventions (NPIs) to reduce COVID-19 Mortality and Healthcare Demand," March 16, 2020, p. 7.

in the UK and 2,200,000 million deaths in the U.S. within six months unless lockdowns and social distancing were sustained until vaccines became available at some unknown date.[16] These predictions were almost immediately modified by their author but lockdowns became the favored means to bend the Covid-19 curve in Great Britain. PM Boris Johnson's government imposed a series of lockdowns: March 23, 2020, September 24, 2020, January 4 and June 14, 2021, but paired each with subsequent relaxations to allow the British economy to breathe.

The mass media made Covid-19 into "the big story"[17] of the Trump administration ensuring that it would be the pivotal issue of the 2020 U.S. presidential election. Newspaper coverage of Covid-19 from March 2020 onward can only be described as extraordinary, initially amounting to 40 stories per day in each of the prestige papers like the Financial Times, New York Times, Wall Street Journal, and Washington Post. Even after 18 months, the pandemic continued to grab the front page, with stories covering virtually every conceivable aspect of it.

In the U.S., no Governor more intentionally placed himself at the center of the media coverage than Governor Cuomo of New York. The essence of his leadership style was to stay in the public eye, to be seen as taking actions designed to contain the virus, to empathize with the public, and to weather the onslaught of cases and deaths while waiting for the partial herd immunity attained in the March-April 2020 spike to be amplified by the vaccination campaigns of early 2021. Governor Cuomo successfully personalized the pandemic through 111 press

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[16] Testing predictions against reality is easy in hindsight but vaccines became available in late December 2020 (an unknowable date at the time of Neil Ferguson's predictions). On May 7, 2020, the total death tolls for the UK and the U.S. were strikingly lower than the March 16, 2020, report predicted. 35,786 had died in Britain and 93, 431 in the U.S.

[17] This common term in journalism for a dominating and enduring story. See Peter Braestrup. 1978. *The Big Story: How the American Press and Television Reported the Crisis of TET 1968 in Vietnam and Washington*, Garden City, N.Y.: Anchor Books. In another era Monica Lewinsky became "the big story." Big stories that break in presidential election years receive maximum coverage and can be decisive in presidential elections.

conferences and was given an Emmy Award by the International Academy of Television Arts

and Sciences on November 21, 2020. Underlining the importance of communications[18],

Governor Cuomo's poll numbers improved, even while New York State fared quite poorly in

deaths per million in comparison with most other states and also in comparison with the country

as whole.

Epidemics were not always treated this way by the US mass media. The Asian flu, in

1957-58, killed 70,000-116,000 Americans and 2 million people worldwide. [19] The 1957-58

pandemic death toll in the U.S. was equivalent to more than 200,000 deaths in today's larger

population. Covid-19 in 2020-2021 was obviously a much larger and more lethal pandemic. The

Hong Kong flu of 1968-69 killed another million people around the globe, and HIV/AIDS killed

32 million globally.[20] In none of these instances did the tragic loss of life become an all-

consuming political issue. The 1957-58 "flu was always in the paper, but it was reported with as

much emotion as the livestock prices."[21] Stores, schools and sporting events remained

unrestricted. Health authorities met in Washington D.C. on August 27-28, 1957, and stated

"there is no practical advantage in the closing of schools or the curtailment of public gatherings

as it related to the spread of this disease."[22] The Asian flu swept across the country in only 2

months and infected 25 percent of the American population within eight months. Rather than

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[18] New York City Mayor Bill de Blasio also held daily press availabilities on Covid-19 but he did not receive as much mass media adulation.

[19] D.A. Henderson, Brooke Courtney, Thomas V. Inglesby and Jennifer B. Nuzzo. 2009. "Public Health and Medical Responses to the 1957-58 Influenza Epidemic." *Biosecurity and Bioterrorism*, 7(3): p. 3.

[20] Randy Shilts. 1978. *And The Band Played On: Politics, People, and the AIDS Epidemic.* New York, N.Y.: St. Martin's Griffin provides a detailed description of how the AIDS epidemic was marginalized by almost all political leaders in America during the early 1980s.

[21] James Lileks, "How the news media played down the pandemic of yore, from Spanish flu to swine flu," *Minneapolis Star Tribune*, March 18, 2020.

[22] Henderson et al, 2009.

attempting to stop the virus, the Centers for Disease Control and Prevention (CDC) maintained a low profile while concentrating on creating a vaccine and modulating stress on the hospital system.

In 1957-58, the public was far less demanding than in 2020-2021. Covid-19 was framed as a doomsday event.[23] Political leaders felt compelled to get out in front of the issue, in contrast to the more reserved approach of the CDC and the media to the smaller but still significant 1957-58 flu epidemic. In addition, China in 2020 claimed to have throttled the virus by locking down Wuhan and other areas, seeming to offer a one-step, harsh but short-term cure for the pandemic. If lockdowns, social distancing, masks, and process tracing could bend the curve, as China claimed to have done, then governors of states, prime ministers, and presidents felt compelled to adopt this surefire means to *crush* the virus. In a situation of maximum uncertainty, like a pandemic or a war, political leaders are expected to provide certainty and promise success (victory) in the short run, in order to extract the necessary sacrifices. Just as in war, so it has been with Covid-19; promises of early victory did not survive initial contact with the enemy. Until vaccines became widely available, the virus, in its various forms, largely ignored lockdowns and even social distancing, and kept increasing. No matter how hard leaders tried, they remained consistently behind the curve, playing catch-up with an ever-resilient enemy.

7. Conclusions

The course of the pandemic, as well as our findings, provide scant support for the widely accepted (and deeply felt) idea that suppressing public movement through lockdowns can dramatically curb hospitalizations and deaths from Covid-19. Out of 13 cases studies here, only

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[23] See Niall Ferguson. 2021. *Doom: The Politics of Catastrophe*. New York, NY: Penguin Press.

three demonstrated statistically significant relationships between mobility and data on hospitalizations and deaths per capita: New York State, the United Kingdom, and Italy. These correlations were negative rather than positive. As lockdowns were imposed, the incidence of disease kept increasing, only to subside slightly allowing governments to ease restrictions to accommodate economic necessity and/or citizen resistance before re-imposing restrictions.

From a public policy perspective, the findings presented here are disappointing. Covid-19 kept spreading across countries, even in instances like the UK, where mobility was reduced below pre-pandemic levels for a prolonged period. Lockdowns were not the *silver bullet* they were presumed to be at the beginning of the crisis. Infections, hospitalizations, and deaths rose and fell without a demonstrable link to the lockdowns. This reality kept leaders scrambling between reluctantly locking down in response to indications of spreading, only to release lockdowns (perhaps prematurely) to retain public support.

This begs the question why the outcomes from mandated lockdowns have been disappointing. Our preliminary explanations are: It is always very difficult to halt the spread of a novel respiratory virus. Restraining geographic mobility does not directly stop the virus from spreading, especially within households. Even the most assiduously locked down households must have at least minimal contact with outsiders. The lockdown net always has holes in it. Population-wide lockdowns do not concentrate societal resources on the most vulnerable sub-populations (nursing home residents and staff and wider groups with serious co-morbidities), even though these sub-populations contribute disproportionately to hospitalizations and deaths. Population-wide lockdowns generate resistance. For example, bar closures may lead to replacement activities like early drinking or private parties, both of which may involve unprotected social contact. Over time, widespread mandated restriction of ordinary activities

(e.g., sending children to school, drinking, vacationing, etc.) provoke social resistance leading to organized social and even political resistance. Mandated changes are always more difficult to enforce than voluntary behavior changes based upon personal risk calculations. Persuasion remains the most efficient means of obtaining society-wide adherence to any restriction, but voluntary adherence fades over time. The broader the mandated restriction, the greater the burden on leaders to convince an entire population to stay home. Where whole segments of economies were shut down by stay-at-home orders, the non-pandemic-related costs to society are substantial: lost economic growth; social unrest; learning deficits among young children; increased substance abuse among stay-at-home adults; higher crime rates, etc. Perhaps the most serious negative externality has been the development of large pockets of resistance to public health information. For example, in the U.S. there are now large groups who refuse to avail themselves of vaccines, masks, or social distancing.

Finally, what might we learn about the public affairs aspects of dealing with Covid-19 that might be useful in future pandemics? What follows might be called an expanded D.A. Henderson playbook for dealing with a pandemic.[24] 1) Avoid early exaggeration of the magnitude of the threat, lest failed negative prognostications severely limit communicator credibility later in the crisis. Balance is required between convincing the public the threat could become serious and prematurely raising the specter of 1918-like catastrophe. 2) Set out a broad strategy devoting maximum resources to vaccine development while simultaneously planning surge capacity for hospitals and protection for the most vulnerable sub-populations. 3) Take the public into the government's confidence. To minimize aggregate risk taking, plan to educate

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[24] D. A. Henderson was the founding Director of the Johns Hopkins School of Public Health and best known for leading the successful campaign that eradicated smallpox throughout the world. His 2009 article on the 1957 influenza epidemic was meant as a guide for dealing with future pandemics.

rather than dictate. Distribute maximum hard evidence to the general public, emphasizing that officials do not know all and that everything is subject to change. 4) Avoid asking too much sacrifice, too early from too large a segment of the public. 5) Maintain a semblance of social normality while reiterating the inherent risks. Discourage large gatherings but allow sporting and entertainment events with appropriate social distancing and masking. Do not close elementary schools unless and until there is evidence that particular elementary schools are super-spreaders. 6) Except under the direst local circumstances, do not issue population-wide stay at home orders.

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