Lockdowns increase even COVID deaths

[Lockdowns have caused at least 36 times more harms in Australia than any benefits (even more harms than that in developing nations).

But – globally – do they actually reduce COVID deaths?]

Sanjeev Sabhlok and Jason Gavrilis (independent researchers)

This paper available at: http://sanjeev.sabhlokcity.com/Misc/DraftPaper-lockdowns.pdf

Data used in this paper at: https://github.com/jazon7/Oxford_COVID-19_-_Our_World_in_Data

“I can’t help, but think the safest place for an airborne virus would be to be outside. We had ... all sorts of policies ... [w]here I remember seeing people being accosted while hanging out alone on the beach.” - Jan Jekielek, Epoch Times

“untargeted lockdowns allowed the virus to wreak havoc since the government took its eye off the ball. Eighty per cent of the government’s effort went in “controlling” the broader society instead of focusing on aged care homes. As I will keep repeating throughout this book so no one forgets: many elderly deaths we have had could have been averted if the original pandemic plan had been followed.” – Sanjeev Sabhlok in The Great Hysteria and The Broken State.

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Comments or suggestions invited at sabhlok@gmail.com

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This paper examines whether lockdowns increase or decrease COVID deaths.

The OxCGRT database\(^2\) with its Stringency Index (SI) is one of the most significant tools available today to determine whether, and to what extent, various non-pharmaceutical interventions (NPIs) “worked” to reduce COVID fatalities. The database, however, has significant inbuilt shortcomings which hugely distort nature of NPIs and so, like with a carnival mirror, we are barely able to catch a true glimpse of reality. Studies that unquestioningly make use of it are likely to become illustrations of the well-known “garbage-in-garbage-out” adage rather than meaningful findings to inform public policy. The SI cannot help us make the most basic distinction: between nations (basically Scandinavian nations, mainly Sweden) that took a risk-based approach from nations that did took aggressive zero-COVID approaches.

On top of this risk are studies that jumped the gun and produced “recommendations” early in the pandemic. Such studies do not take into account the different distribution of COVID deaths under the risk-based (mitigation) scenario and the zero-COVID (eradication) scenario. The true impact only emerges over a medium to longer term, so patience is necessary to tease out the true effects of NPIs. Correcting for some of the shortcomings of OxCGT is possible with a lot of work, but another way is to try to retrieve some value from the database by using some of its components that do weakly distinguish Sweden from other nations.

The second part of the paper then uses these components to test whether lockdowns “worked” by using COVID deaths data from Worldometer. Despite the significant shortcomings of using such data on deaths, the paper finds that, on average, lockdowns increased COVID deaths. This is not the first study to show this. Regardless of whether lockdowns increase deaths, this much is conclusive: that they do not decrease COVID deaths in the medium to long-term.

The third part of the paper considers biological and behavioural concepts to explain why this might be the case.

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\(^2\) https://www.bsg.ox.ac.uk/research/research-projects/covid-19-government-response-tracker; https://www.nature.com/articles/s41562-021-01079-8
1. Executive Summary

[To be built at the end]
2. Introduction

City-wide, state wide, or nation-wide lockdowns are mandatory mass-quarantine – a form of non-pharmaceutical intervention (NPI), and may include curfews during certain hours.

These were never implemented for any respiratory pandemic in the past (a few failed attempts were made in the past for Ebola\(^3\)), and never recommended in any pre-2020 public health journal or official pandemic plan or the October 2019 World Health Organisation guidelines for pandemics\(^4\).

<table>
<thead>
<tr>
<th>SEVERITY</th>
<th>PANDEMIC (^1)</th>
<th>EPIDEMIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any</td>
<td>Hand hygiene&lt;br&gt;Respiratory etiquette&lt;br&gt;Face masks for symptomatic individuals&lt;br&gt;Surface and object cleaning&lt;br&gt;Increased ventilation&lt;br&gt;Isolation of sick individuals&lt;br&gt;Travel advice</td>
<td>Hand hygiene&lt;br&gt;Respiratory etiquette&lt;br&gt;Face masks for symptomatic individuals&lt;br&gt;Surface and object cleaning&lt;br&gt;Increased ventilation&lt;br&gt;Isolation of sick individuals&lt;br&gt;Travel advice</td>
</tr>
<tr>
<td>Moderate</td>
<td>As above, plus&lt;br&gt;Avoiding crowding</td>
<td>As above, plus&lt;br&gt;Avoiding crowding</td>
</tr>
<tr>
<td>High</td>
<td>As above, plus&lt;br&gt;Face masks for public School measures and closures</td>
<td>As above, plus&lt;br&gt;Face masks for public School measures and closures</td>
</tr>
<tr>
<td>Extraordinary</td>
<td>As above, plus&lt;br&gt;Workplace measures and closures&lt;br&gt;Internal travel restrictions</td>
<td>As above, plus&lt;br&gt;Workplace measures and closures</td>
</tr>
<tr>
<td>Not recommended in any circumstances</td>
<td>UV light&lt;br&gt;Modifying humidity&lt;br&gt;Contact tracing&lt;br&gt;Quarantine of exposed individuals&lt;br&gt;Entry and exit screening&lt;br&gt;Border closure</td>
<td>UV light&lt;br&gt;Modifying humidity&lt;br&gt;Contact tracing&lt;br&gt;Quarantine of exposed individuals&lt;br&gt;Entry and exit screening&lt;br&gt;Internal travel restrictions&lt;br&gt;Border closure</td>
</tr>
</tbody>
</table>

Figure xx: Summary of NPI recommendations from WHO’s October 2019 guidelines for respiratory pandemics

These entirely experimental measures were invented by Chinese leadership in Wuhan. In a short period of a few weeks, the WHO-China Joint Mission on Coronavirus Disease 2019 co-led by Bruce Aylward concluded on 24 February 2020 that “China’s uncompromising and rigorous use of non-pharmaceutical measures to contain transmission of the COVID-19 virus in multiple settings provides vital lessons for the global response”\(^5\). The world apparently had “vital lessons” to learn from the world’s first ever implementation of lockdowns – without the slightest scientific evaluation of these totalitarian measures.

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2. China’s uncompromising and rigorous use of non-pharmaceutical measures to contain transmission of the COVID-19 virus in multiple settings provides vital lessons for the global response. This rather unique and unprecedented public health response in China reversed the escalating cases in both Hubei, where there has been widespread community transmission, and in the importation provinces, where family clusters appear to have driven the outbreak.

Figure xx. Extract from the WHO’s February 2020 report

It is a mystery how the WHO could confidently overturn, in February 2020, decades, if not hundreds of years, of known science about pandemic management without even the slightest attempt of a scientific evaluation. The Chinese lockdown invention and the WHO’s endorsement of these policies not only upturn all standard risk-based, targeted approach, but these indiscriminate restrictions on people also breach international human rights obligations.

Nevertheless, almost all nations other than a few such as Sweden buckled to the political pressure exercised by the WHO and obeyed the WHO’s complete reversal of its pandemic guidance. One nation, Sweden, however, was vigorous in its defence of the known science. The head of the Swedish Public Health Agency, Anders Tegnell, provided the world with a masterclass on public health by explaining the logic of his actions at each step. He explained in the course of many interviews with journalists from across the world how Sweden was following the standard, well-established science and others were not. He exclaimed on 24 June 2020 that “It was as if the world had gone mad, and everything we had discussed was forgotten”.

The adage, “act in haste, repent at leisure”, applies to lockdowns. A number of cost-benefit analyses have now been conducted (none by any government agency) and confirm that lockdowns have caused devastation, including many additional non-COVID deaths. That part is now settled science: that lockdowns are an extremely harmful public policy.

The only question is whether lockdowns at least do what they claim to do: reduce COVID deaths. This paper answers this question in the negative. We show how lockdowns increase even COVID deaths, and propose some reasons why this might be the case.

2.1 Early literature which suggested that lockdowns increase COVID deaths

The possibility of lockdowns causing additional COVID deaths was being canvassed by mid-2020 by a few researchers based on a comparison of COVID deaths in Sweden with those in other nations like the UK (Figure xx). It was increasingly becoming evident that nations which imposed severe lockdowns were not reducing COVID deaths and were probably increasing them.

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7 E.g. see a recent cost benefit analysis for Australia by Gigi Foster at: https://www.thegreatcovidpanic.com/_files/ugd/23eb94_920d15dd484640ce8dfe8f045b14886.pdf (Do lockdowns and border closures serve the “greater good”).
Figure **xx**: Comparison of COVID deaths in the UK (with severe lockdowns) and Sweden (without lockdowns)

Similarly, South Dakota (population 0.885 million) did not have lockdowns while North Dakota (0.762 million) did. Figure **xx** shows that their COVID death outcomes were virtually identical (South Dakota’s COVID death rate was 2,526 per million, while North Dakota’s COVID death rate was 2,312 per million). At a minimum, North Dakota subjected itself to a lot of pain for very little apparent gain.

Figure 5.2: Comparison of COVID deaths in North Dakota (with lockdowns) and South Dakota (without lockdowns), Source: Worldometer, October 2021

Many other comparisons have been done, such as between Florida and other states. These comparative studies have found that states with lower restrictions have either outperformed the more restrictive states, or at least have done comparably well, in terms of COVID outcomes.8

There are too many strong pieces of evidence to support this hunch, that lockdowns increase COVID deaths. For example, over 55 lockdown countries have a higher COVID-19 death rate than Sweden even though Sweden has an exceptionally high elderly population (data from Worldometer).

There is a booming cottage industry since 2020 of studies that look into the impacts of the 2020 lockdowns on COVID fatalities. Some of these studies and observations include:

- On 20 May 2020, Elaine He at Bloomberg reported “there’s little correlation between the severity of a nation’s restrictions and whether it managed to curb excess fatalities.”9
- A June 2020 study published in Advance by Stefan Homburg and Christof Kuhbandner found that the data “strongly suggests” that “the UK lockdown was both superfluous (it did not prevent an otherwise explosive

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behavior of the spread of the coronavirus) and ineffective (it did not slow down the death growth rate visibly).”10

• In a 21 July 2020 cross-country study published in The Lancet, Rabail Chaudhry et al. concluded that “[r]apid border closures, full lockdowns, and wide-spread testing were not associated with COVID-19 mortality per million people”.11

• 12 August 2020: Liu, Yang, et. al., “The impact of non-pharmaceutical interventions on SARS-CoV-2 transmission across 130 countries and territories”12. The study concluded that “there was limited added value to introducing stay-at-home orders as an addition to other physical distancing measures”.

• In an August 2020 paper published with the National Bureau of Economic Research, authors Andrew Atkeson et al. found that covid-19 deaths followed a similar pattern “virtually everywhere in the world” and that “[f]ailing to account for this familiar pattern risks overstating the importance of policy mandated NPIs for shaping the progression of this deadly pandemic”.13

• 14 October 2020: Brauner, Jan M. et. al., “The effectiveness of eight nonpharmaceutical interventions against COVID-19 in 41 countries”14. The study concluded that “closing schools and universities was highly effective; that banning gatherings and closing high-risk businesses was effective, but closing most other businesses had limited further benefit; and that many countries may have been able to reduce R below 1 without issuing a stay-at-home order”.

• 13 November 2020: In his complaint to the International Criminal Court, Sanjeev Sabhlok wrote “data now suggests that lockdowns may increase COVID deaths”.15

• On 19 November 2020 a paper by De Larochelambert et al.16 found that “[s]tringency of the measures settled to fight pandemia, including lockdown, did not appear to be linked with death rate” and that other factors outside governments’ short-term control actually drove COVID death rates, such as prevailing life expectancy, co-morbidities, and latitude: “[r]egarding government’s actions (i.e., containment and stringency index), no association was found with the outcome, suggesting that the other studied factors were more important in the Covid-19 mortality than political measures implemented to fight the virus, except for the economic support index.”

• On 24 December 2020, Eran Bendavid et al. noted the following in their study, “Assessing mandatory stay-at-home and business closure effects on the spread of COVID”:

[W]e fail to find strong evidence supporting a role for more restrictive NPIs in the control of COVID in early 2020. We do not question the role of all public health interventions, or of coordinated communications about the pandemic, but we fail to find an additional benefit of stay-at-home orders and business closures. The data cannot fully exclude the possibility of some benefits. However, even if they exist, these benefits may not match the numerous harms of these aggressive measures. More
targeted public health interventions that more effectively reduce transmissions may be important for future epidemic control without the harms of highly restrictive measures.17

- **3 February 2021**: Paul Frijters wrote on 3 February 2021:
  The 10 countries above 5 million inhabitants with the highest reported covid death count per million at this moment are Belgium, the UK, Czechia, Italy, USA, Bulgaria, Hungary, Spain, Portugal, and Peru. The curious aspect is that each of these countries has had a particularly severe lockdown policy in most of its territory. Moreover, in pretty much each case the large glut of covid-deaths came after the imposition of lockdowns, most clearly in the second wave in the UK and the US.18

- **13 April 2021**: Christopher R. Berry, et al showed that “shelter-in-place orders had no detectable health benefits”19

- **June 2021**: Virat Agarwal et al.20 examined 43 countries and all US states, looking for a positive link between shelter-in-place (“SIP”) orders and excess deaths. The only countries in which they observed a fall in the trajectory of excess deaths were Australia, New Zealand and Malta. “All three countries are islands,” they reported. “In every other country, we observe either no visual change in excess deaths or increases in excess deaths.”

2.2 Lockdown impacts on COVID deaths known only at the end of the pandemic

Lockdowns are generally not imposed in a single episode. For instance, lockdowns in Melbourne in Australia continued over the course of 18 months, in multiple episodes. Each episode was different, some more stringent than others. While many harms of lockdowns emerged early in the piece, the impact of lockdowns on COVID deaths has been relatively more difficult to assess, given the innumerable and interacting variables involved.

Johan Giesecke pointed out a vital factor about lockdowns at the outset of the pandemic:

> **Interviewer**: But you think that at the end of the day they’re all pretty much going to end up with the same fatalities, the same results, the same deaths regardless of what measures they took. Explain that.

> **Giesecke**: Yeah... [T]he other thing with a lockdown is – when you open it you will have more cases, so the countries who pride themselves in having few deaths now will get these deaths when they start lifting the lockdown.21

Ultimately, lockdown nations have to open up and then the devastation they were pushing into future finally occurs. The correct method is to consider overall COVID deaths at the end of the pandemic.

We see the issue of duration showing up in Australia at the moment. Island nations like Australia and New Zealand in the Southern hemisphere had peak summer when COVID first hit their shores in late 2019 or early 2020, which means its spread was naturally contained and then shut down their borders. This enabled them to better prevent COVID from spreading but they could not prevent the “cat” from getting “out of the bag”. The moment lockdowns ended (e.g. in Melbourne on 22 October 202122) and borders opened in the first half of 2022, COVID spread rapidly in Australia.

The elderly who had been saved from exposure to COVID for two years, were ready to succumb due to the dry tinder effect. This has indeed been happening on a large scale in Australia (Figure xx).

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21 https://www.youtube.com/watch?v=2SdUmsMLW0o

This suggests that analyses conducted too early in the piece cannot provide any meaningful information on the true effect of lockdowns. Many early studies “jumped the gun” and declared lockdowns to be effective\textsuperscript{23} but such studies were inevitably flawed.

While the pandemic is not yet over, by looking at data at the end of 2021, it is expected that most effects of lockdowns will be included. In due course, this analysis can be replicated to also include 2022: that’s when the true results of lockdowns be fully known.

2.3 A basic problem regarding COVID deaths data

One of the severe limitations of this and other studies that are based on reported official data on COVID deaths is that such data virtually never match with total deaths. There are three kinds of possibilities, as shown in Figure xx.

COVID is a respiratory disease and if it were on par with the seasonal flu, or it merely displaces deaths that would have normally occurred from the flu (e.g. category C), then we would have no evidence of any pandemic in the overall mortality data. What matters is excess deaths caused by COVID beyond what is “normal” (i.e. category B). Reported COVID deaths that take the total figure beyond actual deaths (Category A) are fictitious COVID deaths. These are necessarily due to causes other than COVID.

\textsuperscript{23} https://www.reuters.com/article/uk-factcheck-lockdowns-idUSKBN2842WS
Reported COVID deaths are the sum of A, B and C categories but we are only interested in categories B and C. It is challenging to split reported COVID deaths into these three components. Category A “deaths” – the non-existent deaths – are the most pernicious.

There is a way to derive a meaningful calculation for Category B, illustrated below using Sweden’s data.

Sweden undertook minimally appropriate restrictions, almost all of them voluntary. We can assume, for simplicity, that all excess deaths in Sweden in 2020 and 2021 were caused by COVID, even though there must have been at least some excess deaths from other reasons (for example, due to reductions in visits to GPs and hospitals by people too scared to venture there). This allows us to make an initial estimate of the size of Category B in Figure xx, which reflects approximately how many more deaths occurred in Sweden due to COVID than what we would have expected in normal times from a respiratory virus.

Despite criticisms that its elderly were inadequately cocooned at the start of the pandemic, Sweden ended up with relatively few excess deaths in 2020. Figure xx shows that if the dry tinder effect of 2019 is combined with the presence of the COVID pandemic in 2020, the mortality rate drops close to the trend (90.6 per 10,000 is the average across the two years, which is the same as the mortality rate for 2018). Its 2020 death rate – even if taken in isolation – was lower than the average death rate from 2000-2021. Such “business as usual” results were achieved without any lockdowns, mandatory masks, quarantines, or extended border closures. This simple calculation suggests that there were zero deaths in category B in Sweden.

![Mortality rate, Sweden, per 10,000 of the population by year](image)

**Figure xx:** The death rate of Sweden over the past 20 years: COVID was evidently not a severe pandemic

But using deaths in 2017-2019 in Sweden as a baseline, Nobel laureate Michael Levitt has found that 2,996 excess deaths occurred in Sweden in 2020, representing around 3% of its expected annual deaths. We can use Levitt’s analysis to be a credible upper estimate of Sweden’s excess COVID deaths (Category B).

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But here is the problem: that this figure of around 3,000 excess deaths from COVID is vastly lower than the 10,000 odd reported COVID deaths in Sweden in 2020. We therefore need to keep in mind that similar errors likely plague the reported COVID deaths of all nations. All one hopes, while using the Worldometer data, is that such errors are not all biased in one direction, and that they therefore cancel each other out.

There is an alternative: to look only at excess deaths data, but as we have noted above in the case of Sweden, identifying excess deaths correctly is a challenge in itself, and we are not aware at the moment of any dataset that would be comprehensively superior to the Worldometer data.

3.1 The OxCGRT database and Stringency Index

A large-scale COVID policy (mainly NPIs) database constructed by the Blavatnik School of Government at the University of Oxford, called OxCGRT, tracks different 23 policy responses (such as school closures, travel restrictions, vaccination policy) since 1 January 2020 in more than 180 countries.

One of the more popular indices created out of this database is the Stringency Index, comprising the sum of 9 components – it is the mathematical average of 9 variables, with some additional weights.

Quoting from the Oxford university's text\(^{27}\):

The stringency index is calculated using the policy indicators C1 – C8 and H1. The value of the index on any given day is the average of nine sub-indices pertaining to the individual policy indicators, each taking a value between 0 and 100:

\[
l = \frac{1}{9} \sum_{j=1}^{9} l_j
\]

Indicators C1 to C7 and H1 have an additional flag corresponding to whether the policy has been applied locally, in specific areas/circumstances, or generally, nationwide. We define \( G' \) to be 0 if the policy is targeted and 1 if general. Note that a policy can only be general if it has a non-zero value, since a zero value corresponds to no measures being taken.

Because different indicators \( j \) have different maximum values \( N_j \) in their ordinal scales, we weight the additional contribution of a general policy by the average number of ordinal points across the eight indicators that have the targeted/general qualification. This ensures that general policies are not “over-contributing” to indicators with fewer ordinal points or “under-contributing” to indicators with more ordinal points. Specifically:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>NPI being coded</th>
<th>( N_j )</th>
<th>Targeted/General?</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>closings of schools and universities</td>
<td>3 (0, 1, 2, 3)</td>
<td>Yes</td>
</tr>
<tr>
<td>C2</td>
<td>closings of workplaces</td>
<td>3 (0, 1, 2, 3)</td>
<td>Yes</td>
</tr>
<tr>
<td>C3</td>
<td>cancelling public events</td>
<td>2 (0, 1, 2)</td>
<td>Yes</td>
</tr>
<tr>
<td>C4</td>
<td>limits on gatherings</td>
<td>4 (0, 1, 2, 3)</td>
<td>Yes</td>
</tr>
<tr>
<td>C5</td>
<td>closing of public transport</td>
<td>2 (0, 1, 2)</td>
<td>Yes</td>
</tr>
<tr>
<td>C6</td>
<td>orders to &quot;shelter-in-place&quot; and otherwise confine to the home</td>
<td>3 (0, 1, 2, 3)</td>
<td>Yes</td>
</tr>
<tr>
<td>C7</td>
<td>restrictions on internal movement between cities/regions</td>
<td>2 (0, 1, 2)</td>
<td>Yes</td>
</tr>
<tr>
<td>C8</td>
<td>restrictions on international travel</td>
<td>4 (0, 1, 2, 3)</td>
<td>No</td>
</tr>
<tr>
<td>H1</td>
<td>presence of public info campaigns</td>
<td>2 (0, 1, 2)</td>
<td>Yes</td>
</tr>
</tbody>
</table>

3.2 Illustrative studies that make use of the OxCGRT database

There are a number of studies that make use the OxCGRT database to consider the overall effect of lockdowns on COVID deaths. A few of them are outlined below.

\(^{27}\) https://www.bsg.ox.ac.uk/sites/default/files/Calculation%20of%20the%20Stringency%20Index.pdf
### 3.2.1 Lally’s study of 33 European nations

A July 2021 and January 2022 analysis by Martin Lally of 33 European countries confirms that the more stringent a country’s policies in terms of lockdowns and border restrictions, the greater its COVID deaths. The European nations are considered as comparable to Australia: “similar (on average) to Australia in ethnicity, cultural norms, demographics, GDP per capita, and the quality of their health care systems”. The results using the OsCGRT database are outlined below.

Regressing the death rate per 1m ($D$ up to 31 December [2020] on the maximum Stringency Index value ($S$), the population density ($PD$, in millions per 1,000 square miles), and date of first death ($FD$, in days from 15 February) yields the following result:

$$D = 273.9 + 7.34S + 473.1PD − 12.3FD$$

The $R^2$ is 0.29, and the $p$ values are 0.66, 0.27, 0.10 and 0.10 respectively. The coefficient on $S$ is statistically insignificant and the sign on it is ‘wrong’ (positive rather than negative).

A positive estimated coefficient on the stringency index implies that COVID deaths are higher the greater the stringency applied in a country.

### 3.2.2 Jonas Herby study

In January 2022, Jonas Herby, Lars Jonung, and Steve H. Hanke conducted a meta-analysis of 24 studies that look into the effect of lockdowns on COVID deaths. They were separated into three groups: lockdown stringency index studies, shelter-in-place-order (SIPO) studies, and specific NPI studies: “stringency index studies find that lockdowns in Europe and the United States only reduced COVID-19 mortality by 0.2% on average”. Overall, the study finds that “lockdown policies are ill-founded and should be rejected as a pandemic policy instrument”.

Being a meta-analysis, the Herby study takes an uncritical approach to the OsCGRT database and its definition of lockdowns is unrelated to risk-based approaches to public health. For instance, the study does not distinguish between risk-based closures of schools (e.g. the higher classes in Sweden) from inverted-risk policies in which the lower school classes are closed. Also, it conflates recommended (partial) school closures in Sweden with compulsion. Accordingly it finds that even Sweden had imposed “lockdowns”.

**Compulsory** non-pharmaceutical interventions (NPIs), commonly known as “lockdowns” – policies that restrict internal movement, close schools and businesses, and ban international travel – have been mandated in one form or another in almost every country.

It does admit that:

> Virtually all countries in the world implemented mandated NPIs in response to the COVID-19 pandemic. Hence, most estimates are relative to “doing the least,” which in many Western countries means relative to doing as Sweden has done”.

They wrote the NPI definition did indeed include interventions including schools or businesses, mandated face masking, and on. “Lockdowns” were defined as ≥1 NPI as described by the authors

Eligible studies were published by July 1, 2020 and observed the effect of lockdowns on COVID-19 mortality rates. The authors focused on studies examining “actual impact of lockdowns on COVID-19 mortality rates based on registered cross-sectional mortality data and a counterfactual difference in-difference approach.” Of 1048 observed trials, 34 met their eligibility criteria.

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Based on the Oxford COVID-19 Government Response Tracker (OxCGRT)—a database from the University of Oxford Blavatnik School of Government collecting global policy responses to the pandemic stratified by 23 indicators including school closures, travel restrictions, and vaccination policy—just 1 of 186 observable countries did not impose ≥1 NPI prior to the end of March 2020, during the global wave of COVID-19 cases.

Using a stringency index informed by the OxCGRT data, the authors reported that the average NPI in Europe and the US reduced COVID-19 mortality by 0.2% versus COVID-19 policies based on government recommendations.

“(SIPOs) were also ineffective,” the authors wrote. “They only reduced COVID-19 mortality by 2.9%.”

The team further reported a 10.6% reduced rate of COVID-19 mortality in regions that closed non-essential businesses, as well as potentially supporting—but limited—evidence of masking mandates for the reduction of mortality.

“The effect of border closures, school closures and limiting gatherings on COVID-19 mortality yields precision-weighted estimates of -0.1%, -4.4%, and 1.6%, respectively,” authors wrote. “Lockdowns (compared to no lockdowns) also do not reduce COVID-19 mortality.”

The team concluded from their research that lockdowns are not effective in reducing mortality rates during a pandemic, citing among their observed rationales that “even if lockdowns are successful in initially reducing the spread of COVID-19, the behavioral response may counteract the effect completely, as people respond to the lower risk by changing behavior.”

“If closing bars and restaurants causes the prevalence of the disease to fall toward zero, the demand for costly disease prevention efforts like social distancing and increased focus on hygiene also falls towards zero, and the disease will return,” they wrote.31

3.2.3 Other studies

Studies cited in the Herby study that use the OxCGRT database are listed below. Most studies use the number of official COVID-19 deaths as the dependent variable but one of these (Bjørnskov) looks at excess mortality.

10 November 2020: Stockenhuber (2020)32 find no significant effect of stricter lockdowns (higher OxCGRT stringency index).

13 February 2021: Chisadza et al. (2021)33 find that stricter lockdowns (higher OxCGRT stringency index) increase COVID-19 mortality by 0.01 deaths/million per stringency point.

25 March 2021: Berry et al. (2021)34 find that SIPOs increase COVID-19 mortality by 1% after 14 days.

29 March 2021: A study by Christian Bjørnskov that looks at total excess mortality found “no clear association between lockdown policies and mortality”35.


3.3 Other lockdown indices

Another lockdown index created during this period is the Bank of Canada COVID-19 stringency index\(^3\). This takes the Oxford database and adds a few more variables. This paper does not consider this alternative index.

\(^3\) https://www.bankofcanada.ca/2021/02/staff-analytical-note-2021-1/.
4. Review of OxCGRT and Stringency Index

We have a plague of bad models and bad “coding” in the field of public health that do not consider societal impacts of NPIs. This is entirely avoidable since public health experts have acknowledged this stark weakness in the past.

In relation to social distancing interventions, in 2007, "Donald Henderson of the University of Pittsburgh Medical Center cautioned against relying on models that do not take into consideration the adverse effects or practical constraints that such public health interventions would entail. Accepting such models uncritically, he warned, could result in policies that “take a perfectly manageable epidemic and turn it into a national disaster.”"\(^{37}\)

And belatedly, on 12 May 2022, one of the SAGE members in the UK admitted to this policy design failure:

Professor John Edmunds said the models were only supposed to be ‘one component’ of decision-making but were leaned on too much by ministers. He accepted the models failed to account for the economic harm and the knock-on health effects that lockdowns caused. Professor Edmunds admitted that these harms ‘in principle’ could have been factored into models “but in practice they were not”.\(^{38}\)

Just like the epidemiological models used by policy makers during the COVID pandemic turned out to be entirely misleading, the OxCGRT database has a strong tendency to mislead.

OxCGRT is basically a system to code different NPIs. But it is an ordinal system

4.1 Two theoretically valid options to code NPIs

Coding of NPIs is an important exercise for public health policy analysis. It is surprising that such a system was not already in place – since developing such a system would require significant thought. Since the coding would need to be in the form of numbers which are then suitable for statistical analysis, we should use cardinal numbers which have a strong basis in reality.

There are logically two options to code NPIs. The first is to use a cardinal code based on the societal impacts of NPIs. This would be a generic code which can be used to code all pandemics. Another option is to create specific codes for specific pandemics – such as COVID. These are outlined below.

4.1.1 Cardinal coding based on societal impacts of NPIs

Ideally, NPIs would be ranked based on a standardised dollar cost imposed by these measures on society. We could also use QALYs or WELLBYs as the standardising tool. For instance, stay-at-home mandates would be sorted into different categories (e.g. being sealed inside the house, like they did with fake videos from China, being the highest, the Melbourne type with 23 hours requirement to stay at home, including an 8 hour curfew, being next). Each category would impose different impacts on society in terms of QALYs and WELLBYs.

Since doing this is quite challenging, a simpler alternative could be designed as a proxy.

Acknowledging that mandatory policies have a grossly disproportionate impact on the community, the scale would need to at least be non-linear. Instead of values 2 and 3 for different kinds of lockdowns (as used in the OxCGRT database), we could use at least 3 and 9. Under such a regime, the 23-hour lockdowns in Melbourne with an 8-hour curfew would be coded as 9. Such lockdowns not just affect millions of people (being untargeted, broad-brush, across-society measures), they also vastly increased panic/hysteria/mental health issues

\(^{37}\) https://www.ncbi.nlm.nih.gov/books/NBK54157/#summary.s15

\(^{38}\) Daily Mail, “SAGE models were too ‘scary’ and held too much weight... says lockdown architect behind them! No10 Covid expert admits death forecasts were ‘eye watering’ and should have considered economy”, 12 May 2022, https://archive.ph/7Viff.
in the community. By allocating 1 to recommended stay-at-home orders and 3 to extreme lockdowns, the Oxford database ignores the vastly different impacts of these policies.

discuss the inevitability of garbage-in-garbage-out from a database that entirely ignores the costs and consequences (let alone the ethics) of various measures.

Did the Oxford database claim to have considered the costs to society or negative impacts of NPIs while designing the code – what was its basis?

The OxCGRT database is invaluable in order to try to understand which NPIs worked and which did not.
But it was created in great haste and implemented in many cases before different countries took a clear stance on the policies they would implement, so the database is in many ways delinked with either reality or with any standard risk-based approaches to dealing with pandemics.

The Oxford stringency index is intended to compare “stringency”. We should note at the outset that stringency is not even a word in public health literature. Stringency implies that there is a particular level of NPIs which is excessively stringent. A knot can be just right, too tight or too loose. Stringency can be at the “correct level”, “too low” or “too high”.

Deciding the correct level of stringency requires careful consideration of the public health literature. But there is no definition of the correct level correct level of stringency in the Oxford index. A diligent compliance with public health laws and pandemic plans require a risk-based approach, illustrated in this description of different scenarios in Australia’s pandemic plan. There is a well-graded system in place to assess the proportionality of responses. The lowest level of clinical severity was “Scenario one”, in which:

The majority of cases are likely to experience mild to moderate clinical features. People in at-risk groups and those with comorbidities may experience more severe illness. Strategies to support at-risk groups, once they are identified, may be required (e.g. people with underlying illness, people with immunocompromised conditions, aged care, infants, Aboriginal and Torres Strait Islander peoples, remote communities). At the peak of the outbreak, and increasingly when transmissibility is higher, primary care and hospital services may become stretched in areas associated with respiratory illness and acute care.

There has never been a situation anywhere in Australia in 2020 during this pandemic in which Australia’s health services were “stretched” in any way. The severity of this pandemic has never exceeded Scenario one. Therefore, stringency has to be linked to relevant clinical severity. It does not exist in a vacuum. Even in mild scenarios, certain actions would need to be taken to protect public health.

The database was created well in advance of implementation of the detailed policies that are being measured.
Therefore, while it does a tolerably good job on some variables, it fails at many levels to reflect the true nature of actual policies implemented.

It does not recognise that lockdowns are an experiment never implemented anywhere in the world before. The design of the database should have aimed to focused on this issue – to help distinguish lockdown effects from any other effects. All nations other than Sweden swallowed Chinese lockdown policies which are completely forbidden by the laws and the pandemic plans of these nations. Lockdown policies directly breach international human rights obligations and are therefore in an entirely different league to routine public health policies.

The underlying theory behind the database is that human beings are atoms to be dealt with mechanistically and moved around at the whin and fancy of the state. There seems to be no regard to human rights and ethics in the design of the database.

The single biggest issue is that it conflates recommendations with mandates – barely distinguishing them in terms of the ordinal scale. This makes the database inevitably biased towards more restrictive policies. As a result, Sweden – which followed a risk-based mitigation strategy consistent with the pre-covid scientific literature – comes out in this database as a stringent country. The coding also considers recommendations which are complied with by the community to be mandates. The fact that Public Health Agency of Sweden had developed a relationship of trust with the community is ignored, and recommendations are given the status of a mandate.
RISK BASED APPROACH

Voluntary measures (such as governmental recommendations, information campaigns, access to mass testing, voluntary social distancing) should not be counted as NPIs.

4.2 Overcoding of Sweden

The OxCGRT database tends to “over-code” Sweden. A few illustrations are provided below.

4.2.1 School closures

A lack of a risk-based approach is reflected throughout the database, and in the case of schools, all considerations of risk and broad-public health issues are tossed out, leaving us with a mechanistic approach which misleads. So Sweden, which had most grades in school open throughout the pandemic and was cited globally as an example of a nation which kept its schools open, is coded (for C1) as a 2G which stands for “require closing only some levels or categories, eg just high school, or just public schools”. This coding of 2 is on par with heavily stringent nations for school closures, for instance Australia’s policy has been coded as 2T (targeted – i.e. in some states).

This makes a mockery of the Sweden’s policy which was both risk-based and considered options that cause the least harm. Sweden recommended that all primary and lower secondary schools (up to age 16) remain open for face-to-face teaching while upper secondary students could study from home. In Australia, in some states, schools simply shut down and every child was forced to study from home. The harm caused in Australia to children was infinitely higher, but it ends up with the same score as Sweden. Not just that, a strict reading of the OxCGRT coding would have given Sweden a score of 1G since its school policy was a recommendation. But it has been coded as a mandate (2G) since most schools complied with the recommendation.

Vincenzo Alfano[^39] produced a study based on the OxCGRT database which considers that “school closure is effective in reducing the number of people who are infected with COVID-19”. Unfortunately, such studies which uncritically make use of the OxCGRT database are not just wrong, they can be very dangerous. If we accept such “studies”, we will soon see official guidelines and pandemic plans that call for schools being shut down even for a virus like COVID which has virtually no impact on children’s health.

The reality is that the actual risk of COVID transmission from leaving schools open has been miniscule. A comparison by the Public Health Agency of Sweden in June 2020 (which continued with face-to-face schooling till upper secondary, i.e. till age 16) showed no statistical difference in paediatric COVID cases and no increased risk to teachers compared to other professions.[^40] Statista shows a total of 23 reported deaths from COVID of children below the age of 19 through 13 April 2022 in Sweden.[^41] Data from various countries confirms that very few of these children are likely to have died directly from COVID, as most had serious co-morbidities. For a risk of this insignificant magnitude, similar to or lower than from the flu, there was never any reason to shut down schools anywhere in the world. But misguided use of the OxCGRT database will doom the education of children even in the future.

4.2.2 International border closures

Another example is international border controls.

On 30 March 2020, CNBC reported: “Unlike its immediate neighbors Denmark, Finland and Norway Sweden has not closed its borders or its schools”[^42]. On 21 April 2020, Anders Tegnell said: “Closing borders, in my


[^42]: https://www.cnbc.com/2020/03/30/sweden-coronavirus-approach-is-very-different-from-the-rest-of-europe.html
opinion, is ridiculous, because COVID-19 is in every European country now”. On 3 June 2020, Al-Jazeera published a chart which showed Sweden as having open borders (green).

Nevertheless, Sweden has been coded as 3 on C8 for most of the duration of the pandemic, including on 21 April 2020. Since this is an ordinal scale, this would imply that Sweden largely had a major border closures. It is true that since 19 March 2020, a ban applied in Sweden to “all foreign citizens travelling to Sweden from all countries except EU Member States, the United Kingdom, Norway, Iceland, Liechtenstein and Switzerland”. But as a 17 April 2020 news report clarified: “Swedish citizens are not affected by this measure, pointing out that the entry ban does not prevent travel within the EU”.

Most people cut down travel voluntarily during the pandemic but the ability of Swedish citizens to travel within the EU would have provided significant mental comfort to its citizens. The ordinal scale value of 3 for Sweden is therefore grossly over-states the restriction. In due course, Sweden even extended the list of countries from which foreigners might enter, but it continued to be coded as 3.

If we consider the theory of virology/public health, then the fact that borders were open with the EU implies open borders since the virus strain was already present in the EU and therefore was being transmitted (both in and out) through international flights to Sweden.

Further, since this is an ordinal scale, the value of 4 significantly bumps up Sweden’s border closure score. This is inconsistent with what we know about the way the people of these countries felt or were treated and the way Sweden’s citizens avoided the enormous side effects of lockdowns.

Moreover, the database fails to recognise the pressure imposed by the European Union on Sweden. Sweden justified its border closures only due to the requirements of the European Union. The fact that Sweden was following external (i.e. EU) policy is not reflected in the database. The same thing has happened with regard to vaccine passes, in which Sweden was compelled by the EU to impose the pass. [DN: cite]

c) Stay-at-home orders

A third example is coding for stay-at-home orders. On many days, e.g. 8 November 2020, the code for stay-at-home interventions (C6) in Sweden and Australia is the same (1G). This is wrong. Sweden never recommended stay-at-home orders. A recommendation to work from home where possible is not a stay-at-home order. Only

43 https://www.nature.com/articles/d41586-020-01098-x
44 https://www.theglobaleconomy.com/rankings/covid_stringency_index/
actual restriction on physical movement is a stay-at-home order. This approach to stay-at-home orders effectively makes this component of the database largely unusable. This matter becomes even more problematic when we consider that policymakers of Australia were drumming up hysteria on a daily basis throughout 2020 and 2021, calling it a once-in-100-year event, while in Sweden Anders Tegnell was calming down the people. The level of irrationality and hysteria across Australia was astronomically higher than in Sweden.

Further, Melbourne gets a rating (2) for most of the duration of its lockdowns in the OxCGRT database but there are enormous differences in the impact of different lockdowns in Melbourne. A restriction of 23 hours including a 9-hour curfew with a 5 km border as well as a “ring of steel” around Melbourne is far more severe in its impact than a lesser restriction. All these have been lumped together.

The code for C6 ranges from 0 to 4. Recommending (not mandating) that the elderly work from home (the young should continue to work as usual, with precautions) would be the correct risk-based response in this case, to be coded as 0. Issuing no recommendations like Cameron and Nicaragua did, was probably a bad idea and should have been coded -1. Stronger restrictions that apply to everyone (e.g. even to the young) were not risk-based and needed to be coded at 1, 2, and higher levels.

One of the main things it should have been expected to “predict” is the stark difference between policies adopted by Sweden and by the rest of the world.

A great debate has raged over the past two years about Sweden. It has been attacked by the media, politicians and public health officials across the world because it allegedly took a “relaxed” approach to the pandemic compared with other nations, and had more deaths than its neighbours, Norway and Finland.

Worldometer data on COVID deaths per million as at 29 April 2022 show the following: Sweden 1835, Finland 709, and Norway 533. It may be tempting to see this as “smoking gun” evidence of the need for lockdowns, but this is not an appropriate interpretation, for several reasons.

a) Even the imperfect SI shows that neighbouring Scandinavian nations had COVID policies that were broadly similar to Sweden’s. Jon Miltimore notes that “Sweden’s government response stringency never reached 50, peaking at about 46 from late April to early June [2020].” At the same time, “Norway’s lockdown stringency has been less than 40 since early June [2020], and fell all the way to 28.7 in September and October. Finland’s lockdown stringency followed a similar pattern, floating around the mid to low 30s for most of the second half of the year, before creeping back up to 41 around Halloween.”45 Their low level of restrictions are consistent with low levels of COVID deaths.

b) Several factors pushed COVID deaths higher in Sweden than in its neighbours. These include the “dry tinder” effect of a mild flu season in Sweden in 2019, and the observation that its elderly are arguably more vulnerable, on average, to respiratory viruses than in neighbouring countries due to features of its aged-care sector. As reported by Swedish economist Fredrik Erixon: “Sweden’s nursing homes have for a long time been dangerous places for their residents during the flu season… The country has about 12,150 nursing home beds per million citizens compared to 7,800 in Norway. Each nursing home also has more residents. A virus that is spread in a Swedish nursing home will kill more people than in a Norwegian home.”46

The main shortcoming of the Stringency index is that it does not distinguish a country like Sweden, which followed the well-understood and proven methods of science, from countries that did not. Such a failure has arisen because the coding is unrelated to risk and conflates measures which are entirely different, into a single code.

The SI tells us very little about this great debate. While Sweden ranks relatively low on the Index for most of the duration of the past two years, at times it has been coded as being more stringent than the USA. That is an “in-your-face” absurdity which tells us that something is fundamentally wrong with the database.


4.3 Severe coding errors

It is unclear whether there has been any diligent check on coding. But during the process of sub-national coding for Australia, Sanjeev Sabhlok found enormous errors which – if replicated elsewhere in the world – make the database almost entirely unusable.

For instance, for C8 (International travel controls), most volunteers had coded Queensland as “2” since March 20-2020 because the state required a quarantine for arrivals. They entirely ignored the fact that Australia’s borders had been sealed tight and shut both ways (foreigners could not enter Australia, nor Australians leave the country). This was a restriction that should have been coded far greater than 4 (if such an option existed), but most volunteers missed even that, thus making mincemeat of the database.

Someone using this database will think that Australia had very mild border restrictions when its restrictions competed with North Korea’s.

4.4 Weighting of indicators in the Stringency Index

The weakness of ordinal scales in the OxCGRT database that have been designed without regard to the magnitude of harm, has been aggravated by weighting the 9 components of the Severity Index equally.

It makes no sense to weigh public transport restrictions in the Stringency Index equally with stay-at-home restrictions. Stay-at-home restrictions affect an entire nation while public transport restrictions affect only those who use it. Further, the negative impact of stay-at-home restrictions is for the entire day, while public transport restrictions are for a short duration. People have alternatives like a personal car can readily substitute public transport (which they did), but there is no option when one is locked for 23 hours inside the house, with an 8 hour curfew at night, allowed to go out for one hour within 5km of the house.

4.5 Zero COVID vs mitigation

The standard science of managing pandemics is about mitigation, to ensure that we keep the burdens on the health system in check. But except for Sweden and perhaps for a couple of other nations, most declared a zero-COVID strategy: eradication of the virus from within their country. That led to polices not only unprecedented but in fact, forbidden by the public health literature. The basic question at the outset should therefore have been: How do we fist distinguish zero-COVID nations from others.

Zero-COVID nations mostly followed coercive measures, the mitigation nations followed mainly voluntary measures. This distinction should have been the first port of call in the design of the OxCGRT database.

A mandated policy is backed by the brute force of the police. It is an act of violence by the state on the community on the basis that it is for their overall benefit. But just like we can’t go about assaulting people except in self-defence, there is a much higher (human rights) standard for the application of force by the government.

Yes, the Oxford database does try to capture this difference. Consider a government (e.g. Sweden) which recommends that people work from home where possible and another (e.g. Australia, India) which uses the police to ensure that no one is in the streets. The Oxford database codes the first of these as 1, the second as a 2 or 3.

But this misses the point. The relative impact on society of these two measures is vastly different – by an order of magnitude. It is the difference between advising someone to do something and assaulting them if they don’t. The Universal Declaration of Human Rights makes it clear that freedom of movement is inviolable unless there are extraordinarily strong circumstances – for which the case was never made during the pandemic. Instead, it was well known that lockdowns will impose a massive net harm on society.

Recommended measures allow people to carry on with their life, with precautions. They are not asked to produce justification for their presence on the streets. They are not fined, beaten, arrested for moving about. Likewise, a mask recommendation is a peaceful suggestion to our good sense. But with mask mandate people are beaten up by the police, which is vastly detrimental to community wellbeing. Our humanity is itself violated by unnecessary mandates.

Sometimes, though even mandatory measures might be acceptable.
4.5.1 Distinguishing proportionate from indiscriminate measures

There are times when, in compliance with public health laws and pandemic plans, certain coercive actions need to be taken. But the act of coercion engages a vast set of human rights laws and ethics requirements. The concepts of proportionality and ethics, both of which require risk-based approaches, are deeply embedded in the discipline of public health. Any coercive interventions must necessarily be targeted to the risk.

The naïve approach taken by the Oxford database is understandable if the science of virology, immunology, epidemiology and public health was no more than a blank slate before the COVID pandemic, and if OxCGRT was the first attempt to identify what works. But there was already a vast and comprehensive literature which knew about the harms of lockdowns and rejected border closures (e.g. Donald Henderson) and masks being worn by the general community. Instead, keeping borders open was important, as Sunetra Gupta has explained, in order to keep up the level of immunity of a population.

The Oxford designers display no knowledge of public health, no knowledge of the W.H.O.’s October 2019 guidelines. A working paper on the OxCGRT website lists no public health specialist, no epidemiologist as a co-author.

Everyone who mattered knew precisely what should be done for different types of pandemics. Formal guidance was documented in national/state pandemic plans. Depending on the lethality of a virus and the distribution of risk, some mandates/restrictions were acceptable. Public health science required targeted restrictions to prevent high levels of harm (such as for the elderly in aged care centres), with only recommendations elsewhere.

Illustratively, Victoria’s 10 March 2020 pandemic plan said that “COVID-19 is assessed as being of moderate clinical severity”. It took a risk-based approach and “focused on protecting vulnerable Victorians”. It explained that “older Victorians and people with chronic diseases are known to be at greater risk of COVID-19 infection”. And it said that it would “ramp up risk reduction activity [for] at-risk groups”. Lockdowns were not even remotely part of the policy mix under such a targeted approach.

A risk-based matrix had to underpin the database design, not the tick-a-box mechanistic approach taken – without regard to risk, severity, harm, costs, or the science. Such a mechanistic database would never pass muster in any public policy field.

In the field of occupational health and safety (OHS) a mechanistic approach for OHS coding could lead to an index in which testing and tagging of equipment (such as the electrical lead of a toaster or a computer) is ranked equally with preventative arrangements for falls from heights of construction workers. But the probability of harm multiplied by the magnitude of harm is entirely different for these two cases, with the dollar magnitude of compensation claims including standardised cost of death providing far more useful insights than any ordinal scale or arithmetic sum. Experts in OHS would never accept coding of risks which is unrelated to the extent of harm.

The Oxford database design team could have asked the literature and the experts: What would be the standard, well-accepted public health policies for COVID, for which benefits exceed harms? Such a package of proportionate measures should have been coded as 0. Restrictions less than this should have been coded as -1 or -2, and restrictions beyond the standard package, given positive values. For instance, currently the database codes “no measures” as 0, whereas inaction might represent a failure of the public health response and in many cases should be coded as -1. The biggest issue is that recommended policies are currently classified as 1 in most cases. But a recommendation a civilised, not totalitarian policy. It should necessarily be coded as 0.

The masking component is largely unusable since the most fundamental question is not asked: the kind of mask required or recommended. Since covid largely spreads by aerosols, not droplets, the distinction between various types of masks becomes even more important. Only a tightly fitted N95 mask can provide any protection against aerosol-driven viruses. But there again, any meaningful impact would only occur in high-risk settings. The only thing that mask mandates outdoors (coded as 4) can tell us is about the state of hysteria in a society. Later in this paper we do make use of this code (H6) mainly because of this – that it provides useful information about the indiscriminate over-reach of the government.

For schools (C1) the coding design is entirely unusable. The code 2 “require closing (only some levels or categories, eg just high school, or just public schools)” is problematic. There is a vast difference between requiring senior classes to study online from home and requiring little children in primary school to do so. Equating entirely different policy interventions effectively muddles up the meaning of this code.
The code “1” for C1 is also problematic. For instance, by 2 June 2020, all schools in the Australian Capital Territory returned to face-to-face education. A range of relatively mild measures were implemented including a “school cleaning plan” to ensure regular cleaning of high-touch surfaces, and strong social distancing requirements for those over the age of 25 including parents. For the most part, schools operated normally during this period. Since these (extremely mild) measures are not “no measures”, these have been coded as 1. Instead, such measures should have been allowed to be coded as 0 since these are risk-based actions and definitely not excessive or harmful.

4.5.2 Implicit assumptions

The codes are replete with inbuilt assumptions, e.g. for C2 “recommend closing (or recommend work from home) or all businesses open with alterations resulting in significant differences compared to non-Covid-19 operation”. This assumes that a non-binding recommendation (which is non-enforceable) is somehow equivalent to businesses being open but with significant “alterations” (which are mandatory). It is unclear how these two can be treated on par, since “alterations” cause severe additional economic and wellbeing harm, while “recommendations” do not.

There are many other issues with the database as one gets into detail. A few are outlined below:

- **Coding inconsistencies.** A small army of volunteers across the world does the coding, so some inconsistencies are inevitable. For instance, it appears in the coding for Hungary for C7 that some volunteers have conflated C7 with C6. Such errors can potentially be ironed out – albeit at a great cost of time and effort.

- **Fine-tuning not possible:** The coding does not take into account a range of real-world complexities. This is inevitable, for it is impossible to specify the hundreds of varieties of distinctions that can be made in different contexts with NPIs. But the differentiation built into the codes is often either not sufficient, or in some cases, directly misleading.
  - Consider E1 (income support). In this case, during April 2022, there was no Victorian direct cash payment to people who lost their jobs or couldn’t work due to COVID. However, emergency accommodation was available to people in Victoria who need support to quarantine or isolate safely because of a COVID-19 diagnosis or a close contact. Food and essential items support were also available but only for the most vulnerable and in need. Any such support was likely to be well below 50% of someone’s salary but not entirely zero. The coding options for such a situation do not exist, so many people have coded it as 1 (“government is replacing less than 50% of lost salary”), but this code is likely to mislead.
  - Or consider C8 (international travel controls) for which the options include 0 - no restrictions, 1 - screening arrivals, 2 - quarantine arrivals from some or all regions and 3 - ban arrivals from some regions. During April 2022, in Australia\(^{47}\) there continued to be screening of all international arrivals into Australia with a ban on the unvaccinated (Australian permanent residents and citizens can travel to Australia regardless of vaccination status). Australian citizens/ permanent residents who enter without vaccine “may need to complete a mandatory quarantine period”, so this code is not quite accurate - there is no scope to reflect this information.

- **Complexity of directions:** There have been many cases of businesses and not-for-profit organisations not quite able to grasp the implications of various official directives which are worded in bureaucratic language and are complex and convoluted. Consider the coding of H8 (Aged care) in the Northern Territory. The 19 August 2021 “COVID-19 Directions (No. 48) 2021: Directions for Aged Care Facilities”\(^{48}\) were amended on 24 December 2021. In this, there is a distinction between vaccinated and unvaccinated visitors: “a person

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who does not have an up-to-date vaccination against influenza”. Since this refers to the flu and not the COVID vaccine, this is treated by some volunteers as 1, others as 2, and some treat this as a vaccine differential policy, others not.

- Not possible to code consistently: Consider C3 which records public event cancellations. There are a vast array of public event orders which do not fit neatly into “2 - require cancelling” or “0 - no measures”. In such cases, volunteers have coded this as 1. The coding should at least have allowed for a wider range of options. Likewise, the masks policy (H6) is hard to code (and this is not just about the lack of specificity about the kind of mask). For example, on 7 August 2020 the guideline of the Australian Capital Territory stated: “Masks are not required in the ACT”. We could assume, then, that the code 0 (“no policy”) should apply. But that would be incorrect since there is a policy on masks. Further, the government seems to believe that masks work. They claim that “masks are just one line of defence against COVID-19” (which means they work). And they recommend its use under certain circumstances (e.g. if you have COVID-like symptoms such as coughing and sneezing, and need to leave your home for an essential reason, are in quarantine or self-isolation and need to leave your home for medical attention, etc.).

One only hopes that coding inconsistencies and errors of interpretation cancel each other out.

Consider code 1 for C1: “recommend closing or all schools open with alterations resulting in significant differences compared to non-Covid-19 operations”.

It seems here that there is a vast difference between these two. Further, why would a government recommend closing but not close its own (government) schools? Such a recommendation therefore amounts to a mandate. Private schools would find it hard to remain open in the presence of such recommendations.

On the other hand, the word “significant” is not well-defined so subject to interpretation.

On 5 August 2020, in Queensland, it was stated that while schools are open, “Physical distancing measures between adults remain in place”. It is unclear whether these were mandatory, nor is it clear whether these qualify as “significant”, but most volunteers have coded this as 1.

4.6 Retrieving value from the database

SI ignores mask mandates (H6) – which is surprising since these were among the most the most intrusive and physical manifestations of the power of the State over the people. Nothing said, “I the government control your life”, as much as mask mandates outdoors in open parks, enforced through brute force (this happened even in so-called Western nations, such as Australia, with Melbourne seeing innumerable police brutalities in the name of public health). Not wearing a mask signalled “disobedience”, allowing the police to quickly pounce on the disobedient. When people saw others wearing masks, that increased the level of panic and hysteria in society.

Foster and Sabhlok (2022) have proposed that the sum of C2, C6, C7 and H6 (Workplace closing, Restrictions on internal movement, Stay at home requirements and Facial Coverings) could potentially give us a meaningful measure of the severity of lockdowns, at least far superior to the Stringency Index. Why are the highly questionable components C6 and H6 being included? Because we have nothing better, and the idea is that H6 might give us a sense of the hysteria.

This index is being called Total Restrictions for this paper. Figure xx shows that this index is better able to distinguish the risk-based, lighter-handed approach of nations like Sweden and other Scandinavian nations, compared with the standard Stringency Index.

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Figure xx: Comparing the impact of the Stringency Index and the Total Restrictions index in Europe

The chart at the left top is based on the uncorrected Oxford stringency index; the one on the right uses the Total Restrictions. Neither is good enough, but the latter is at least somewhat better able to distinguish Sweden’s approach from that of other nations.

The following map of the world reflects the sum of these four variables.

To try to control for the fact that the ordinal scale of the OxCGRT database does not recognise the non-linearities of impacts involved, the regressions in this paper will cube the Total Restrictions index.
5. Part 2: Assessing the impact of lockdowns on covid deaths

We use a few simple regressions to understand the impact of lockdowns. Data from Worldometer is used as a proxy for actual COVID deaths. The well understood weaknesses of Worldometer create complications and limitations which are unavoidable. These include the fact that the Worldometer data reflects reported COVID deaths which include both those with and from COVID.

In the case of Sweden, there was a net zero effect of the pandemic on its overall mortality. This means that any analysis of COVID deaths that does not control for actual COVID deaths will potentially mislead.

5.1 Correlates of COVID deaths per million

Some of the correlates of COVID deaths (from Worldometer) in 2020 and 2021 in Europe are illustrated in Figure xx. Note that the correlations both for stringency and total restrictions (the lockdown variables) are in the opposite direction to what has been claimed by politicians and the media since the 24 February 2020 WHO report came
out (based on just a few weeks of data). This suggests that the more stringent the lockdowns, the more the COVID deaths. This will be tested through OLS regressions below.
Globally, the correlation drops considerably, but the direction is still the opposite of what is expected from policy makers.

5.2 Consideration of potential independent variables

5.2.1 A family of variables that capture the population structure and level of development

The correlation matrix for the variables considered is provided below:

It appears that there is a cluster of variables (human development index, life expectancy, median age, obesity) that are all related to the level of development in a society. Likewise, the extreme poor have significantly lower diabetes and obesity.

So we have just included one of these variables.
COVID can cause greater harm to the elderly, so the proportion of elderly in a society is likely to be a good predictor of the level of COVID deaths per million. From the correlation matrix, the median age is stronger predictor of COVID deaths per million than other similar variables, so we have picked it for this study.

5.2.2 Vaccine uptake

For 2021, the countries with higher vaccine rates had relatively fewer COVID deaths. There is also a strong theoretical basis to include vaccines.

5.2.3 Variables considered but not included

Population density seems to be correlated in 2020 but not in 2021. We have decided not to use this variable since its theoretical predictive capacity is unclear. It seems self-evident that a respiratory virus will spread more densely inside heavily populated tall multi-storied buildings or in dense indoor marketplaces, but in general people do not live so densely in most countries. Even in Bangladesh, with its high density, most people live in wide open spaces in villages.

Latitude was used in some regressions since it might reflect Vitamin D deficiency. But latitude correlations have a sign contrary to what is expected (higher latitudes have fewer deaths). This suggests that this variable is probably not capturing Vitamin D deficiency but something else (e.g. income/ quality of the health care system). We have therefore excluded latitude.

Obesity: In the USA mortality seems to have been higher than in many countries arguably because of its high levels of obesity. But it turns out that obesity is correlated to other economic development variables (correlation matrix above). We have therefore decided to exclude it from the final regressions.

5.3 Regression 1: using the Stringency Index

The stringency index has been used by Lally (cite) – and by Hanke (cite).

5.4 Regression 2: using “Total Restrictions”

This yields the following results:

5.5 Testing for reverse causality

It is possible that governments increase the severity of lockdowns when COVID deaths increase? As Lally notes in his 2022 paper51:

One possibility is that reverse causality applies, i.e., the choice of policy is influenced by the death rate as well as the death rate being affected by the policy choice. The Appendix investigates this possibility and concludes that it does not operate.

A second possibility is that, even without government restrictions, people will take actions to lower their risks in a pandemic and the incremental effect of government actions may then be too little to be statistically significant.

6. Part 3: Why lockdowns cause more COVID deaths

The increase in non-COVID deaths from lockdowns is huge and has been extensively proven. The net impact on society of lockdowns is therefore devastating. But do lockdowns at least reduce COVID deaths. This paper provides very strong evidence that lockdowns did not reduce COVID deaths. Instead, it provides weak evidence that lockdowns increased COVID deaths.

Even the possibility that lockdowns might have increased COVID deaths requires an explanation. There are a number of possible reasons why might lockdowns increase transmission of COVID and vulnerability to COVID.

6.1 Consequences of inverting the standard risk-based approach

Lockdown nations focus their energy on trying to prevent low-risk people (such as the young) from contracting the virus. This inverted focus, being the opposite of a risk-based approach, has consequences.

“Untargeted lockdowns allowed the virus to wreak havoc since the government took its eye off the ball. Eighty per cent of the government’s effort went in “controlling” the broader society instead of focusing on aged care homes. As I will keep repeating throughout this book so no one forgets: many elderly deaths we have had could have been averted if the original pandemic plan had been followed.” – Sanjeev Sabhlok in *The Great Hysteria and The Broken State*.

6.1.1 Reduced head space to deal with the virus

Lockdowns require the political and health leadership to deal with entirely self-created problems, including the mass confusion (and even mass-protests) created by insistence on locking up the young who are at little or no risk from COVID. In Victoria, for instance, the news has been full of cases of police brutality and anger in the streets of Victoria during the lockdowns, which necessarily diverted the mental energy of the leadership. This meant that the energy and time for thinking and planning to save the high-risk lives by cocooning and caring for the elderly was adversely impacted. As a result, more of the elderly die from COVID.

6.1.2 Delays the natural barrier to the virus by reducing infections among the young

Herd immunity is a law of nature for all infectious disease – regardless of whether it comes from recovery from infection or from a vaccine. Respiratory viruses peak fairly quickly, with those who’ve recovered becoming immune, which then makes it hard for the virus to infect others. It is the young who form a wall against COVID by recovering from an infection. Lockdowns stop the development of such immunity among the young who therefore cannot act as barriers to the spread of disease.

6.2 Increased transmission of SARC-CoV2

As Lally notes:

lockdowns will in some cases increase the risk of transmission to high-risk individuals, and this at least partly offsets the reduction in risks achieved in other ways. For example, lockdowns will have caused some young people to return to live with their older parents, perhaps because of the loss of their job or closure of the university they were attending, and if already infected to thereby infect their parents, who are at much greater risk of death.

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52 E.g. A cost benefit analysis of Australia’s lockdowns by Gigi Foster:  
https://www.thegreatcovidpanic.com/_files/ugd/23eb94_920d5ddd484640ee8dfca8045b14886.pdf
6.2.1 Increased exposure of the elderly outside aged-care homes

It is possible that stringent protections might actually be implemented in aged-care homes during lockdowns but many of the elderly (or not-so-elderly) live in their own home. According to Lally “lockdowns induce some behaviours that increase the death rate, such as young people returning to live with their older parents, due to loss of their job or closure of the university they were attending, and if already infected to thereby infect their parents, who are at much greater risk of death.”53.

6.2.2 Concentration of people in restricted markets

With many markets closed, people are funnelled into a few open supermarkets. This increases the density of the virus in these places, potentially increasing transmission. This has been pointed out also in the Herby and Hanke study54:

If people voluntarily adjust their behavior to the risk of the pandemic, closing down non-essential businesses may simply reallocate consumer visits away from “nonessential” to “essential” businesses, as shown by Goolsbee and Syverson (2021), with limited impact on the total number of contacts.

6.2.3 Being cooped indoors increased transmission

Just like with the Black Plague where a form of lockdowns were first implemented, when people are cooped indoors, the disease can spread more than less. In this case, aerosol transmission meant that people living indoors were more vulnerable should a member of the household get infected by COVID from outside. In a normal case, people would distribute their activity, but by staying at home the intensity of aerosol transmission might have increased.

In fact, there are arguments in the respiratory virus literature that one of the reasons for the peaking of such viruses during winter is that people are cooped up inside their homes or in confined spaces. Lockdowns mimicked this situation wonderfully, thereby increasing transmission.

Herbe and Hanke also point this out:

lockdowns have limited peoples’ access to safe (outdoor) places such as beaches, parks, and zoos, or included outdoor mask mandates or strict outdoor gathering restrictions, pushing people to meet at less safe (indoor) places. Indeed, we do find some evidence that limiting gatherings was counterproductive and increased COVID-19 mortality.

6.2.4 Covid-congestion effects in hospitals and testing queues

Paul Frijters has described this in detail: https://clubtroppo.com.au/2021/02/03/covid-congestion-effects-why-are-lockdowns-so-deadly/.

This points a situation (based on a factual account) in which the hospital Emergency department is worried about being criticised for letting patients mingle, so they care a filter - they ask all comers get a covid-test (or questionnaire). The covid-infected are subsequently moved to a sealed part of the hospital with the uninfected going to another part. This is inevitable since space is at a premium in hospitals so queues necessarily form when such an approach is taken. However, the very act of sorting and queuing patients for a test can create a more crowded space in which infection is better transmitted.

Frijters suggests that covid-congestion effects can be of three types: physical covid-congestion effects, mental-health mediated covid-congestion effects, and reflection-limiting covid-congestion effects.

A recent Scottish study found 2/3 of serious covid cases were due to infections in hospitals, exactly in line with the mechanisms of described in the post. The whole song and dance about what the general population should or


should not do is largely irrelevant for the issue of serious covid cases. https://www.medrxiv.org/content/10.1101/2021.03.02.21252734v1

(one of the comments in Paul’s article)

6.2.5 Behavioural change when people are lulled into dropping their guard

Herby and Hanke\textsuperscript{55} cite a study by Atkeson (2021) which points out that lockdowns might create a behavioural response which may “counteract the effect completely, as people respond to the lower risk by changing behavior”. For instance, “If closing bars and restaurants causes the prevalence of the disease to fall toward zero, the demand for costly disease prevention efforts like social distancing and increased focus on hygiene also falls towards zero, and the disease will return”.

6.3 Increased vulnerability to COVID

6.3.1 Fear-induced reduction in timely treatment of COVID

This is a consequence of fear and propaganda – with the result that COVID affected people end up in hospital at a more advanced stage than they would otherwise.

many people with genuine health problems get too afraid to go to hospital or their GPs because they fear, not without cause, that they might get infected there. Yet, in turn, that means they get more ill before they are forced to seek help anyway which makes them more vulnerable when they actually do turn up.\textsuperscript{56}

6.3.2 Reduced innate immunity to COVID

Workplace closures, lockdowns (including internal restrictions on movement) and masking policies cause a sense of panic. Negative spillovers then ensue, from reduced immunity due to stress and avoidance of sunlight which then reduces Vitamin D, which is a protective against respiratory disease like COVID.

I can’t help, but think the safest place for an airborne virus would be to be outside. We had … all sorts of policies … [w]here I remember seeing like people being accosted while hanging out alone on the beach.” - Jan Jekielek, Epoch Times\textsuperscript{57}

The stronger a lockdown, the greater this effect since greater is the fear signal communicated to the community.

When a health system scares the hell out of a large population because it genuinely wants to tell people there is a problem they should be aware of, that population becomes far more anxious about any sign of covid than before. Their anxiety slowly reduces their resilience. Hordes of anxious people then want to get tested and be reassured, whilst chronic anxiety weakens the immune system of millions that then makes them more vulnerable to all kinds of diseases.\textsuperscript{58}

6.3.3 Reduced adaptive immunity (cross-reactivity) to COVID

Sunetra Gupta’s studies re: international travel. Border closures reduced cross-reactivity to COVID.

The fact that people were not getting the common cold because of social distancing reduced their cross-reactivity.


\textsuperscript{56} https://clubtroppo.com.au/2021/02/03/covid-congestion-effects-why-are-lockdowns-so-deadly/

\textsuperscript{57} https://www.theepochtimes.com/gigi-foster-did-our-pandemic-policies-kill-more-people-than-they-saved_4523360.html

\textsuperscript{58} https://clubtroppo.com.au/2021/02/03/covid-congestion-effects-why-are-lockdowns-so-deadly/
6.3.4 Increased obesity and diabetes

Related to the reduction in immunity is the increase in vulnerability of people to COVID fatalities since lockdowns increase a sedentary lifestyle, increasing obesity and diabetes. These are proven co-morbidities that increase risk of COVID deaths.

6.3.5 Lockdowns increase the proportion of the vulnerable

In March 2021, epidemiologist Dr Raghib Ali compared countries with early lockdowns and those with late lockdowns. He found either no difference between them in endpoint COVID outcomes, or that (as discussed earlier) nations that locked down earlier ended up with more deaths:

Based on current trends, it seems likely that many of these countries that we thought were doing well due to their early lockdowns and small first waves will end up having higher excess mortality than the UK, including Czechia, Poland, Portugal, and many others…On the so called two-week ‘circuit breaker lockdowns,’ it should also be remembered that Wales did follow SAGEs advice – but ended up with the same level of infections and deaths as England as it just postponed more infections to the winter months.59

Raghib Ali In his words, one reason why many nations that implemented early lockdowns ended up with even more total COVID deaths is that “by effectively delaying part of the first wave from the spring until the second wave in the winter, this meant that many countries had a higher proportion of the population still susceptible to infection, and so led to even higher death tolls as health systems struggled to cope.”

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7. Discussion and conclusion

Researchers untrained in public health are likely use the Stringency Index and other elements of the OxCGRT data without consideration of its extreme limitation, and without regard to the nature of the public health hazard that arose in late 2019/early 2020 through COVID, or to the costs and benefits of various NPIs. Such research output would amount to untrained persons trying to rediscover virology, immunology, epidemiology and public health, on the basis that the database is “the” oracle which will somehow help them achieve “new wisdom” for humanity. Sadly, most such research will necessarily be a form of garbage, only contributing to the increase in confusion in the public health discipline. Existent pre-2020 science was – and remains – vastly more valuable than any new information that this database can help produce, since it takes a purely \textit{ad hoc} and mechanistic approach.

Its users must thoroughly understand the biological science involved and the limitations both of ordinal scales (dollar values are always best) and the theoretical inappropriateness of summing up unrelated elements to create an average “index”.

Nothing can be done about this now, but in the future, such databases should be designed well in advance of any pandemic with a consensus formed among the public health experts about the kinds of restrictions that would be considered risk-based (and therefore appropriate) for different kinds of virus. Such risk-based of restrictions would then be given the code 0 and other restrictions a higher or lower code, as appropriate.

7.1 Conclusion

The Herby and Hanke meta-analysis concluded that: “The evidence fails to confirm that lockdowns have a significant effect in reducing COVID-19 mortality. The effect is little to none”. It added that “lockdowns … have had devastating effects. They have contributed to reducing economic activity, raising unemployment, reducing schooling, causing political unrest, contributing to domestic violence, and undermining liberal democracy. These costs to society must be compared to the benefits of lockdowns, which our meta-analysis has shown are marginal at best. Such a standard benefit-cost calculation leads to a strong conclusion: lockdowns should be rejected out of hand as a pandemic policy instrument”.

This study, however, finds that there even COVID deaths tend to increase the moment lockdowns commence. This effect has been seen more strongly in Europe, but even globally something on the lines depicted in Figure xx seems to be happening.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure_xx}
\caption{A stylised summary of this study’s conclusion}
\end{figure}
8. ONGOING NOTES
9. ATTACHMENT

9.1 Analysis of Europe’s COVID deaths

Martin Lally (2022) tested data from 33 countries in analysis: Austria, Albania, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

The Lally (2022) analysis was replicated in this study, and further variables added and considered.

9.1.1 Replication of the Lally results

This initial work considered only 29 countries, with the same variables used in the Lally (2022) paper. The results below:

\[ D = 202 + 8.26S + 0.64PD - 8.89FD \; ; \; R^2 = 0.26 \]

Note that population_density does not typically show up as significant variable in our data but it was significant for Lally’s analysis run on 30-12-20.

If the max_stringency to total restrictions (as per the revised index), the model improves.

\[ D = 365 + 0.27S + 0.43PD - 4.67FD \; ; \; R^2 = 0.29 \]

The results are summarised below.

9.1.2 Test bed for the main regressions – in Europe

In this phase of the study, the raw owid (i.e. vaccine) and Oxford Government Restrictions database were extracted and merged into one large data set (~82mb). The main data was then split into three smaller datasets.
Variables such as total restrictions and total restrictions cubed were created.

Summary of the results:

**Europe up to 2020-12-30.** The same as reported above The Total Restriction cubed variable significantly increases the strength of correlation with deaths per million compared to Maximum Stringency.

**For Europe 2021-12-30 and 2022-05-20,** the strength of correlation of Total restriction cubed is reduced and becomes non-significant compared to 2020-12-30. However, a few other variables show stronger correlations including people vaccinated per hundred, life expectancy, and latitude.

Detailed results are available at: https://github.com/jazon7/Oxford_COVID-19_-_Our_World_in_Data/blob/main/03_Analysis.md

**For Europe 2022-05-20,** regressing Total deaths per million by total restrictions cubed + people vaccinated per hundred + life expectancy + latitude gives a **R2 of 0.83**

Coefficients:

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</table>

R-squared: 0.8334, Adjusted R-squared: 0.7918

This could have something to do with the minimal deaths per million in the scandinavian countries vs. south Europe?