1.1 Introduction

To contextualise the key arguments of this paper, we start by referring to Andrew Leigh's former advocacy of the cost-benefit analysis (CBA) method.

On 3 March 2013, Leigh criticised former Prime Minister of Australia, Tony Abbott, for not following his own commitment to use a CBA[1]. Tony Abbott had said that "it's more important than ever that everything the Commonwealth does that involves new spending which is subjected to rigorous cost benefit analysis". Since Abbott's government did not conduct a CBA for an expenditure of $70 million, Andrew Leigh wrote: "Has he [Tony Abbott] done such an analysis on Brookvale Oval? Or is this just another case of fiscal rectitude in public, and pork-barrelling in private?"

While pork barrelling was probably not what occurred during lockdowns, the complete disregard by both major parties of Australia (including the party to which Andrew Leigh belongs) of the need to examine the "overall impact" (words cited in the Clarke and Leigh (2022)[2] (CL) paper) of lockdowns was, and continues to be a matter of great concern.

By its very name, "public" health is about the *entire public* and not about a specific subset of people. What we need is the discounted net present value of the future stream of human welfare created or supported because of lockdowns relative to another "baseline" ("the next best") policy. Even during pandemics, where speed is of the essence, only a CBA can guide society. As Sabhlok noted in his October 2020 book, *The Great Hysteria and the Broken State*, "The cost-benefit test is particularly well suited to dealing with scares. Its demand for unequivocal proof of harm (or at least the best available proof of harm) and analysis of scenarios with different levels of risk can help determine a reasonable and prudent way forward. … The analysis doesn't have to be perfect, just a one-page table listing the pros and cons can do but must be published within two days."

Unfortunately, Andrew Leigh steers clear in the CL paper of his former commitment to the CBA method, despite lockdowns entailing a government expenditure in the hundreds of billions of dollars. We hope Andrew Leigh will reconsider his newly developed opposition to CBAs (a matter of political convenience?), as demonstrated by the narrow focus in the CLA paper only on short-term mortality.

We argue that the CL paper breaches the foundational principles of public policy analysis and the scientific method. The conclusions the paper seeks to draw then from its analysis cannot therefore be supported. For example, the CL paper purports to show that lockdowns have prevented COVID-19 deaths (which is true to only a very partial extent in Australia and not true almost anywhere else in the world) and that collateral short-term non-COVID deaths have been very few or non-existent. Based on this, it seeks to normalize lockdowns and even suggests that working from home be adopted during "the winter months". Such a conclusion must necessarily presume that CL know of a CBA somewhere which that proves that the benefits from lockdowns exceed costs – else any positive sentiment being expressed towards lockdowns simply cannot be justified. But the CL paper does not even identify all the costs of lockdowns, let alone estimating them.

The correct analysis, based on the CBA method, shows that lockdowns harms have dramatically exceeded any benefits. In our 2022 CBA[3], as per updated estimates, harms exceed benefits by over 100 times.

Our observations are structured in the following manner:

a) The main public policy question regarding the pandemic
b) Why lockdowns were rejected in the pre-2020 literature
c) Since many COVID deaths could not be prevented, lockdown benefits have reduced
d) The CBA method and questions it would need to address
e) Our attempt to understand the impact of lockdowns

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[1] Abbott's Costings Soar With the Eagles https://www.andrewleigh.com/3915

[2] Understanding the impact of lockdowns on short-term excess mortality in Australia - https://gh.bmj.com/content/7/11/e009032

[3] https://www.connorcourtpublishing.com.au/Do-lockdowns-and-border-closures-serve-the-%E2%80%9Cgreater-good%E2%80%9D-A-cost-benefit-analysis-of-Australia%E2%80%99s-reaction-to-COVID-19--Gigi-Foster-with-Sanjeev-Sabhlok_p_507.html

1.2 The main public policy question regarding the pandemic

Well-established public policy methodology would ask (Question 1): "What is the best policy to adopt in the face of a pandemic"? By "best policy" is always meant the policy that leads to the greatest good or greatest net benefit to the entire society.

The process to arrive at an answer to this question would go through the usual process: defining the problem, identifying options, undertaking a CBA of shortlisted options. This process is the equivalent of the scientific method: it is an inquiry designed to rule out spurious claims of effectiveness of potential policies by various self-interested spruikers. Spruikers of all kinds are rampant in the policy space. They focus only on things that suit their agenda and brush everything else under the carpet. The objective policy analyst must therefore always insist on identifying and counting all costs and all benefits.

The CL paper fails to even consider Question 1. It assumes that lockdowns were an agreed "standard" in pre-2020 Australia for pandemics. Not so. It was a risk-based approach that was the default official position regarding lockdowns.

A risk-based and proportionate approach was (and remains) the foundational principle for all public policy design. Two aspects are involved in this consideration: the overall risk, and the distribution of the risk.

Overall risk: COVID-19 is nowhere in the league of Spanish flu, or the "once-in-a-100-year" pandemic that has been drilled into the world's population since mid-March 2020 by Presidents, Prime Ministers and chief health officers. In actual fact, COVID-19 has been a relatively modest pandemic by any measure, in the range of 50-500 times less lethal than Spanish flu, in the words of the leading epidemiologist John Ioannidis[4].

Risk distribution: The risk profile of COVID-19 was clear from February 2020. The same pattern has continued throughout.

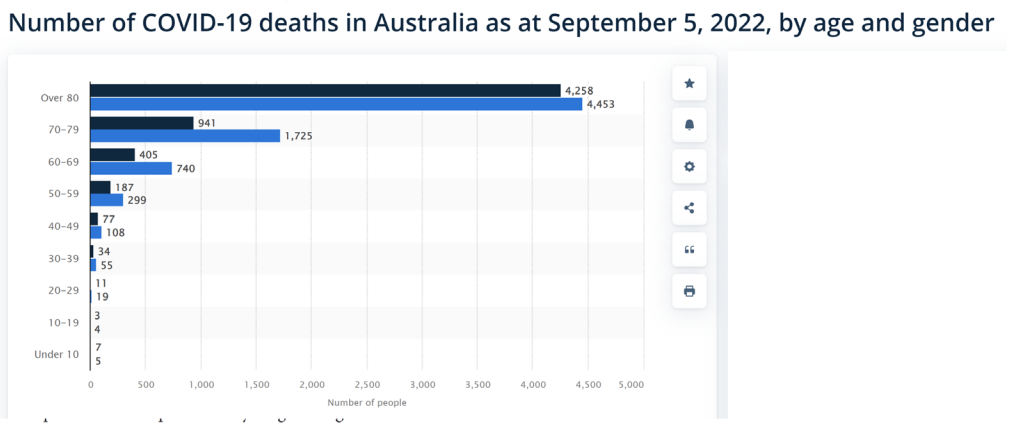

Figure xx: Source: https://www.statista.com/statistics/1245896/australia-number-of-coronavirus-deaths-by-age-group-and-gender/

The combination of these two pieces of information automatically rules out society-wide shut-downs. For instance, if someone has a fractured ankle, doctors do not require a cast for the entire body. The risk profile also guilds us to focus on those at higher risk (e.g. the elderly and those with co-morbidities).

This is exactly what Australia's official documents stated. The Victorian Pandemic plan of 10 March 2020 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".

Further, as part of any pandemic policy implementation, the Australian Emergency Response Plan for Communicable Disease Incidents of National Significance (CD Plan) 2016 committed to public disclosure of risk

[4] https://www.sabhlokcity.com/2022/04/prof-john-ioannidis-has-personally-confirmed-that-covid-is-50-500-times-less-lethal-than-the-spanish-flu/

assessments[5]. (Such risk assessments are, however, not to be found, implying that the risk-based approach was not actually implemented.)

Given the risk-profile of COVID, public policy economist Sabhlok (who then worked in the Victorian Treasury) wrote an article on 6 March 2020 about "Age-based risk management of coronavirus"[6]. This approach was also precisely what the 4 October 2020 Great Barrington Declaration (GBD)[7] later recommended.

In this regard, it appears that the authors have misread the GBD. For example, the CL paper cites the following snippet from the GBD: "Current lockdown policies are producing devastating effects on short and long-term public health … [including] … worsening cardiovascular disease outcomes, fewer cancer screenings and deteriorating mental health". But here's the strange part: the CL paper conveniently clips off the next words, namely: "– leading to greater excess mortality *in years to come*". In other words, the GBD did not claim that there would necessarily be short-term excess mortality from lockdowns. Almost all over the world there has been a major increase in short-term non-COVID mortality from lockdowns[8], but that's not what the GBD expected. It was referring to overall impacts "in years to come".

In any case, lockdowns were definitely ruled out from a first-principles risk-based policy analysis. And we do know of one country did adopt a risk-based approach: Sweden. It did well enough without lockdowns or mandatory masks. Sweden was able to limit both COVID and other harms. Everyone else should have done the same since their own official plans said that. But they all forgot. Sweden's State Epidemiologist Anders Tegnell exclaimed in astonishment on 24 June 2020: "It was as if the world had gone mad, and everything we had discussed was forgotten"[9].

At a minimum, any analysis of Australia's lockdowns would need to compare Australia's results with the alternative no-lockdown country: Sweden. Unless the outcomes achieved by Australia are dramatically superior to that of Sweden, it is impossible for the benefits of lockdowns to exceed harms. Comparing with Sweden is part of our 2022 CBA. From our analysis, Australia has done far worse than Sweden on most measures (and now we find that even COVID deaths could not be prevented in Australia). It is obvious that Australia's policies have been a disaster.

1.3 Why lockdowns were rejected in the pre-2020 literature

Regardless of the risk profile of COVID, lockdowns were never a recommended policy in any pre-2020 scientific public health textbook, official pandemic plan or the 2019 WHO guidelines. These methods were never used on a large scale in the past for respiratory pandemics, either. Gauden Galea, the WHO's representative in China said on 24 January 2020: "trying to contain a city of 11 million people is new to science. The lockdown of 11 million people is unprecedented in public health history, so it is certainly not a recommendation the WHO has made." In other words, country-wide border closures and extensive lockdowns are entirely new not just to Australia but to humanity. Such policies do not find a place in any prior pandemic plan anywhere in the world.

As Sabhlok explained with examples in his 2020 book: "All Australian governments had pandemic plans. These were focused on risk and proportionality. No plan included heavy-handed measures like 5-kilometre prisons, 23-hour curfews, prohibition on ordinary social interactions (equivalent to solitary confinement for some), masks outdoors or shutting down Melbourne to wait forever for a vaccine". That is because it was well understood that harms from lockdowns and border closures would far exceed any benefits.

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[5] https://www.health.gov.au/sites/default/files/documents/2022/07/emergency-response-plan-for-communicable-diseases-of-national-significance-cd-plan.pdf

[6] https://timesofindia.indiatimes.com/blogs/seeing-the-invisible/age-based-risk-management-of-coronavirus/

[7] https://gbdeclaration.org/

[8] For the USA: https://www.wsj.com/articles/how-deadly-were-the-covid-lockdowns-excess-deaths-alcohol-heart-disease-accidents-life-youth-11673440091; for the UK: https://www.bbc.com/news/health-64209221

[9] Rolander, Niclas, "Sweden's Covid Expert Says 'World Went Mad' With Lockdowns", *Bloomberg Quint*, 24 June 2020. Short URL: https://bit.ly/3kQhGvZ.

The late Donald Henderson (a major figure in epidemiology who was instrumental in eradicating smallpox from the planet) ruled out lockdowns explicitly. In 2006 he wrote: "The negative consequences of large-scale quarantine are so extreme (forced confinement of sick people with the well; complete restriction of movement of large populations; difficulty in getting critical supplies, medicines, and food to people inside the quarantine zone) that this mitigation measure should be eliminated from serious consideration".[10]

Donald Henderson also ruled out border closures. He opined that it is impossible to stop most viruses through border control.[2] Henderson contended that the spread of most viruses cannot be stopped unless the first case (the "index case") in a country is stopped, and the next such "first" case is stopped, and every additional index case is stopped as it erupts. He noted that some viruses can indeed be controlled through quarantines of the sick, and successful attempts have been made to do so (e.g., for Ebola). For most viruses, including the flu, he argued that if even a single person who may not have obvious symptoms slips through the net of control, then the battle is lost. It is far more sensible in such cases, Henderson argued, not to implement hard border controls but rather to manage the disease in order to minimise harm. In his words: "this idea that in this day and age one is going to intercept people coming across the border and you're going to stop the spread of the disease is a concept that was antiquated a very long time ago."[3]

If something is known not to work, is known to cause great harm, and is "unprecedented in public health history", then that policy would never even be shortlisted as an option for detailed assessment (CBA). That is why no detailed CBA of lockdowns was carried out in the past: it was too obviously a bad policy.

Unfortunately, Australia did implement these measures. Therefore, a new policy question has arisen (Question 2): "Have the lockdowns in Australia provided a net benefit to society?" (To be pedantic, in the normal course of events, any net benefit from lockdowns would need to be compared with net benefit from alternative options, and the best option selected as part of the answer to Question 1; further, the analysis of Question 2 would necessarily have to be broad-based, consistent with the CBA method.)

1.4 Since many COVID deaths could not be prevented, lockdown benefits have reduced

Australia's case firmly confirms that one cannot eradicate a respiratory virus through lockdowns and border closures. The CL paper claims that "lockdowns have proved effective in reducing transmission and deaths from COVID-19". But the paper also notes (the obviously self-contradictory fact) that in 2022 a large number of potentially prevented COVID deaths finally did occurred. In its own words, COVID deaths were prevented only "in the first 2 years of the pandemic (this changed in 2022, after lockdowns were lifted)".

Very clearly, lockdowns did not eradicate the virus and did not stop COVID deaths. At best, lockdowns delayed the spread of COVID for a short period.

The CL paper claims that the resurgence of the virus occurred "after lockdowns were lifted". This is patently incorrect. COVID deaths were occurring in Australia even during the lockdowns (Figure 1), particularly in Victoria. The harshest lockdown in the world, in Melbourne, were finally lifted, cautiously, on 22 October 2021[11] but COVID deaths had been occurring well before the lockdowns were lifted. SARS-CoV-2 was clearly circulating in Australia right through its lockdowns and border closures.

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[10] Inglesby, Thomas V., et. al., "Disease Mitigation Measures in the Control of Pandemic Influenza", *Biosecurity and Bioterrorism*. Volume 4, Number 4, 2006. Short URL: https://bit.ly/3mTUrCN

[11] https://www.theguardian.com/australia-news/2021/oct/22/melbourne-covid-lockdown-ends-lifts-today-friday-victoria-end-lift-change-what-are-the-new-restrictions-rules-freedoms-reopening-plan

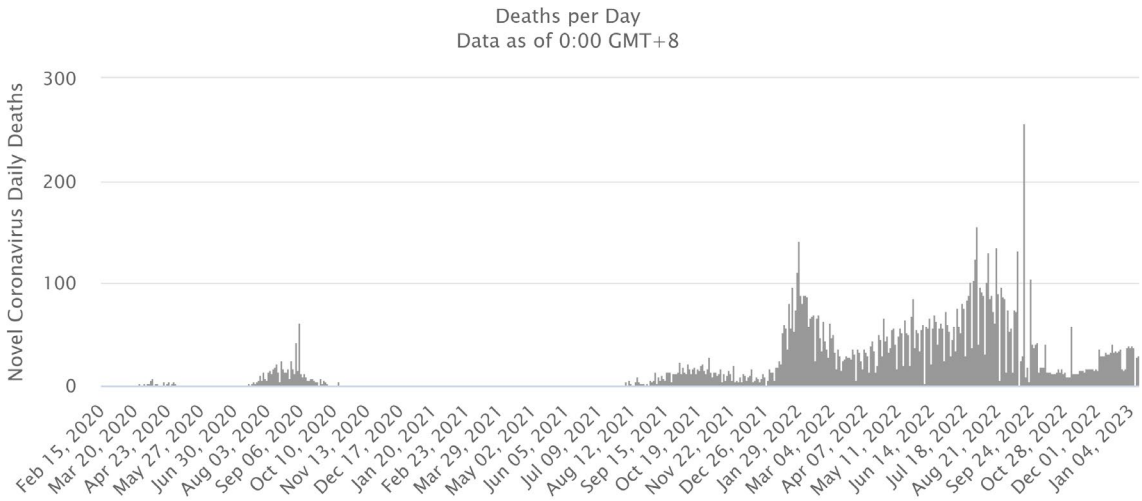
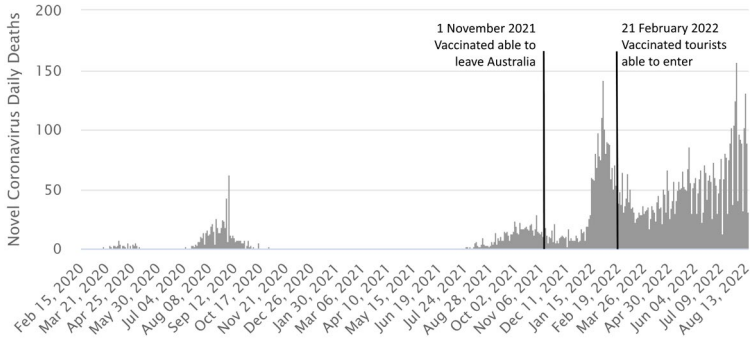


Figure 1: [DN: Figure to be updated as paper progresses – based on the following:



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From January to March 2022 the increase in COVID deaths was very significant despite the borders remaining closed. The deaths never let up during most of 2022 until perhaps the "dry tinder" reduced.

We cannot also link in any way COVID deaths in Australia to the entry of vaccinated foreign tourists (for the first time in nearly two years) from 21 February 2022. These tourists presumably could not spread the virus, anyway. The unvaccinated were only allowed in from 6 July 2022 but most COVID-19 deaths of 2022 had occurred before that. And so, unvaccinated tourists were not responsible for the spread of SARS-CoV-2 in Australia. The blocking of Novak Djokovic was entirely futile.

What happened in Australia is exactly what Donald Henderson had predicted long ago. The virus was present in the country since 2020. And with even the slightest resumption of normal activity from around mid-2021, SARS-CoV-2 spread (also based on seasonality). Nothing could ever have been done to stop it. The masks, like the lockdowns, were entirely useless, as well.

The idea of eradicating COVID, which has underpinned many bold claims from health officials and politicians, was always going to be a delusion. At the end of the long-duration mass-shutdowns of Australia, all that was achieved was to delay a few deaths (mainly of those over the age of 80: with the median age of a COVID death at or above life expectancy) by a few months or two years at most. The young and children paid a huge price for this folly. If some of the harshest lockdowns only slightly delay the death of (mainly) very elderly people by 18-24 months, then in what sense (as the CL paper argues) are they a viable policy proposition?

But there is another implication of what has happened in 2022. In our CBA we had allowed 5 years of life to be saved, on average, for a COVID death prevented by lockdowns. This figure must now be reduced significantly, perhaps down to a range of 2 to 3 years. This lowers the denominator in the benefit/cost ratio dramatically. Without re-doing our calculations, we can confidently say that the costs of Australia's lockdowns exceed benefits by well over 100 times.

1.5 The CBA method and questions it would need to address

Gigi Foster warned about the harms of lockdowns in an ABC interview in April 2020[12]. [DN: was there any written warning earlier?] On 24 March 2020, Sanjeev Sabhlok wrote about the absence of a CBA in Australia: "The West has … latched on to long-term lockdowns. There is talk of six-month lockdowns. No regulatory impact analysis has been made available to the public… It is quite possible that these governments … are resorting to the discredited precautionary principle which rejects the very idea of a cost-benefit test." [13]

He explained what should have happened: "the Victorian Government needed, in February 2020, to commission a detailed analysis of alternative policy options that took into account scenarios, with and without a vaccine. After that, the Government should have chosen the best option, cognisant of the uncertainty and considering also the need to intrude in the least invasive way possible into human freedoms. This analysis and the policies arising from it should then have been immediately published for public comment and updated as new information emerged (such as the fact that most epidemiological models used in March 2020 had exaggerated the risk posed by COVID-19)"."

In the introduction we mentioned Andrew Leigh's former understanding of the CBA method. Elements of that understanding are still found, but very weakly, in the CL paper. For instance, the CL paper starts by alluding to a "debate about the *overall impact* of 'lockdowns"'(the words "overall impact" italicised). Were CL thinking that their paper is part of that debate? If so they were clearly off by a wide margin.

Any such analysis (Question 2) cannot be just about deaths. As Sabhlok wrote in his 2020 book[14]: "This debate is not just about deaths. It is about mass scale, society-wide torture. Lockdowns are mass imprisonment and cause mental anguish on a mammoth scale". A countless myriad of small (i.e. non-fatal) harms to millions of people add up, even as the (few) elderly, whose lives are being saved, live a few years longer in the best case scenario (in reality, most of them lived only a little longer since lockdowns failed to stop the spread of SARS-CoV-2). Lockdowns had a significant impact on all sectors of the economy and all sections of the community, including children. A CBA would need to list all such costs and all benefits, it would definitely not be restricted to short-term mortality.

The CL paper itself admits the necessity of a broad-based analysis: "we … do not capture the impact on morbidity from poor mental health or from family, domestic and sexual violence. … Quality-adjusted life-years could be a useful broader metric, capturing both the negative and positive health impacts of home working and virtual interactions in a single measure. This could provide the basis of an evaluative framework of COVID-19 pandemic response policies. Additional impacts of lockdowns such as disruption to economic activity and schooling also need to be considered". It is regrettable that this line of thinking did not flow into the framing of the Clarke-Leigh research project.

Mental health and happiness is a particularly important issue. It is evident from revealed-preference logic that lockdowns decrease people's quality of life, because they are binding on people's choices. Without lockdowns people do not choose to quit their jobs, sequester themselves in their homes, refuse to see their loved ones, or wear masks everywhere. Suspending everyday life activities and non-emergency medical procedures should be expected to significantly damage quality of life in the longer run.

Even regarding short-term mortality, the CL paper realises that its scope (only considering Australia) is insufficient. It alludes to the possibility that Australia's case has been an outlier – "In those years, Australia is unusual in having both a low death rate from COVID-19 and stringent lockdowns". This suggests that the opposite has indeed been the norm. This issue can only be resolved through analysis of global data.

In other words, the attempt in CL paper to study Question 2 fails the test of the most basic analytical standards.

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[12] 21 April 2022 Q+A: ACTU secretary Sally McManus says the Government is 'spying' on union leaders, economist Gigi Foster causes a stir - https://www.abc.net.au/news/2020-04-21/q+a-sally-mcmanus-on-government-app-spying-gigi-foster/12166930

[13] 24 March 2020 Lockdowns won't defeat the virus but will definitely destroy us all - https://timesofindia.indiatimes.com/blogs/seeing-the-invisible/lockdowns-wont-defeat-the-virus-but-will-definitely-destroy-us-all/

[14] To cite Great Hysteria book

1.6 Our attempt to understand the impact of lockdowns

Since Australia's federal and state governments (led by two major political parties, including the one represented by Andrew Leigh) refused to commission a CBA despite repeated appeals from many members of the community, Gigi Foster attempted to do so in August 2020 and presented her findings to the Victorian Parliament[15]. Her preliminary CBA suggested that lockdowns harms would exceed costs by many orders of magnitude. In 2022, Foster updated her 2020 analysis for Australia, supported by Sanjeev Sabhlok.[16] The analysis showed that lockdowns harms exceed any benefits by at least 68 times.

Only a small part of the harms of lockdowns were attributable in our CBA to an estimated short-term increase in non-covid deaths in 2020 and in 2021 – of 1.232 million WELLBYs over two years, which constitutes around 5% of the estimated total harms from lockdowns. Even if these short-term deaths are entirely excluded, the net harms of lockdowns still immensely overwhelm any benefits.

The quality-of-life reductions can be measured through a happiness survey (e.g. the ANU poll). Such reductions in happiness constitute around xx% of our estimated total costs of lockdowns. [DN: get from the CBA] In addition, there are numerous long-term harms including costs which are not yet well understood. When combined together, such costs account for 95% of the costs of lockdowns. [DN: one can make a short table listing these costs]

The correct approach for such a significant public policy question is not for non-government economists like us to prepare CBAs in our spare time, but for governments to commission such work. As Andrew Leigh had noted in 2013 with respect to Tony Abbott's statement, it is governments that do a CBA. It is our hope that Clarke and Leigh will acknowledge the fundamental shortcomings of their paper and make amends by either doing a CBA themselves or by asking the current government in Australia (from Andrew Leigh's party) to commission a proper CBA of lockdowns and border closures. That is, in case they are genuinely interested in finding an answer to advance the welfare of Australians.

1.7 Conclusion

The CL paper claims that Australia has done well through its lockdowns. Our paper shows that this claim is without any basis. In the field of public policy, a policy that fails the net benefit test even by 1 per cent (i.e. costs exceed benefits by even 1 per cent), is rejected outright. In the case of lockdowns, our CBA demonstrates that the policy has failed by many orders of magnitude.

We have shown that the CL paper looks at the wrong question and focuses on a measure of human welfare that is too narrow and too time-limited (short-term deaths), with no discussion of risk-based policy alternatives to lockdowns (as specified in prior pandemic management plans) and no consideration of all the costs. It is also ignorant of many other comprehensive evaluations of COVID lockdowns, such as that by the IPA and by Martin Lally.

We reject outright the suggestion in the CL paper that since "government lockdowns and social distancing appear to have significantly reduced overall mortality at least in the short term" that such a fact "may help shape future public policy". No, this is simply not the way to shape public policy. Lockdowns did not save many lives, they only allowed mostly a few elderly people (or those with co-morbidities) to live for an additional 18-24 months. That's not called saving a life by any measure: at least given the huge cost imposed on the rest of society.

Likewise, it is entirely unjustified for the CL paper to suggest that "virtual working and other online activities may be a means to reduce mortality from both communicable and non-communicable causes of death". When even COVID deaths could not be prevented for more than 18-24 months by lockdowns, society-wide social distancing and mandatory masks, on what basis is the paper recommending that people work from home to

[15] Presentation at: https://www.youtube.com/watch?v=mpyYwQFtF-U. (Transcript at: https://www.parliament.vic.gov.au/paec/inquiries/article/4554)

[16] Do lockdowns and border closures serve the "greater good"? A cost-benefit analysis of Australia's reaction to COVID-19 -- Gigi Foster with Sanjeev Sabhlok, http://bit.ly/fostercba

reduce mortality? That is particularly problematic since working-age people are mostly not vulnerable to COVID.

We have not reviewed technical details regarding the short-term mortality and mobility statistics in the CL paper. Our CBA was informed by an earlier version of ABS data and by now there is far more information to provide a better estimate. We have neither the time nor energy to replicate our work. What we ask is that the governments of Australia commission a robust CBA of lockdowns.

1.8 Data availability statement

No additional data are being used for this paper.

1.9 Ethics statements

Patient consent for publication

Not applicable.

1.10 Ethics approval

As this study is based on publicly available sources of information, without any identifying individual information, ethical approval was not needed.