

Cost-Benefit Analysis Executive Summary

NOTE: The analysis presented here is based on only a partial accounting of the costs of lockdowns. A comprehensive cost-benefit analysis should factor in many additional costs, as detailed below (see “Other costs not tabulated explicitly here, but that should count in the government’s calculus”).

For all of Australia, the minimum cost of a month’s worth of wholesale lockdown is estimated at **110,495 QALYs**. This includes:

83,333 QALYs lost due to reduced wellbeing in the immediate term [2 million QALYs lost per year divided by 12 (to recover QALYs lost per month) divided by 2 (to attribute only half of this reduction to lockdowns *per se*)]

25,812 QALYs lost due to reductions in economic activity directly attributable to government restrictions

600 QALYs lost due to increased suicides during lockdowns

750 QALYs lost in the form of foregone wages of children suffering disrupted schooling during lockdowns

For all of Australia, the estimated benefit of locking down “ad infinitum” (not only per month) is **50,000 QALYs**.

Hence the minimum cost *per six weeks* of wholesale lockdown is at least three times greater than the benefit in terms of Covid-related welfare that could potentially be saved *in total* by wholesale lockdown.

For Victoria alone, simply multiply both costs and benefits by the fraction of the Australian population resident in Victoria.

Costs

Mental stress. Mental stress associated with being locked away from the broader social sphere captures one dimension of the impact of increased domestic violence risk, anxiety about the future, loss of contact with friends and family, concerns about financial and health security, increased unemployment, loneliness and so on that are either caused directly by or further fuelled by wholesale lockdowns.

Assume that life satisfaction of Australians is 0.5 points (on the typical 0-to-10-point scale) lower than usual on average during wholesale lockdown (sources: Clark et al 2018, UK Office of National Statistics).

0.5 multiplied by the Australian population (25 million) = 12,500,000 WELLBYs sacrificed per year of lockdown.

One year of average healthy life in Australia equates to approximately 6 WELLBYs (6 WELLBYs equals one QALY), so the human cost of this increased mental stress is equivalent to the sacrifice of $12,500,000/6 =$ slightly over 2 million average healthy life-years (QALYs) sacrificed per year of lockdown.

How many full lives is this worth? A full life is assumed to be 80 years of average healthy life, hence $2,000,000/80 = 26,000$ full lives lost per year of lockdown.

This translates to $26,000/12 =$ **2,170 full lives lost in each month of wholesale lockdown due to declines in wellbeing.**

Recognising that an average Covid death represents a sacrifice of 5 remaining healthy life-years (QALYs) (equivalent to 30 WELLBYs), 173,000 healthy life years represents the equivalent of approximately 34,600 Covid deaths sacrificed in each month of wholesale lockdown due to declines in wellbeing.

If we assume conservatively that only half of this figure is attributable to the lockdowns *per se*, then **each month of wholesale lockdown causes the destruction of 17,300 lives of the type typically lost due to Covid.**

Reductions in GDP. Falls in GDP mean falls in both public and private spending that would have translated into more human welfare this year, and continued lagging of GDP in future years, until we catch up to where we would have been in the absence of Covid.

Assume that half the projected loss to Australian GDP is due to the lockdowns *per se* (see Appendix for full argument). Present projections of GDP falls, coupled with a conservative assumption that only government expenditure, not private expenditure, buys welfare, **the minimum projected loss per month of lockdowns is estimated at 25,812 QALYs, or 5,162 lives of the type typically lost due to Covid.**

Violence. When mental stress becomes extreme, suicides and domestic violence can be the result.

Lifeline (<https://www.lifeline.org.au/resources/data-and-statistics/>) reports that there are 8 suicides per day on average in normal times. Professor Ian Hickie, co-director of the Brain and Mind Centre at the University of Sydney, says suicides are expected to rise 25% over the next five years (<https://www.news.com.au/lifestyle/health/health-problems/the-silent-death-toll-of-covid19-revealed-huge-25-per-cent-jump-in-suicides-each-year/news-story/b4154626a16c9cc25c3b79b7880041ef>).

Assuming that the increase in suicides due to wholesale lockdowns *per se* is only 10% from the baseline level of 8 per day, this translates to an additional 24 suicides per month directly attributable to lockdown. Suicide typically claims people far younger (average age 44) than those claimed by Covid-19. Assuming that the average person lost to suicide has 25 healthy life years remaining (as compared to 5 healthy life years for an average person lost to Covid), **each month of wholesale lockdown is estimated to produce $(24 \times 25)/5 = 120$ lives lost of the type typically lost to Covid, from suicide.** This equates to $120 \times 5 = 600$ QALYs lost per month.

Further studies about the link between the Covid crisis and suicide are available here:

<https://lifeinmind.org.au/research/australian-covid-19-suicide-research/covid-19-suicide-research-papers-guidance-notes>

Losses due to schooling disruptions. When children stay home from school, their learning suffers and their parents' productivity suffers.

Looking only at the cost of children's online rather than face-to-face learning in terms of foregone wages, I have estimated a conservative future cost of \$75 million in a peer-reviewed paper recently accepted to the *Australian Journal of Labour Economics*. Assuming a high willingness-to-pay of \$100,000 per QALY, this cost represents the cost of saving 750 QALYs, or (recalling that a Covid death on average represents a sacrifice of 5 QALYs) **150 lives lost of the type typically lost to Covid, in the form of foregone wages of children** who have suffered disrupted schooling during lockdowns.

Other costs not tabulated explicitly here, but that should count in the government's calculus

Increased non-lethal self-harm during lockdowns

Increased (lethal and non-lethal) domestic violence during lockdowns

Reduced worker productivity during lockdowns

Crowded-out healthcare during lockdowns (missed cancer screenings, stroke treatments, surgeries, etc) resulting in more deaths and suffering of non-Covid causes

IVF babies not born due to the inability to attend fertility treatments during lockdown, and age-based expiration of fertility opportunities during the wait

The negative effects now and in future years of bad habits inculcated during lockdowns in both children (less play, less outside time, less sociability, less health, more fear) and workers (less productivity, less health, and less motivation)

Increased mental stress, self-harm, and violence in future months when people face higher unemployment created by the lockdowns (<https://www.bloomberg.com/news/articles/2020-07-13/australia-s-effective-unemployment-rate-13-3-frydenberg-says>, Clark et al 2018), including the decade-long "scarring effect" of entering a job market in the midst of a recession

Benefits (again using conservative assumptions, biased in favour of lockdowns):

An average “Covid death” (given people who die of Covid are on average older and with co-morbidities) represents a loss of five QALYs. Assume that the equivalent of 10,000 Covid deaths in Australia – 0.04% of the country’s entire population – were avoided directly by wholesale lockdowns per se. This assumes that the vast majority of the difference between our recorded per-capita deaths to date and those recorded in Sweden – deaths which totalled .056% of their population – would occur in the absence of wholesale lockdowns, which is an assumption extremely biased in favour of wholesale lockdowns saving lives on net relative to the alternative of targeted protection of the vulnerable, in spite of the lack of solid evidence for this assumption.

This assumption of 10,000 deaths can alternatively be thought of as an aggregate figure that includes not only actual deaths, but also the “death equivalent” of aggregated lower quality of life in the short run for those who become symptomatic but do not die, and for those suffering longer-run damage from the virus.

This translates to a maximum of **50,000 QALYs saved in total** by wholesale lockdowns.

Given that one QALY equates to about 6 WELLBYs in Australia, this translates to an estimate of **300,000 WELLBYs saved directly by wholesale lockdowns**.

What would society usually be willing to pay to save 50,000 QALYs? At a very high rate of \$100,000 per QALY, **saving this amount of human welfare would be worth paying \$5 billion – equivalent to 0.34% of GDP**.

APPENDIX

What fraction of the current and future economic contraction is directly attributable to lockdowns per se?

The Imperial College study of Miles et al (2020) into the costs and benefits of lockdowns in the UK finds the direct effect of lockdowns on economic activity to be direct and large:

Deb et al (2020) found that lockdowns reduced economic activity in the UK by 15% in the 30 days after they were adopted. They find that stay-at-home requirements and workplace closures are the costliest in economic terms. Preliminary estimates from the UK Office for National Statistics showed a slightly more than 20% fall in GDP in April 2020, the first full month after the lockdown. Tracking the immediate effects of policies (and not the external environment) across countries, Bonadio et al (2020) put the impact on output and incomes (i.e. GDP) of policies to counter the spread of the infection on GDP averaged across 64 countries even higher, at around 30%.

Aum et al (2020) estimate that around one-half of all job losses in the UK and US can be attributed to lockdowns. Coibion et al (2020a) estimate that there were 20 million lost jobs in the US by April 8th triggered overwhelmingly by government restrictions. In a follow-up paper the same authors undertake surveys of behaviour and economic outcomes across US regions with different degrees of restrictions. They conclude:

“We observe a dramatic decline in employment and consumer spending as well as a bleak outlook for the next few years. Our estimates suggest that this economic catastrophe can be largely accounted by lockdowns.”

This is now also the consensus in the economic forecasting literature. Economic pain like unemployment and GDP contraction remain while restrictive policies remain, with strong recovery only coming after that, and stalling if restrictions are reimposed. The main Bank of England scenarios, for example, depict economic recovery as being dependent on the lifting of restrictions (Table 1A, Bank of England May Monetary Policy Report).

In Australia too, the consensus is that restrictions and economic decline are causally linked. The Reserve Bank of Australia says in its projections that **“The initial phase of the recovery is likely to be primarily driven by the easing in restrictions, which will lead to an improvement in employment outcomes as businesses re-open, as well as a pick-up in household spending.”**

The RBA’s most recent forecasts indicate that the Australian economy is losing 6% GDP on an annualised basis in the months of lockdowns. Taking the very conservative view that further lockdowns do not mean the eventual recovery will take any longer, we can then attribute a 6/12% GDP loss to an additional month of lockdown. That 0.5% of GDP is just over \$7 billion, implying \$2.5 billion in reduced future government spending using the rule of thumb that government expenditure equates to 36% of GDP.

Ignoring all welfare lost due to reduced private expenditure, and using the conservative estimate of \$100,000 as the value for a statistical life year, the reductions in future government services alone will imply a loss of approximately **25,812 QALYs per month of lockdowns**.

References

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