How to assess the costs and benefits of lockdowns

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Lives v livelihoods
How to assess the costs and benefits of lockdowns

The policy will stay in governments' toolkits. A growing body of research will guide its use

"TO ME, I say the cost of a human life is priceless, period," said Andrew Cuomo, the governor of New York state. As they tried to slow the spread of covid-19 in the spring of 2020, politicians took actions that were unprecedented in their scale and scope. The dire warnings of the deaths to come if nothing was done, and the sight of overflowing Italian hospitals, were unfamiliar and terrifying. Before the crisis the notion of halting people's day-to-day activity seemed so economically and politically costly as to be implausible. But once China and Italy imposed lockdowns, they became unavoidable elsewhere.

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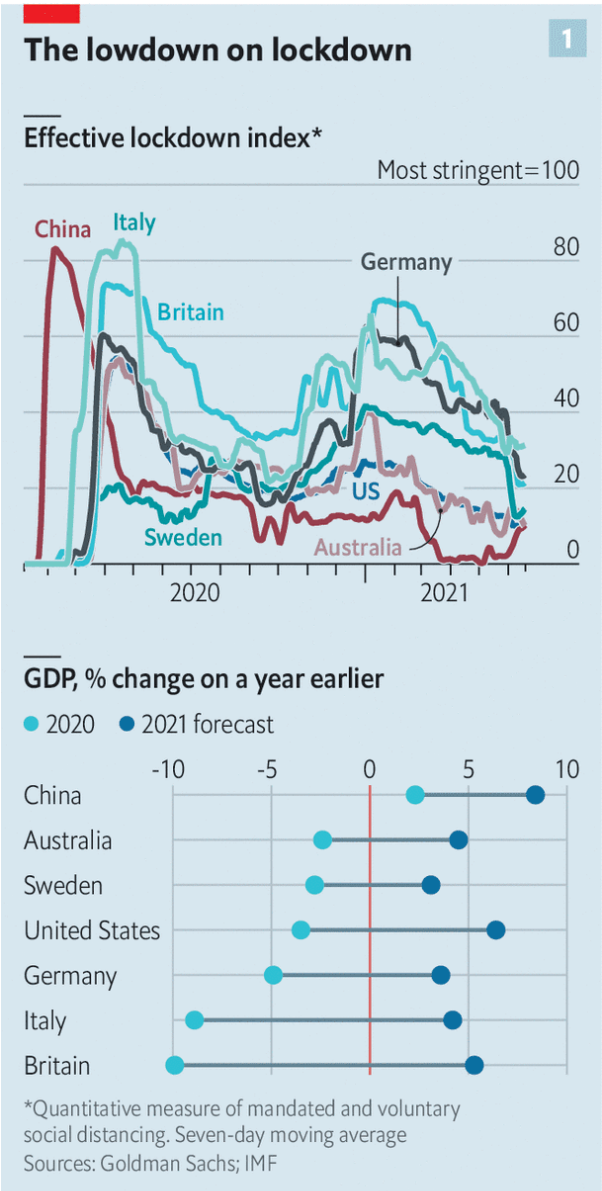
Much of the public debate over covid-19 has echoed Mr Cuomo's refusal to think through the uncomfortable calculus between saving lives and the economy. To oversimplify just a little, the two sides of the lockdown debate hold diametrically opposed and equally unconvincing positions. Both reject the idea of a trade-off between lives and livelihoods. Those who support lockdowns say that they have had few malign economic effects, because people were already so fearful that they avoided public spaces without needing to be told. They therefore credit the policy with saving lives but do not blame it for wrecking the economy. Those who hate lockdowns say the opposite: that they destroyed livelihoods but did little to prevent the virus spreading.

The reality lies between these two extremes. Lockdowns both damage the economy and save lives, and governments have had to strike a balance between the two. Were trillions of dollars of lost economic output an acceptable price to pay to have slowed transmission of the disease? Or, with around 10m people dead, should the authorities have clamped down even harder? Now that politicians are considering whether and when to lift existing restrictions, or whether to impose new ones, the answers to these questions are still crucial for policy today. Alongside vaccines, lockdowns remain an important way of coping with new variants and local outbreaks. In late June Sydney went into lockdown for two weeks; Indonesia, South Africa and parts of Russia have followed suit.

Countries have used a range of measures to restrict social mixing over the past year, from stopping people visiting bars and restaurants to ordering mask-wearing. The extent to which these strictures have constrained life has varied widely across countries and over time (see chart 1). A growing body of economic research now explores the trade-off between lives and livelihoods associated with such policies. Economists have also compared their estimates of the costs of lockdowns with those of the benefits. Whether the costs are worth incurring is a matter for debate not just among wonks, but also for society at large.



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People who see no trade-off at all might start by pointing to a study of the Spanish flu outbreak in America in 1918-20 by Sergio Correia, Stephan Luck and Emil Verner, which suggested that cities that enacted social distancing earlier may have ended up with better economic outcomes, perhaps because business could resume once the pandemic was under control. But other economists have criticised the paper's methodology. Cities with economies that were doing better before the pandemic, they say, happened to implement restrictions earlier. So it is unsurprising that they also fared better afterwards. (The authors of the original paper note that pre-existing trends are "a concern", but that "our original conclusion that there is no obvious trade-off between 'flattening the curve' and economic activity is largely robust.")

Another plank of the no-trade-off argument is the present-day experience of a handful of places. Countries such as Australia and New Zealand followed a strategy of eliminating the virus, by locking down when recorded infections rose even to very low levels and imposing tough border controls. "Covid-19 deaths per 1m population in OECD countries that opted for elimination...have been about 25 times lower than in other OECD countries that favoured mitigation," while "GDP growth returned to pre-pandemic levels in early 2021

in the five countries that opted for elimination," argues a recent paper in the *Lancet*. The lesson seems to be that elimination allows the economy to restart and people to move about without fear.

Something for nothing

But correlations do not tell you much. Such countries' success so far may say more about good fortune than it does about enlightened policy. What was available to islands such as Australia, Iceland and New Zealand was not possible for most countries, which have land borders (and once the virus was spreading widely, eradication was almost impossible). Japan and South Korea have seen very low deaths from covid-19 and are also cited by the *Lancet* paper as having pursued elimination. But whether they did so or not is questionable; neither country imposed harsh lockdowns. Perhaps instead their experience with the SARS epidemic in the early 2000s helped them escape relatively unscathed.

When you look at more comparable cases—countries that are close together, say, or different parts of the same country—the notion that there is no trade-off between lives and livelihoods becomes less credible. Research by Goldman Sachs, a bank, shows a remarkably consistent relationship between the severity of lockdowns and the hit to output: moving from France's peak lockdown (strict) to Italy's peak (extremely strict) is associated with a decline in GDP of about 3%. Countries in the euro area with more excess deaths as measured by *The Economist* are seeing a smaller hit to output: in Finland, which has had one of the smallest rises in excess deaths in the club, GDP per person will fall by 1% in 2019-21, according to the IMF; but in Lithuania, the worst-performing member in terms of excess deaths, GDP per person will rise by more than 2%.

The experience across American states also hints at the existence of a trade-off. South Dakota, which imposed neither a lockdown nor mask-wearing, has done poorly in terms of deaths but its economy, on most measures, is faring better today than it was before the pandemic. Migration patterns also tell you something. There have been plenty of stories in recent months about people moving to Florida (a low-restriction state) and few about people going to Vermont (the state with the fewest deaths from covid-19 per person, after Hawaii), points out Tyler Cowen of George Mason University. Americans, at least, do not always believe that efforts to control covid-19 make life more worth living.

What if all these economic costs are the result not of government restrictions, though, but of personal choice? This too is argued by those who reject the idea of a trade-off. If they are correct, then the notion that simply lifting restrictions can boost the economy becomes a fantasy. People will go out and about only when cases are low; if infections start rising, then people will shut themselves away again.

A number of papers have bolstered this argument. The most influential, by Austan Goolsbee and Chad Syverson, two economists, analyses mobility along administrative boundaries in America, at a time when one government imposed restrictions but the other did not. It finds that people on either side of the border behaved similarly, suggesting that

it was almost entirely personal choice, rather than government orders, which explains their decision to limit social contact; people may have taken fright when they heard of local deaths from the virus. Research by the IMF draws similar conclusions.

There are reasons to think these findings overstate the power of voluntary behaviour, however. Sweden, which had long resisted imposing lockdowns, eventually did so when cases rose—an admission that they do make a difference. More recent research from Laurence Boone of the OECD, a rich-country think-tank, and Colombe Ladreit of Bocconi University uses slightly different measures from the IMF and finds that government orders do rather a lot to explain behavioural change.

Moreover, the line between compulsion and voluntary actions is more blurred than most analysis assumes. People's choices are influenced both by social pressure and by economics. Press conferences where public-health officials or prime ministers warn about the dangers of the virus do not count as "mandated" restrictions on movement; but by design they have a large effect on behaviour. And in the pandemic certain voluntary decisions had to be enabled by the government. Topped-up unemployment benefits and furlough schemes made it easier for people to choose not to go to work, for instance.

Put all this together and it seems clear that governments' actions did indeed get people to stay at home, with costly consequences for the economy. But were the benefits worth the costs? Economic research on this question tries to resolve three uncertainties: over estimates of the costs of lockdowns; over their benefits; and, when weighing up the costs and benefits, over how to put a price on life—doing what Mr Cuomo refused to do.

The cure v the disease

Start with the costs. The huge collateral damage of lockdowns is becoming clear. Global unemployment has spiked. Hundreds of millions of children have missed school, often for months. Families have been kept apart. And much of the damage is still to come. A recent paper by Francesco Bianchi, Giada Bianchi and Dongho Song suggests that the rise in American unemployment in 2020 will lead to 800,000 additional deaths over the next 15 years, a not inconsiderable share of American deaths from covid-19 that have been plausibly averted by lockdowns. A new paper published by America's National Bureau of Economic Research (NBER) expects that in poor countries, where the population is relatively young, the economic contraction associated with lockdowns could potentially lead to 1.76 children's lives being lost for every covid-19 fatality averted, probably because wellbeing suffers as incomes decline.

Research is more divided over the second uncertainty: the benefit of lockdowns, or the extent to which they reduce the spread of, and deaths from, covid-19. The fact that, time and again, the imposition of a lockdown in a country was followed a few weeks later by declining cases and deaths might appear to settle the debate. That said, another recent NBER paper failed to find that countries or American states that were quick to implement shelter-in-place policies had fewer excess deaths than places which were slower to act. A paper published in the *Proceedings of the National Academy of Sciences*, a scientific

journal, by Christopher Berry of the University of Chicago and colleagues, cannot find "effects of [shelter-in-place] policies on disease spread or deaths", but does find "small, delayed effects on unemployment".

Is the price right?

Running through all this is the final uncertainty, over putting a price on life. That practice might seem cold-hearted but is necessary for lots of public policies. How much should governments pay to make sure that bridges don't collapse? How should families be compensated for the wrongful death of a relative? There are different ways to calculate the value of a statistical life (VSL). Some estimates are derived from the extra compensation that people accept in order to take certain risks (say, the amount of extra pay for those doing dangerous jobs); others from surveys.

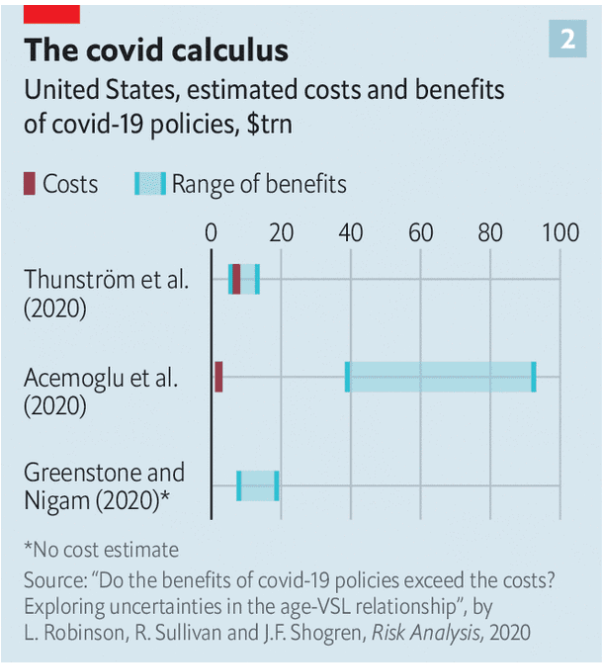
Cost-benefit analyses have become something of a cottage industry during the pandemic, and their conclusions vary wildly. One paper by a team at Yale University and Imperial College, London, finds that social distancing, by preventing some deaths, provides benefits to rich countries in the region of 20% of GDP—a huge figure that plausibly exceeds even the gloomiest estimates of the collateral damage of lockdowns. But research by David Miles, also of Imperial College, and colleagues finds that the costs of Britain's lockdown between March and June 2020 were vastly greater than their estimates of the benefits in terms of lives saved.

An important reason for the big differences in cost-benefit calculations is disagreement over the VSL. Many rely on a blanket estimate that applies to all ages equally, which American regulatory agencies deem is about $11m. At the other extreme Mr Miles follows convention in Britain, which says that the value of one quality-adjusted life-year (QALY) is equal to £30,000 (which seems close to a VSL of around £300,000, or $417,000, given how many years of life the typical person dying of covid-19 loses). The lower the monetary value you place on lives, the less good lockdowns do by saving them.

The appropriate way to value a change in the risk of death or life expectancy is subject to debate. Mr Miles's number does, however, look low. In Britain the government's "end-of-life" guidance allows treatments that are expected to increase life expectancy by one QALY to cost up to £50,000, points out Adrian Kent of Cambridge University in a recent paper, and allows a threshold of up to £300,000 per QALY for treating rare diseases. But it may be equally problematic to use the American benchmark of $11m for covid-19, which disproportionately affects the elderly. Because older people have fewer expected years left than the average person, researchers may choose to use lower estimates of the VSL.

The best attempt at weighing up these competing valuations is a recent paper by Lisa Robinson of Harvard University and colleagues, which assesses what happens to the results of three influential cost-benefit studies of lockdowns when estimates of the VSL are altered (see chart 2). Adjusting for age can sharply reduce the net benefits of lockdowns, and can even lead to a result where "the policy no longer appears cost-beneficial". Given that these models do not take into account the harder-to-measure costs of lockdowns—

how to price the damage caused by someone not being able to attend a family Christmas, say, or a friend's funeral?—the question of whether they were worth it starts to look like more of a toss-up.



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Once you open the door to making adjustments, things become more complicated still. Research on risk perception finds that uncertainty and dread over an especially bad outcome, especially one that involves more suffering before death, mean that people may be willing to pay far more to avoid dying from it. People appear to value not dying from cancer far more than not dying in a road accident, for instance. Many went to extraordinary lengths to avoid contracting covid-19, suggesting that they place enormous value on not dying from that disease. Some evidence suggests that the VSL might need to be increased by a factor of two or more, writes James Hammitt, also of Harvard, in a recent paper. That adjustment could make lockdowns look very worthwhile.

The malleability of cost-benefit analysis itself hints at the true answer of whether or not lockdowns were worth it. The benefit of a saved life is not a given but emerges from changing social norms and perceptions. What may have seemed worthwhile at the height of the pandemic may look different with the benefit of hindsight. Judgments over whether or not lockdowns made sense will be shaped by how society and politics evolve over the coming years—whether there is a backlash against the people who imposed lockdowns, whether they are feted, or whether the world moves on. ■

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