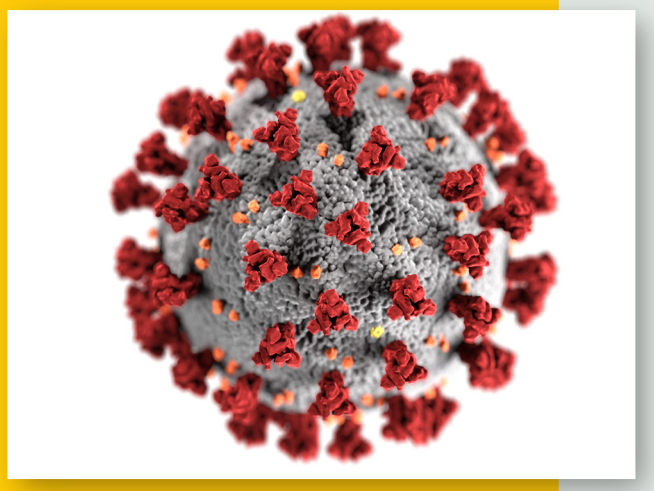
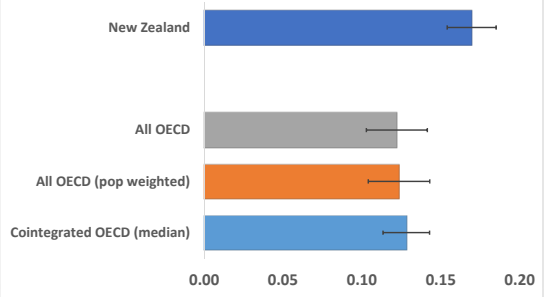


Life Expectancy Reductions From New Zealand's Unbalanced Covid Response

John Gibson
University of Waikato

Safety-at-all-costs policies can ultimately cause more deaths than they prevent (Gerdtham and Johannesson, 2002). A perverse outcome occurs if indirect mortality effects from lower incomes outweigh direct effects from costly safety interventions that aim to reduce deaths.

Figure 1: Income Elasticity of Life Expectancy

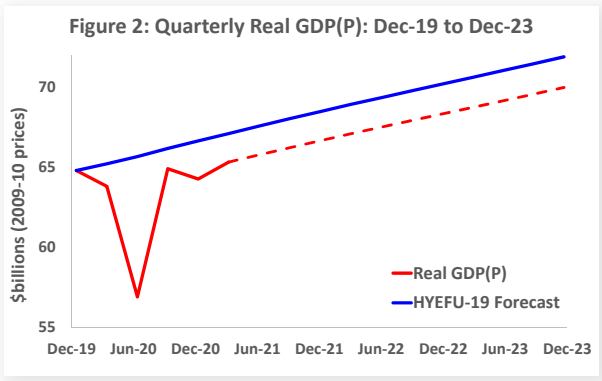


Incomes and life expectancy

These tradeoffs matter especially for New Zealand because we have a high income elasticity of life expectancy. Data on life expectancy at birth and real GDP per capita for all OECD countries from 1990 to 2018 show that New Zealand's income elasticity of life expectancy is 0.170 ± 0.008 (using robust Newey-West standard errors).[1] This is 50% higher than the OECD average (Figure 1). Amongst 11 OECD countries (including NZ) where (log) life expectancy and (log) real GDP per capita are cointegrated (using augmented Dickey-Fuller and Phillips-Perron tests), the NZ elasticity is the third largest, and is one-third higher than the median for these countries.

The value of real GDP produced in New Zealand in 2020 was 5.2% lower than what had been expected (based on the last HYEFU in 2019).[2] This gap amounts to about $14b of output not produced (Figure 2). Forecasting through to the end of 2023, when 2019 HYEFU projections end, the ongoing gap is worth $36b in real terms, absent any sustained above-trend growth rebound.

Figure 2: Quarterly Real GDP(P): Dec-19 to Dec-23

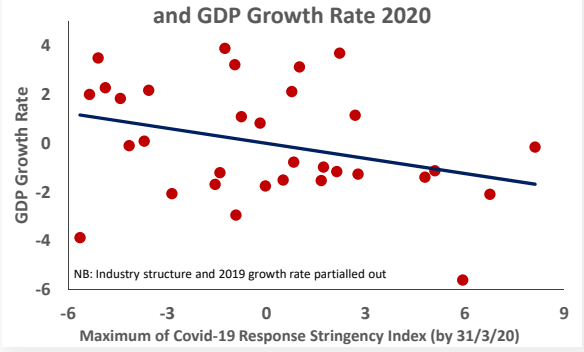


From output shock to reduced life years

With 5.2% less output and an elasticity of 0.17, future life expectancy may be 0.9% less than otherwise expected (0.052×0.17). More is lost if future output services debt and so cannot fund longevity improvements. The IMF Fiscal Monitor shows NZ gross government debt rising more from 2019 to 2022 than for any other advanced economy.[3]

The lower real output in Figure 2 implies 0.72 years shorter life, for average life expectancy at birth of 82 years (0.052×0.17×82). However, the currently alive expect 43.6 years of life remaining (from 2017-19 period life tables), not 82 years for newborns.[4] So New Zealand residents alive in June 2021 can expect 224 million more years of life (43.6×5.13m). The Covid income shock thus implies two million fewer expected life years (0.052×0.17×224). If volunteers stepped up to take all of the burden, so others suffer no life expectancy loss, 45,350 would be needed (if they are of random age).

Figure 3: Early Covid Response Stringency and GDP Growth Rate 2020



Avoidable losses

An unduly harsh assessment would attribute all two million life years lost (or 45,350 deaths if concentrated on a select group) from lower income to the safety-at-all-costs NZ response to Covid. Actually, some loss of income due to shocks overseas would happen anyway. Yet a balanced approach to risk may have muted this effect, especially as NZ's output structure—lighter on services than is typical for OECD countries—should make a pandemic shock less costly.

For 32 OECD countries with weekly mortality data available, GDP growth rates in 2020 were lower the more restrictive the early response to Covid (Figure 3).[5] Over 70% of the variation in growth rates is from the maximum stringency of the early response (by March 31, 2020), controlling for output structure and prior growth. The Level 4 lockdown in NZ was the most stringent early response in the world. If stringency had been at the median of the Figure 3 countries instead (an OxCGRT index of 79.6 rather than 96.3), New Zealand's 2020 GDP growth rate is predicted to have been three percentage points higher.

Concerns that stringency is endogenous are mitigated by a key pattern across countries. In March 2020 OECD governments mostly adopted the same restrictions at the same time, in what Hale (2021) calls the "global lockdown rush". Homogenous responses in heterogeneous settings (Sebhatu et al, 2020) allow an Instrumental Variables (IV) strategy based on policy mimicry (of neighbours). The IV estimate of the effect of response stringency on the GDP growth rate (-0.21 ± 0.10) is not significantly different to the OLS estimate (-0.16 ± 0.04).

For little benefit

The output (and induced life expectancy) costs of New Zealand's safety-at-all-costs response to Covid might be agreeable to some, if the response saved lives. Yet internationally, the severity of lockdowns is unrelated to mortality in 2020 (Bjørnskov, 2021). For the countries in Figure 3, a standard deviation increase in the stringency of the early response to Covid is associated with a 0.4 standard deviation (p=0.04) higher excess mortality rate in 2020. The finding that Covid response stringency does not reduce excess mortality also holds with the IV estimates.

Conclusion

New Zealand's safety-at-all-costs response to Covid-19 is likely to cause greater reductions in life expectancy than would eventuate with a more balanced response.

References

References and links to data sources are available through the QR code in the top right corner