

May 25, 2020

## Memorial Day – 2020

As of today, May 25, 2020, Memorial Day, approximately 99,300 (<https://www.worldometers.info/coronavirus/country/us/>) Americans have died from COVID-19. In three-plus months the United States has incurred a loss (valuing human life at \$5 million per life lost) of life valued at approximately \$500 billion dollars. This is equivalent to about three years of deaths from traffic accidents. Slightly over 58,000 Americans died from all causes in 1964-1975 Vietnam War.

Your blogger is not an epidemiologist, but the number of deaths seem to have plateaued recently at between 1,000 and 1,500 per day. Extrapolating this through June and July would suggest at least 30,000 more deaths, and probably closer to 60,000 deaths by August 1, leading to a total of between 150,000 and 160,000 deaths. The economic costs are staggering. It does not take a computer to do the math.

A study (<https://www.medrxiv.org/content/10.1101/2020.05.15.20103655v1.full.pdf+html>) by Columbia University researchers estimated that approximately 36,000 deaths could have been averted had the United States instituted lockdown measures one week sooner. This is a PRELIMINARY study that has not undergone peer review. It is sensitive to all kinds of modeling assumptions. Your blogger downloaded the article. It is THICK, and it is hard to read. Your blogger knows about this, because he often writes articles that are thick and hard to read.

What is important is that this is a “bottom up” model. This contrasts to a “top down” model in which the researcher calculates a model for an aggregate (say the entire US), and distributes the results down to the lower (for example, county) level. In a sense, top down modeling uses a sample size of 1 (the aggregate), and distributes down. The local results are extremely sensitive to the distribution model. Ideally, top down and bottom up models give the same policy results. Your blogger prefers bottom up models because they model the differences among the component areas more clearly.

The Columbia researchers starts at the county level among the 3,142 US counties. They concentrate on the 311 US counties with cumulative cases over 400 as of May 3, 2020. We know which ones they are – Cook (Chicago), Kings, Queens, Bronx, and New York (New York City), Wayne (Detroit), Los Angeles, Nassau (suburban New York City), Bergen, Essex, and Middlesex (New Jersey), and so on. This is where the action is. The authors aggregate up the results. They report 95% confidence intervals around the 36,000 “point estimate” between 30,200 and 40,700.

The public and the press are hungry for news, and this is news. There have been numerous questions about the underlying model assumptions by reputable academics. The research will be vetted, questioned, and possibly re-analyzed. The political reaction was predictable. President Trump reacted by

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saying “It's a disgrace what I watch from this fake news media and from some of these liberal institutions. Columbia is a liberal, disgraceful institution to write that because all the people that they cater to were months after me, they said we shouldn't close it.” (<https://www.axios.com/trump-columbia-study-coronavirus-covid-deaths-18552947-6664-4a06-8b66-cc20576bb7f5.html>).

Is this line of research an appropriate topic? The answer has to be “yes.” It is no less appropriate than asking what would have happened if we had evacuated a coastal shoreline earlier in the face of a hurricane. It is no less appropriate than asking what would have happened had the Salk and Sabin vaccines been delayed, or not developed. It is no less appropriate than asking what happens with people refuse to vaccinate their children for MMR (measles, mumps, rubella) or for chicken pox.

It is clear that lockdowns saved lives. It is quite likely that they have saved a lot of lives, and had they been done sooner, they would have saved a lot more. We are easing them slowly, and we hope that we are doing the right thing at the right time. Another 30,000 lives per month is a lot to lose.

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