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Calculating Life and Death in a Time of Covid

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Calculating Life and Death in a Time of Covid

Abstract

The current pandemic makes us feel helpless. We can respond to its predation pragmatically but its silent march through the population promotes dread. Our helplessness undermines our belief in our culture as the source of our self-esteem and felt significance. One response to our experience of helplessness is the omnipotent stance, the idea that we can master the virus, stop it in its tracks, command one another to comply with injunctions and wreak a path of destruction by devastating the economy. Omnipotence promotes magical thinking. In the service of defeating death, we ignore actual suffering; deaths of despair and deaths in nursing homes. There is an antidote to omnipotence: Look at our situation objectively, acknowledge its gravity, use our moral compass to assess impossible choices, and the tradeoffs they impose, and draw on our pragmatism and inventiveness to relax the tradeoffs.

A model that Wharton school researchers developed provides a framework for looking at our situation objectively. It posits a tradeoff between deaths and livelihoods should we fully reopen the economy. Three estimates of the value of lives- the value of a "statistical life," the value of a statistical life-year and the value of a life based on highway fatalities,-- together suggest to this author that we should fully reopen, with the precondition that we take six steps to protect seniors and hospital surge capacity. To arrive at such a choice we must navigate the moral terrain of sacrificing lives so that others may flourish. This entails examining our thoughts and feelings in response to the moral dilemmas we encounter.

The paper is divided into five sections. The first introduces the paper. The second explores the theme of omnipotence. The third examines the role of culture in our battle against the death. The fourth takes us "beyond omnipotence." It does this by calculating life and death so that we can ground our moral reasoning and feeling in an objective understanding of our situation. The fifth section is an appendix that provides additional information.

Calculating Life and Death in a Time of Covid

Larry Hirschhorn, PhD

I. Introduction

In the earliest stages of the coronavirus pandemic the Governor of New York State, Andrew Cuomo, was a model of sober leadership in contending with virus' spread. He held daily televised news conferences in which he focused on the capacity of hospitals to accept and treat patients, on ensuring that health care workers had protective personal equipment and on how hospitals throughout the state could share available ventilators. He evinced the clarity that comes with pragmatism.

On a March 20 video conference, he announced that he was shutting down all non-essential workplaces, describing it "as the most drastic action we can take." He then added, "When we look back at this situation 10 years from now, I want to be able to say to the people of New York I did everything we could do. I did everything we could do. This is about saving lives and if everything we do saves just one life, I'll be happy."¹

On its face, Cuomo's last sentence is not sensible. It is not reasonable to put millions of livelihoods at risk to save just one life. After all, when we organize our social life for our convenience we kills thousands of people. For example, as two economists note, we design cars and highways so that 35,000 people die in vehicle accidents each year. When the federal government repealed its 55 MPH speed limit on interstate highways in 1995, that limit had been wildly unpopular, 12,500 more people died.² We don't forbid two-story homes to prevent 26,000 people from dying from falls each year.³

The situation facing Cuomo was starker yet. He was sacrificing livelihoods, and as it soon became apparent, many small businesses would fail, people would fall behind on their rent, they would crowd food pantries to feed their families, and some would die "deaths of despair." What criteria should the Governor use in shutting down the economy of New York State? How in fact should he calculate life and death? And as we now open up the economy how should he and we weigh the certainty of more deaths against the recovery of livelihoods?

The purpose of this post is to explore just this theme. It is divided into five sections. In the first section, I suggest that, facing an incurable disease, we are at risk of taking up while I will call the *omnipotent stance*. For example, Cuomo's statement—that he would be happy to save one life—is arrogant. After all, the measure of his success is not his happiness but the general welfare of his state. Moreover, in light of tradeoffs we implicitly make between lives and utility every day, can Cuomo claim that sacrificing millions of livelihoods is worth just one life?

In the second and third section, I suggest that in everyday life, our culture—the roles we inhabit and the values and norms we honor—protects us from existential anxiety, the certain knowledge that we will die. This line of thought is based on Ernest Becker's seminal work, *The*

¹ <https://www.governor.ny.gov/news/video-audio-photos-rush-transcript-governor-cuomo-signs-new-york-state-pause-executive-order>

² <https://www.sciencedaily.com/releases/2009/07/090716164339.htm>

³ <https://isi.org/intercollegiate-review/if-it-saves-just-one-life-fallacy/>

*Denial of Death.*⁴ The pandemic undermines our faith in our cultural surround. Death is brought closer and we are revealed to be helpless to ourselves. In response, we develop a stance of omnipotence as a social-psychological defense. This parallels the way in which children, responding to their helplessness, identify with superheroes. But the omnipotent stance distorts our response to the pandemic, weakening our ability to make thoughtful decisions about how to manage the pandemic and open up the economy.

In the fourth section, I propose a framework for moving beyond omnipotence. It consists of three steps. Acknowledge the gravity of our situation. Use our moral compass to assess impossible choices, the risks they create and the tradeoffs they impose. Draw on our pragmatism and inventiveness to resolve some of these tradeoffs. I apply this framework through a series of steps toward “calculating” life and death. I examine the value we put on life by looking at highway fatalities. I compare this value with the results of a Wharton school model which measures the tradeoff between more income and more deaths if we open the economy. I connect these calculations to other measures of valuing life that major government agencies use when they promulgate life enhancing but costly regulations. Examining the moral and emotional questions these calculations provoke, I argue for fully reopening the economy provided that we can protect seniors and the most vulnerable. I propose six steps for achieving this. The last section, the appendix provides some additional data.

II. Toward omnipotence

The *New York Times* reported on a study arguing that the delay in implementing social distancing in the U.S. led to 36,000 extra deaths.⁵ The study went on to suggest that had the country had begun locking down cities and limiting social contact on March 1, “two weeks earlier than when most people started staying home, a vast majority of the nation’s deaths—about 83 percent—would have been avoided.”

This claim that there were needless deaths elides the distinction between deaths prevented and deaths delayed. One conception of the virus is that until and if a vaccine or better treatments are available the virus will infect everyone who is susceptible. It is simply a question of when, not whether. Indeed, this is the foundation for the basic SIR (Susceptible, Infected, Recovered) framework for modeling and predicting the virus’ spread. Everyone is susceptible. What varies is how fast the infection spreads and how quickly people recover or die.

Of course, we could defeat the virus by quarantining everyone for a year. But in the interim the economy would collapse, undermining our ability to create and distribute a vaccine or develop better treatments. As Johan Giesecke writes in the prestigious medical journal, *The Lancet*, “There is very little we can do to prevent this spread: a lockdown might delay severe cases for a while, but once restrictions are eased, cases will reappear. I expect that when we count the number of deaths from COVID-19 in each country in one year from now, the figures will be similar, regardless of measures taken.”⁶

This way of thinking is the basis for projecting expected deaths. Without recourse to any mathematical complexity we can simply multiply the total population by the expected mortality

⁴ <https://www.amazon.com/Denial-Death-Ernest-Becker/dp/0684832402>

⁵ <https://www.nytimes.com/2020/05/20/us/coronavirus-distancing-deaths.html>

⁶ [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31035-7/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31035-7/fulltext)

rate, discounted for some approximate level of "herd immunity." At that level enough people are immune to slow the virus' spread to a crawl; slow enough so that we can develop treatments that reduce deaths and/or develop a vaccine to immunize the remaining population.

To give an example, if the US population is 328 million, the mortality rate is at the high end of .4%⁷ and herd immunity is achieved when 60% of the population is immune, then the projected number of deaths is $328 \times .6 \times .4\% = 787,000$ in about two years or roughly 100,000 more than die of cancer in a single year. This is why Mike Osterholm, a noted epidemiologist at the University of Minnesota has been decidedly pessimistic in his projections. As he notes, "I don't think the public gets that we're in this for the long haul...Less than five percent of many parts of the United States have been infected with this virus yet. We're not going to see this virus slow down until we get until 60-70 percent of the population infected, hopefully develop an immunity, or a vaccine causes that immunity."⁸

Osterholm's pessimism is warranted. We can use mitigation strategies to slow the virus' spread, most importantly by not congregating indoors with large numbers of people, itself a challenge in many work settings. If we do this we are less likely to overwhelm our hospitals. But slowing the virus down delays rather than stops its spread through the population. As I write, China, which successfully suppressed the virus in Wuhan, is now experiencing a second wave in Beijing. That is why Osterholm argues that a 5% infection rate is too low. It is a bad sign, not a good one. Delay might buy us time to achieve a better treatment, but we cannot count on this. As he says in an interview, "We've never had a coronavirus pandemic infection like this. It may have happened centuries ago, but we didn't see it."⁹ This virus is a force of nature.

Can we accept our helplessness, as Osterholm and Giesecke suggest? Should we? What are the consequences if we do or if we don't? Let us return to Governor Cuomo's press conference. As we have seen, he proposed locking down New York State to save lives. Yet, even as he spoke, the public health community understood that when lockdowns "flattened the curve," they were slowing not stopping the virus' spread.

Consider the following. From April 24 to June 15 new cases fell from 35,000 to 18,000, a sign of progress.¹⁰ But these case numbers undercount actual infections by at least at least a factor of 5 since 80% of the people with the infection have mild to no symptoms.¹¹ Moreover, on June 25 Robert Redfield of the CDC said that the case count undercounted actual cases by a factor of 10.¹² This means that on June 15 there were actually 180,000 new cases.¹³ But on that date

⁷ <https://reason.com/2020/05/24/the-cdcs-new-best-estimate-implies-a-covid-19-infection-fatality-rate-below-0-3/>

⁸ <https://wccoradio.radio.com/articles/news/second-wave-of-covid-19-could-hit-us-harder-than-first>

⁹ Op cit.

¹⁰

https://www.google.com/search?q=covid+cass+US&rlz=1C5CHFA_enCA803CA803&oq=covid+cass+US&aqs=chrome..69i57.7703j0j4&sourceid=chrome&ie=UTF-8

¹¹ https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200306-sitrep-46-covid-19.pdf?sfvrsn=96b04adf_4

¹² <https://www.npr.org/sections/coronavirus-live-updates/2020/06/25/883520249/cdc-at-least-20-million-americans-have-had-coronavirus-heres-who-s-at-highest-ri>

¹³ <https://fivethirtyeight.com/features/coronavirus-case-counts-are-meaningless/>

there were many more people walking around sick, essentially all the people who caught the virus up to two weeks before, 98% of them not hospitalized. While the arithmetic is not perfect, we could roughly say that the total number of infected people on that day was $14 \times 180,000$ or 2,520,000 people. This in a period of ostensible improvement! We certainly can't trace the contacts of all these people with the resources at hand. This means that a lockdown's primary goal is to protect hospital capacity, not to save lives, a point Cuomo demonstrated well in his earlier press conferences.

Of course, Cuomo could save particular lives by providing hospitalized patients with ventilators, though often these had debilitating side effects. Not everyone who gets sick or is hospitalized must die. They benefit from supportive therapies to treat the virus' complications, such as pneumonia, breathing difficulties and blood clotting. The mortality rate reflects just these efforts. But there is no cure for the virus. From the point of view of the pandemic as a force of nature, Cuomo could not save lives in toto. Moreover, it was also understood that lockdowns had to be temporary, so that when he looked back ten years from now he would have to recall decisions he took to expend lives by opening up the state's economy and accelerating the virus' spread.

I want to suggest that as Cuomo mastered the logistics of managing the State's response to the pandemic, and he certainly demonstrated mastery, he slipped, in this press conference, from a stance of pragmatism to what I will call the stance of *omnipotence*.

What do I mean by omnipotence? It is a stance in which we inflate our sense of mastery, as one way to mask our vulnerability. And the virus has truly humbled us, exposing our helplessness. Western culture expresses this link between omnipotence and helplessness in its literature. When in the Bible God commands Abraham to kill Isaac, the son he yearned for and loves, he is helpless to disobey. He then absorbs God's omnipotence as a prelude to- almost-killing him. The story is a wisdom tale warning us not to succumb to omnipotence when feeling helpless. Indeed, in ancient times people killed their infants when food was scarce. In Goethe's rendering of the Faust legend, the Ur text for understanding the dark side of mastery, Dr. Faust despairs of ever gaining complete knowledge of the natural world. Contemplating suicide, itself a way to master death and thus express omnipotence, he agrees to sell his soul to the devil, Mephistopheles, who offers him complete knowledge. This leads Faust down a path of destruction.

Five examples

Let me buttress my choice of this word, "omnipotence," with the following five examples. Each helps build my thesis that the response to the Pandemic in the U.S. has been shaped in part by fantasies of omnipotence. In this sense Cuomo's stance was representative.

Testing in Pennsylvania: In Mid-May Governor Tom Wolf of Pennsylvania announced that "a region or county will need to average fewer than 50 new positive cases of the virus per 100,000 residents for 14 days" in order to begin moving out from under his statewide lockdown.¹⁴ This was a very unrealistic metric. To prove my point, I ask the reader for patience in considering the following numbers.

¹⁴ <https://www.nbcphiladelphia.com/news/coronavirus/gov-wolf-to-provide-update-on-pennsylvanias-covid-19-response/2372538/>

On May 18, Pennsylvania officially had counted about 60,000 coronavirus cases and 4,000 deaths for an official mortality rate of 7%.¹⁵ Were these numbers correct it meant that the mortality rate was greater than what Philadelphians had experienced during the great influenza pandemic of 1918!¹⁶ This means that the State was undercounting the actual number of cases significantly. The official case-count was a measure of the state's capacity to test rather than a gauge of the virus' spread.

The best mortality estimate, based on a data from across the globe, is .4% or 4 times the seasonal flu.¹⁷ On May 11 there were according to the official case counts 15,000 Pennsylvanians with the infection. If the mortality rate in Pennsylvania was close to the worldwide estimate, and the virus lasts about two weeks, then there were about 250,000 people with the infection on that day out of population of 12.5 million, for a rate of 2000 to per 100,000, or 40 times the official marker for ending the lockdown!¹⁸ The Governor's policy was blatantly unrealistic.¹⁹

What accounts for this unrealism? Let me suggest that unrealistic thinking is one version of wishful thinking. The policy reflected two wishes, that testing was a lever for controlling the virus' spread and that its spread was in fact limited. In fact, in mid-April it was evident that testing was too limited to be useful. The ratio of positive results to total tests administered was 32%. It is implausible that with the lockdown the virus had spread that far that fast. Instead, physicians were engaging in triage, testing only the people who were evidently sick. This was like gauging the average height of people in a crowd by estimating the heights of the people we can see- the tallest ones!

Nate Silver, the famous pollster, whose site FiveThirtyEight is referenced broadly by people who try to predict election outcomes, wrote a devastating critique of testing, titled "Coronavirus Case counts are Meaningless."²⁰ Testing data, he noted are highly incomplete, the case undercount could be anywhere between two and hundred times, and that the false negative rate might be as high as 20%.

Wishful thinking confined to thought may be harmless, but when it deforms action it approximates magical thinking, or what Freud called the "omnipotence of thought,"²¹ the fantasy that thinking or wishing can "make it so." Magical thinking is a response to actual helplessness in the same way that ancient cultures used dances to "cause" rain and thus protect their crops. Testing was like a rain dance and the Governor's policy was in this sense one manifestation of the "omnipotence of thought."

¹⁵ Philadelphia Inquirer, Friday May 15, 2020, Section A

¹⁶ For the number of people killed in the Philadelphia during the 1918 Pandemic, see <https://www.nytimes.com/2020/04/04/us/coronavirus-spanish-flu-philadelphia-pennsylvania.html>

¹⁷ <https://covid19.healthdata.org/united-states-of-america>

¹⁸ To calculate actual cases I used the algebraic formula = (actual deaths/recorded cases)/ (recorded cases/actual deaths)=actual cases/recorded cases = .07/.004 = 17.5; the multiplier of recorded cases to get actual cases.

¹⁹ On a technical note: The Governor's criteria was for *new* infections; my estimate is for the total number of infections. But even if R0 were say .9, and thus less than 1, the number of new infections would be .9x 2500,00, much higher than the Governor's benchmark

²⁰ <https://fivethirtyeight.com/features/coronavirus-case-counts-are-meaningless/>

²¹ https://en.wikisource.org/wiki/Totem_and_Taboo/Chapter_III

A Selective Lockdown: Second, in Mid-March I wrote a paper titled, "Pandemic lockdown must fail: Saving lives without crippling the economy." I made a very simple argument. Since we already knew from the Chinese and Italian experience that between 75% to 80% of the people who died from the virus are over 65, we should selectively lockdown the elderly, before they became sick while allowing the rest of the population to return to work. This would accelerate the rate at which those less vulnerable would become immune by contracting the virus, thus reducing the virus's threat to the elderly more quickly. I called it a "reverse quarantine" in the sense that we would quarantine the elderly who were not yet ill. If the selective lockdown lasted 12 to 18 months, enough time for at least better treatments to emerge, we could then save lives rather than delay deaths, reduce the threats to the elderly and prevent or at least delimit the economy's devastating collapse. In addition, we would significantly reduce the load on hospitals since the elderly required the most intensive care when hospitalized. A simple calculation in the appendix based on CDC data suggests that we could reduce our need for hospital beds by as much as 50%. I suggested in the paper that the cities and towns could organize social services and mobilize volunteers to support the elderly in their isolation, caring in particular for those who lived alone. In my city of Philadelphia this has already happened. People can volunteer to pick up groceries and medications for the elderly, and supermarkets have special hours for elderly shopping. Some cities reserve park areas for use by the elderly alone in the morning hours.

The proposal was not perfect. It did not address for example the dilemma of multigenerational households, a problem in Italy. But it was certainly logical and indeed was explored by an eclectic group of academics organized by Dr. David Katz at Yale university. I was a member of this temporary group. Thomas Friedman, a columnist for the *New York Times*, popularized this idea.²²

But the response to my paper and to others who developed and published similar ideas was indifferent to hostile. I puzzled over this for some time. After all, we were proposing to save lives and the economy. I can imagine now that some people thought it unfair to selectively lockdown a group, though in truth such an effort, to be successful, would have to depend for the most part on voluntary compliance and community support to be successful. It was surely no harsher than locking down everyone, by now an evidently unsustainable policy. And as lockdowns are lifted, the elderly will face new threats unless they self-isolate and/or are supported in their isolation.

I came to the following hypothesis. Total lockdown offered the fantasy of preventing everyone's death while a selective lockdown meant that those who returned to work would be exposing themselves to the prospect of dying. In Mid-March when the costs of shutting down the economy were not yet so palpable, the idea that we should accept that the virus could and would kill some of us was still unacceptable.

When people responded to my paper with the rejoinder, "It is not the just elderly who get sick and die," I responded, "We will have more than enough hospital capacity to care for them." My response went nowhere. I was responding pragmatically to an argument informed by omnipotent thinking.

²² <https://www.nytimes.com/2020/03/22/opinion/coronavirus-economy.html>

Deaths of Despair: In the guise of preventing deaths policy makers and influential opinion makers overlooked the “deaths of despair” caused by the lockdown itself. This was a motivated oversight since it has been known since the days of the Great Depression that chronic unemployment can be deathly. In my paper I reported on some decades old research that explored this link. Indeed, the Well Being Trust recently published a study examining nine different scenarios of recovery from unemployment and social isolation over the coming decade.²³ Their conclusion: the lockdown will kill 75,000 more people from suicide and drug and alcoholic abuse. Add to these the deaths due to peoples’ reluctance to visit their doctors in a pandemic. From March 14 to May 2 there were 14,000 excess deaths in New York and New Jersey due to heart disease, flu and other causes.²⁴ In other words, people were dying at a higher rate from other diseases, partly because they were afraid to get medical care. One study found that patients with stroke were showing up two hours later than usual to treatment centers.²⁵ “The findings confirmed the suspicion that patients with stroke had been avoiding or delaying care, including a reported 40% drop in stroke scans.”

Let me suggest the following. We can tolerate the deaths we impose on ourselves, much more than the deaths the virus inflicts. The latter exposes our impotence while the former highlights our agency, our social choices. This is not dissimilar to the 35,000 deaths we tolerate due to highway fatalities.²⁶ This means that to enact our fantasized omnipotence we focus on the steps we take to defeat the virus, some of which are magical in character, and neglect the deaths these very same steps induce.

Dominating the population: Observing the Chinese lockdown in Wuhan, ground zero for the global pandemic, one had to admire their capacity to command behavior. As USA today reports, “Authorities went door-to-door for health checks—forcibly isolating every resident in makeshift hospitals...Caretakers at the city’s ubiquitous large apartment buildings were pressed into service as ad hoc security guards, monitoring the temperatures of all residents.. Outside, drones hovered above streets, yelling at people to get inside and scolding them for not wearing face masks.. Elsewhere face recognition software, linked to a mandatory phone app that color-coded people based on their contagion risk, decided who could enter shopping malls, subways, cafes and other public spaces.”²⁷

The Chinese government could control and suppress behavior by extending and amplifying its already quasi-totalitarian control over its citizens. Let me propose the following speculation. Chinese officials could transform feelings of helplessness in facing the pandemic, after all, it looks like their success will be temporary, into its complete mastery over its population.

In the U.S., with its democratic traditions, state governments could not possibly exercise this level of command. But even though most people support Governors’ impositions of restrictions,

²³ <https://wellbeingtrust.org/areas-of-focus/policy-and-advocacy/reports/projected-deaths-of-despair-during-covid-19/>

²⁴ <https://www.nytimes.com/interactive/2020/06/01/us/coronavirus-deaths-new-york-new-jersey.html>

²⁵ <https://www.auntminnie.com/index.aspx?sec=ser&sub=def&pag=dis&ItemID=129138>

²⁶ <https://isi.org/intercollegiate-review/if-it-saves-just-one-life-fallacy/>

²⁷ <https://www.usatoday.com/story/news/world/2020/04/01/coronavirus-covid-19-china-radical-measures-lockdowns-mass-quarantines/2938374001/>

"More than 7 in 10 voters fear losing freedoms due to the coronavirus pandemic."²⁸ In my own state of Pennsylvania, our Governor Wolf, characterized as typically mild-mannered, verbally attacked local county officials who rebelled against the state's restrictions, calling them "cowardly," and "deserters."²⁹ This warrior language, a mind-set in which citizens are enemies, points to the Governor's experience as someone who is dominating the state rather than governing it.

This conception is consequential. As I write, "A mask rebellion is underway in some parts of California, with residents pushing back on mandatory face-covering rules even with coronavirus cases on the rise and as more businesses open their doors and some people yearn to return to old routines."³⁰ This resistance suggests that state governors have not considered sufficiently how to invoke peoples' voluntary compliance, particularly as they open up their state economies.

This is dangerous. Sweden's policy has been characterized as "soft." Just as in other countries, the government closed high schools, colleges, and cultural venues and encouraged people to work from home. But it imposed no lockdown and kept elementary schools and day care settings open. Its results, considering the proportion of its people who are over 65, and the deaths of nursing home residents, are not out of the ordinary when compared to its European counterparts.³¹ They are considerably better than the UK's and considerably worse than Germany's. (see the appendix).

Let me propose the following. The impulse to dominate the population, one expression of omnipotence, let Governors in the US and governments in the West to under-invest in programs of voluntary compliance based on appeals to people's moral sensibilities, their inventiveness, their regard for vulnerable neighbors, and their ability to make their own local tradeoffs between health and livelihood. This missed opportunity will come back to haunt them.

Models and Mastery. In mid-March the Harvard Global Health Institute published an influential study projecting that over the course of six months we would need about 1,400,000 hospital beds to care for Covid patients, truly a frightening number since the study estimated that we had 265,000 available beds with a potential to add half million more, for a deficit of close to 600,000 beds.³² Yet, a later study projected that hospital bed utilization reached a peak of 60,000 beds on April 16, more than an order of magnitude less than the Harvard study had projected just a month earlier.³³

We might think that successful social distancing accounts for this large gap, but the numbers tell a different story. The Harvard study projected that in six months 100 million people would be infected and about 20 million or 20% would be hospitalized. In retrospect this ratio of

²⁸ <https://thehill.com/hilltv/what-americas-thinking/493773-poll-74-of-voters-concerned-about-losing-freedoms-due-to-covid>

²⁹ <https://6abc.com/coronavirus-pa-pennsylvania-cases-covid19/6169351/>

³⁰ <https://www.latimes.com/california/story/2020-06-12/a-revolt-against-wearing-masks-creates-a-new-coronavirus-danger-as-california-reopens>

³¹ <https://www.haaretz.com/science-and-health/.premium-what-can-be-learned-from-the-swedish-coronavirus-case-1.8903160?lts=1592591412661>

³² <https://www.healthaffairs.org/doi/10.1377/hblog20200317.457910/full/> and https://docs.google.com/spreadsheets/d/1xAyBFTrlxSsTKQS7IDyr_Ah4JLBYj6_HX6ijKdm4fAY/edit#gid=0

³³ <https://covid19.healthdata.org/united-states-of-america>

hospitalizations to infection is implausible. One possible explanation is that the modelers did not distinguish between counted cases and actual infections. As we have seen, the latter includes all the people who experience mild to no symptoms and are never tested. The impact of this distinction was not well understood in early March. I estimate the actual gap to be on the order of 14 times, as measured roughly by the ratio of the measured case fatality ratio in the U.S., 5.8% to the actual infection fatality ratio as estimated globally, .4%.³⁴ Dividing the 1.4 million beds by 14 results in 100,000 beds required for six months which is tolerably close to the projection of 60,000 for 1.5 months.

But I don't think the Harvard study reflects just errors of estimation. I think it reflected real panic and the associated feeling of helplessness, at the inception of the pandemic. We all witnessed the hotspots in Milan, Wuhan, New York City and New Orleans, with their image of bodies without morgues to accept them, patients stashed in hospital hallways and ventilator shortages. It made sense at that time to imagine the worst.

But consider the following. The modeler who imagines the worst, who projects a horrendous future, an apocalypse, can feel powerful by becoming the messenger of death. The messenger and the message are fused. Of course, the manifest purpose of the model is to promise amelioration by advancing understanding and preparedness. But our emotional response of fright diminishes our capacity for thinking and as a result we subordinate to the modeler. I recall the fright I and others felt when Neil Ferguson of the Imperial College, London, projected 2.2 million deaths in the U.S. Yet as one critic of the study noted, the projection presumed that 81% of the population would have to be infected to achieve herd immunity and that people would make no spontaneous effort to mitigate the infection's spread.³⁵ Moreover, in terms of the simple calculation I proposed in the beginning of this post, the morality rate must be .8%, double the current best estimate, to arrive at the Ferguson's projection. The danger of prophesizing doom is that when it fails to come to pass, people discount its later insights and guidance.

We might forgive the modelers for being so cautious, though as early as mid-March, The Center for Evidenced Based Medicine at Oxford college projected a mortality rate of half that, an estimate that has stood the test of time.³⁶ My speculation is that Ferguson and his team were influenced unconsciously by the mastery they experienced as prophets of doom. One fact that favor's my speculation is that Ferguson made doom like predictions of the impact of swine flu, bird flu and mad-cow disease, none of which proved to be true.³⁷ If this speculation is worthy of consideration it suggests that panic and helplessness can stimulate compensatory feelings of mastery and domination, as represented in models that prophesize doom.

In sum: My hypothesis

Helplessness triggers magical thinking. We see this every day in children who are drawn to fairy tales as one way of metabolizing their sense of helplessness. The fairy tale expresses the helpless feeling while offering magical solutions for overcoming it. This complex of feeling is

³⁴ Algebraically, we have $(\text{Death/Cases})/(\text{Deaths/infection}) = \text{Infections/Cases}$; so that 5.8% divided by .4% = 14.08.

³⁵ <https://www.cato.org/blog/how-one-model-simulated-22-million-us-deaths-covid-19>

³⁶ <https://www.cebm.net/covid-19/global-covid-19-case-fatality-rates/>

³⁷ <https://www.spectator.co.uk/article/six-questions-that-neil-ferguson-should-be-asked/amp>

never far from adult consciousness as well. In the classic movie, *The Wizard of Oz*, which *Time Magazine* called “the most popular single film property in U.S. television,”³⁸ Dorothy’s surrogate parents-- she is the movie’s heroin-- abandon her as a tornado approaches. When struck by flying debris and rendered unconscious, she dreams of her return home from Oz, aided by a good fairy. Strikingly, the real adult in the movie/dream, the Wizard, promises to help her but turns out to be a fraud. The movie’s enduring appeal, to adults as well as children, means that all of us are vulnerable to magical thinking when feeling helpless, particularly when our parents or authority figures are unreliable.

My hypothesis is the following. The pandemic has stimulated our helplessness, setting into motion ideas and practices that both reflect and express compensatory feelings of magical thinking, omnipotence, and inflated mastery. These feelings have real consequences, over-relying on testing, failing to consider deaths of despair, modeling extreme outcomes and a refusal to consider selective lockdowns to protect the most vulnerable. The drive was to eliminate death in general, this is what omnipotence ultimately means, rather than to protect individual lives.

This hypothesis helps explain an enduring scandal associated with the lockdown. In the United States, nursing home residents accounted for 42% of all Covid related deaths.³⁹ In my state of Pennsylvania, 70% of all deaths were in long term care facilities.⁴⁰ Here was a most vulnerable population, readily identified and understood as such in settings where health care workers and residents were necessarily in close physical contact. Their vulnerability was already evident from the pandemic’s outbreak in Italy. But in the U.S. individual states made no effort to help these facilities recruit and employ more health care workers, provide them with personal protective equipment, use testing to its best effect and send out crisis teams to inspect the homes and help remedy deficiencies. Most famously and notoriously, Governor Cuomo, the model of pragmatic leadership discharged 4500 recovering nursing home patients from New York State hospitals, without ensuring that they were no longer infected.⁴¹ This risked infecting workers and residents in the facilities while overwhelming health care workers attending to the care of those discharged. As one New York State Assemblyman said, “The fact (that) we maintained and pushed Covid-positive patients into facilities that were not equipped to handle them, it was a fatal error.”⁴² My interpretation is that the climate of panic and the compensatory feelings of omnipotence shifted attention from individual lives in the concrete to the battle with death in the abstract. This shifted practice from the plane of pragmatism to the plane of symbolism.

38 <https://entertainment.time.com/2013/09/16/oz-revisited-why-we-still-follow-the-yellow-brick-road/#:~:text=In%201967%2C%20TIME%20called%20The,look%20like%20a%20fizzier%20Kansas.>)

³⁹ <https://freopp.org/the-covid-19-nursing-home-crisis-by-the-numbers-3a47433c3f70>

⁴⁰ <https://www.inquirer.com/health/coronavirus/spl/pennsylvania-coronavirus-nursing-homes-staffing-audits-problems-deaths-20200613.html>

⁴¹ <https://apnews.com/5ebc0ad45b73a899efa81f098330204c>

⁴² <https://www.wsj.com/articles/new-york-sent-recovering-coronavirus-patients-to-nursing-homes-it-was-a-fatal-error-11589470773>

III. The battle against death

The symbolic plane is most consequential. In a famous, Pulitzer Prize winning book, *The Denial of Death*,⁴³ Ernest Becker, a psychoanalytically informed anthropologist, argued that cultures help people cope with death by providing individuals with meaning and a sense of personal significance. Death is forever, we will all be forgotten and, but for those who believe in a personal God, we live in a universe that is completely indifferent to us. I remember the wonderful scene in Woody Allen's movie, *Annie Hall*, where his child alter-ego, Alvy, worrying about the end of the universe, stops doing his homework. His mother brings him to a psychiatrist. After Alvy recites his worry, "The universe is everything, and if it's expanding, some day it will break apart and that will be the end of everything.," his mother responds in exasperation, "What has the universe got to do with it!" "You're here in Brooklyn! Brooklyn is not expanding!"⁴⁴

This comical rendering of an existential despair and a mother's response reveals a truth. Brooklyn, seriously considered, does not hold a candle to the universe. But we can invest Brooklyn with meaning, be proud of Brooklyn, (my wife was born in Brooklyn) by investing in cultural sanctioned activities of all kinds which give us meaning and significance; homework in the small, work, parenting, citizenship and making Brooklyn beautiful, in the large.

Call this an illusionary solution, much as Freud called religion an illusion, but it certainly works, just as religious beliefs do for many people. In an extensive and international social-psychology research program, called "Terror Management Theory," Sheldon Solomon and his colleagues, students of Becker's work, have explored the links between culture, death, meaning and significance. This decades long work is summarized in their book, *The Worm at the Core: On the Role of Death in Life*.

Their central and simple conclusion which echoes Becker's: Culture provides us with meaning and significance. These are the best defenses against the experience of death's victory.

A sample of some of their social-psychology experiments:

- ▶ Half of a group of Canadians read an anti-Canadian diatribe that mocked its food, health care and sports. Half did not. Asked to complete words with letters that could invoke death-related terms or not, (e.g., **COFF**...could spell "coffee" or "coffin"), The Canadians exposed to the diatribe referenced more death related words than those who were not exposed.
 - *Conclusion:* when a culture's significance is debased people are more prone to think of death.
- ▶ Subjects were asked to solve some anagram problems (for example unscramble the letters "A_E_K_T_S to find a word) and were then told that they would receive some electric shocks to their hand. No shocks were actually delivered. Half the subjects, chosen randomly, were told that they did especially well on the anagram problems half were not

⁴³ https://www.amazon.com/Denial-Death-Ernest-Becker/dp/0684832402/ref=sr_1_1?crid=2J0LC2490Z1LT&dchild=1&keywords=the+denial+of+death+by+ernest+becker&qid=1592502176&prefix=the+denial+%2Caps%2C145&sr=8-1

⁴⁴ <https://slate.com/technology/2004/03/alvy-singer-s-terrible-fear.html>

told anything. Anticipating the shocks, the half who believed that they had done well, sweated much less than those who had no such belief.

- *Conclusion:* Self-esteem protects one from anxiety at the physical level
- ▶ "After thinking about their death, Israeli soldiers whose self-esteem was strongly tied to their driving ability drove faster on a simulator... Those who based their self-worth on physical strength generated a stronger handgrip after they thought about death."
 - *Conclusion:* achievements which are culturally sanctioned protect people against death anxieties.
- ▶ Judges were asked to impose bail bond for a fictitious Carol Ann, a prostitute soliciting "Johns" on a street corner. Half were reminded of death by filling out a survey, half were not. The former imposed a much higher bond than the latter.
 - *Conclusion:* reminded of their own deaths, judges were much likely to uphold cultural standards, to invest them with more meaning.

Some of my readers may be innately skeptical of such experiments, though I find the sum total of them, as Solomon and his colleagues report their results, to be convincing.

Their findings reinforce my argument about omnipotence. The pandemic exposes our impotence in the face of an indifferent natural world, it reminds us of our biological links to animals, it brings death awareness to the surface, it threatens to render meaningless the activities we engage in to express our self-esteem and significance, and it mocks our modernity and our conception of progress, a central conceit of Western culture. Inducing helplessness, the pandemic undermines our culture's protective capacity. Culture is no longer our guardian at the door. These are the conditions that can give rise to the compensatory feelings of omnipotence and domination as a defense against our helplessness.

Camus

Some of my readers may be innately skeptical of such experiments, though I find the sum total of them, as Solomon and his colleagues report their results, to be convincing. If they feel mechanically described and arrived at perhaps Albert Camus' *The Plague* can infuse them with some emotional depth.

The Plague is an existential novel which poses the question of how we find meaning in the face of death. The people of the city of Oran, Algeria are cut off from their surroundings. The whole city is quarantined, though the residents within it are not. At an opera performance, a singer bemoaning his lover's death suddenly falls into the theater pit, apparently stricken by the plague. The audience stampedes toward the exit.⁴⁵

One interpretation of this scene is that culture, in the form of opera, provides us with a protective layer. It brings us close to death of the fictitious kind, the fictitious lover has lost his loved one, without actually experiencing real death. It is like seeing a tiger in a cage. We come up close and experience the terror without risking our lives. But the plague intrudes. Real death

⁴⁵ Many thanks to Beth Neustadt and Anthony Berendt for helping me understand this passage.

marches on stage, the actual opera singer may die right then and there. We run for the exits. Death punctures the veil of culture revealing it to be paper tiger.

In another scene a clerk, trying to write a novel, labors over its ridiculous first sentence without end. The goal? That a prospective publisher, upon reading the sentence will yell, "hats off!" Here Camus paints culture as absurd. We may hope that by creating works of culture we will be remembered after we die. But in the plague this absurd hope is quashed, reduced to an unfinished sentence and the meaningless approbation of an unnamed publisher.

One interpretation is that the plague renders our effort at creating culture meaningless. What is the point of creating good work if there is no one left to appreciate it? Of course, Camus himself invested in culture, creating a novel we remember long after this death. He created meaning by exploring the conditions for meaninglessness. His plague is in this sense a metaphor for the silent toll that certain death inflicts on the soul, and our compensatory struggle to sustain a culture that helps create meaning despite death's certainty. Camus reveals what the social psychology experiments cannot fully reproduce; that culture protects us from despair.

IV. Beyond omnipotence

The challenge in facing the pandemic and managing our response to it is to acknowledge our helplessness without succumbing to it. This is a common challenge in managing all difficult feelings, such as disappointment or regret. The feeling is a truth which when acknowledged affords us greater freedom in making sense of it and using it. When we either succumb to the feeling or prematurely try to master it, we find it harder to make meaning of the situation at hand and develop a response that meets our needs. Our subsequent decisions are more likely to be self-defeating, for example, succumbing to despair, or in the face of unalterable regret, throwing caution to the wind.

In describing the plague that struck Athens during the Peloponnesian wars Thucydides notes how in the face of their hopelessness people threw caution to the wind and became lawless; a version of nihilism. "So they resolved to spend quickly and enjoy themselves, regarding their lives and riches as alike things of a day... Fear of gods or law of man there was none to restrain them."⁴⁶ We can see evocations of this nihilism today in the way people are careless to a fault when they don't wear masks in bars or congregate too closely together on beaches. As I write this on June 27, a lead article in the *New York Times* evokes a sense of emerging despair, "More than four months into fighting the coronavirus in the United States, the shared sacrifice of millions of Americans suspending their lives — with jobs lost, businesses shuttered, daily routines upended — has not been enough to beat back a virus whose staying power around the world is only still being grasped."⁴⁷

Let me suggest that the antidote to nihilism and despair, if we can achieve it, consists of five steps. Look at our situation objectively. Acknowledge its gravity. Use our moral compass to assess impossible choices, the risks they create and the tradeoffs they impose. Draw on our

⁴⁶ <https://www.livius.org/sources/content/thucydides-historian/the-plague/#:~:text=Among%20the%20most%20famous%20parts,rest%20of%20the%20Archidamian%20War.>

⁴⁷

pragmatism and inventiveness to resolve some of these tradeoffs. Make decisions knowing we will stumble and possibly fail.

Before launching the famous D-Day invasion in World War Two, General Eisenhower prepared a letter he would circulate had the invasion failed. It acknowledged his responsibility for defeat. He wrote, "Our landings in the Cherbourg-Havre area have failed to gain a satisfactory foothold and I have withdrawn the troops. My decision to attack at this time and place was based on the best information available. The troops, the air and the Navy did all that bravery and devotion to duty could do. If any blame or fault attaches to the attempt it is mine alone."⁴⁸ To anticipate defeat, to blame no one but yourself, and to nonetheless take necessary risks to attain a valued objective signals that you have overcome both omnipotence and helplessness.

Calculating Life and Death

Eisenhower faced a signal challenge on D-Day; risking the lives of men in their prime years to achieve a valued objective. Four thousand died and 10,000 were injured. We face a similar challenge. Opening up the economy will create more deaths than if we sustained current conditions. The virus will spread more quickly and people whose lives might have been saved by their relative isolation, by better treatment or by the fortuitous development of a vaccine will die. Yet on other side, many other people will restart their lives and improve its quality. Deaths of despair will diminish. Children at risk of losing two years of schooling will regain ground. Small business owners will recapitalize. Dreams will be deferred, not dashed.

Can we look objectively at the tradeoff between deaths and livelihoods and assess, as Eisenhower had to, whether the cost in lives lost are worth the benefits? Is the candle worth the game? If this question seems out of the question, if we argue that every life is sacred, then how can we possibly make a moral decision about restarting the economy? We would return to helplessness, and by acceding to our paralysis simply let conditions unfold as they will. This could lead to more deaths than if we had entertained the question in the first place. What is the value of a live saved?

In the remainder of this section I will take the reader through several calculations as a way of comparing the benefits we get from reopening the economy when compared to the costs we incur in creating more deaths. The calculations may seem heartless, but they are a necessary step in developing an objective view of our current situation. Their results are not dispositive. Rather, as I hope to demonstrate, they provide a more secure backdrop for making moral judgments, or at minimum, asking the right moral questions.

Traffic fatalities

We may cringe at the thought of comparing life and death to dollars, but we actually "calculate" the value of life and death every day when we exchange deaths for the conditions of life we value. The most evident indication of this is that we tolerate motor vehicle deaths, 37,000 every year, along with many more life-changing injuries, for the convenience of speed and access. In

⁴⁸ <https://www.mentalfloss.com/article/57144/eisenhower-wrote-letter-accepting-blame-d-days-failure-just-case>

1995 we entered into a natural experiment when the Federal government raised the speed limit on interstate highways from 55 miles per hour to 65. One estimate suggests that this resulted in an extra 1900 deaths in 2017.⁴⁹ What does this tell us about how much we value a life?

Consider the following table. It walks through the following simple arithmetic. Calculate how many total hours of driving time people saved when the speed limit was raised. Following the conventions of cost-benefit analysis, multiply this number by the average wage rate per hour to arrive at the total dollar value of time saved. The wage rate is a rough measure of how individuals and society as a whole value time.

As the table shows, people saved about 2.3 billion hours of driving while “killing” 1900 more people. At an hourly wage of \$23, the cost of a death, or in reverse, the value of a life saved, is by this calculation, about \$29 million.

Table 1: Miles and dollars saved

US Population	328,000,000
Percent over 18	0.76
Number of drivers	249,280,000.00
Miles driven per year per capita in 2019	13,476
Total miles driven	3,359,297,280,000
Fraction of miles on local roads	0.75
Miles on interstate	839,824,320,000
New speed limit in MPH	65
Hours of driving	12,920,374,153.85
Old speed limit in MPH	55
Hours of driving	15,269,533,091
Hours saved in driving time	2,349,158,937
Average weekly wage rate per employee in 2019	\$ 936
Average hourly wage	23.4
Dollars gained	\$ 54,970,319,127
Lives lost in one year	1,900
Dollars gained per life lost	\$ 28,931,747

Source: Miles Driven per Capita: ⁵⁰ Average weekly wage:⁵¹

⁴⁹ <https://www.iihs.org/news/detail/speed-limit-increases-are-tied-to-37-000-deaths-over-25-years>

⁵⁰ [https://www.carinsurance.com/Articles/average-miles-driven-per-year-by-state.aspx#:~:text=Please%20select%20one-What%20is%20the%20Average%20Miles%20Driven%20Per%20Year%3F,Federal%20Highway%20Administration%20\(FHWA\).](https://www.carinsurance.com/Articles/average-miles-driven-per-year-by-state.aspx#:~:text=Please%20select%20one-What%20is%20the%20Average%20Miles%20Driven%20Per%20Year%3F,Federal%20Highway%20Administration%20(FHWA).)

⁵¹ <https://www.thestreet.com/personal-finance/average-income-in-us-14852178>

Can we make sense of this number and is it useful? Researchers at the Wharton School, the University of Pennsylvania, built a model linking the economy's restarting to an increase in deaths.⁵²

Table 2: The Wharton Model: Trading of dollars and lives

GDP (% change)		social distancing practices	
Policy	Current	Relaxed	
current stay at home	-4.4%	-1.0%	
full reopening	2.1%	6.4%	
DEATHS		social distancing practices	
Policy	Current	Relaxed	
current stay at home	202,984	252,444	
full reopening	208,485	282,326	

The model considers two policies; enforcing current stay-at-home restrictions or fully reopening the economy, and whether or not people continue to practice social distancing or relax their discipline. So for example, if we stay at home and remain disciplined in our current social practices, our GDP (Gross Domestic Product) will be 4.4% less than 2019 GDP and about 200,000 people will die. However, if we fully reopen and relax social distancing practices our GDP will be 6.4% more than 2019 GDP, but about 280,000 people die. We can use these numbers to calculate the tradeoff between lives lost and dollars gained. The GDP "swing" from "current stay-at-home" to "full-reopening" is 10.8%, the extra loss of lives, is 79,000. GDP in 2019 was about \$19 trillion. The result: each life lost is worth about \$26 million.

Our two estimates are approximately similar, but of course there are many assumptions underlying each. An objective analyses based on approximations is indicative rather than dispositive, informing rather than commanding judgment. In this spirit our result suggests that our implicit valuation of life as represented in our social choice about traffic fatalities are consistent to an order of magnitude with the tradeoff we currently face between livelihoods and deaths. This both gives our result some degree of credibility and suggests that we could indeed tolerate the tradeoff associated with a full re-opening.

The Trolley problem

But there is one fly in the ointment. The case of traffic fatalities aggregates a collective decision that no one makes explicitly. When the speed limit was increased no person or group set out to kill 1900 people each year, and surely no one was held accountable for the result. However, if

⁵² <https://budgetmodel.wharton.upenn.edu/issues/2020/5/1/coronavirus-reopening-simulator>

we open the economy we are making a conscious decision to kill people. My readers will recognize this as a variant of the philosophical "trolley problem." A trolley is barreling down the tracks threatening to kill five people who are standing on them, some distance away. Would you throw a person in front of the trolley to stop it from barreling down the tracks and killing another five? Would you sacrifice one for five? Alternatively, would you pull a lever to divert a train from one track where five people will be killed onto a track where only one will be killed? Is it easier for you to imagine pulling a lever than throwing a person? As this last question suggests, the study of the trolley problem reveals that intentions weighs heavily on our moral choices, invoking our feeling as well as our thinking. And intention is visceral not abstract. Most people find it easier to imagine pulling a lever than throwing a person.⁵³

In light of the trolley problem and the role of intention, can we develop an alternative estimate of the tradeoff between deaths and lives?

The value of a statistical life (VSL)

There is an alternative approach to valuing life based on the decisions that individuals make at the margin as they "calculate" life for themselves in their everyday lives. The method is based on the "value of a statistical life (VSL)."⁵⁴ Let me give a simple heuristic example.

Roughly 1.26 bicyclists die per 10 million miles of riding.⁵⁵ Let's assume that the average urban rider rides 3 miles day for 100 days or 300 miles. The likelihood that a rider will die in a year is then $(1.26/10 \text{ million}) \times 300 = .0000378$. This means that among 100,000 riders 3.78 will die in a year. If bicyclists buy a helmet that saves their lives for \$100 then 100,000 of them will spend \$10 million on the helmets. So implicitly, bicyclists are valuing 3.78 lives at \$10 million for the value of a "statistical life" of about \$2.6 million.

As this example suggests, what VSL reveals is how people "bet their lives" at the margin when their chances of actually dying are small. This is why it is called a "statistical life." If a thief threatened your life in the moment, so that your chance of dying were close to certain, you might then pay untold millions to save yourself. But not every day in facing ubiquitous small risks that threaten you. Instead, you take precautions of the limited kind, like wearing a bicycle helmet or using your seat-belt.

The merit of this method is that it is based on what individuals actually choose rather than on what we infer they prefer based on their collective behavior. We get closer to their intentions. One estimate, widely accepted and based on labor market studies-- assessing what workers are paid to take risky jobs-- is that the VSL is about \$10 million.

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https://en.wikipedia.org/wiki/Trolley_problem#:~:text=The%20trolley%20problem%20is%20a,thought%2C%20utilitarianism%20and%20deontological%20ethics.&text=Do%20nothing%20and%20allow%20the,people%20on%20the%20main%20track.

⁵⁴ https://law.vanderbilt.edu/phd/faculty/w-kip_viscusi/368_Value_of_Statistical_Life_Oxford.pdf

⁵⁵ [https://bicycleuniverse.com/bicycle-safety-almanac/#:~:text=86\)%20from%203%20trillion%20miles,as%20motorists%2C%20per%20passenger%20mile.](https://bicycleuniverse.com/bicycle-safety-almanac/#:~:text=86)%20from%203%20trillion%20miles,as%20motorists%2C%20per%20passenger%20mile.)

This method is widely used when government agencies assess the costs and benefits of their regulations. The Environmental Protection Agency uses a value of \$9.1 million, the Federal Drug Administration uses a value of \$8.3 million and the Transportation Security Agency, a value of \$9.4 million.⁵⁶ For example, one study suggests that if we increased air quality by reducing “particulate matter” pollution, we could save 30,000 lives every year. This means a total VSL of \$9.1 million x 30,000 or \$273 billion, or less than 2% of current GDP.

We have already calculated that the Wharton model implicitly values life at \$26 million. This is 2.6 times the standard estimate of a VSL. This suggests, based on our individual decisions in valuing life, that we could tolerate a full re-opening. So for the moment, both of our calculations support reopening.

Calculations are just that. They should inform our judgment not determine it. In the process of assessing our situation objectively this would be a moment to step back and ask if and how these calculations evoke or provoke our moral senses and our emotional responses. Do we find these estimates useful, provoking, abhorrent, or simply without merit? If any of the above, it is important to ask why, since in doing so we can dig deeper into our unexamined intuition and assess if we trust it or not. If we can't find the emotional center of our response, and this is where I am, as the author of these estimates, that could indicate that we are open to more thinking. If so, we can ask for yet another way to calculate life and death.

The issue of redistribution and fairness

The VSL presumes that every life is valued the same without considering how many years a person can expect to live. In response to this gap between lives and remaining years to live, the Environmental Protection Agency, in 2005, reduced its estimated VSL for people over 65 by some 37%. It was met by howls of protest and dropped the idea.⁵⁷ But the simple fact is that the coronavirus primarily kills old people, 80% of deaths are to people over 65, while undermining the life plans of millions of young people. What is the just adjudication of this discrepancy? Again, some numbers can help us take up an objective stance before we plunge into the depths of moral judgement.

The table below presents the following calculation. I applied estimated infection fatality rates (IFR) by age group to the number of people in older age groups.⁵⁸ The IFR is the fraction of people that are projected to die in each group over the course of the pandemic. The third column shows how many *total* people in each age group are projected to die. Using these

⁵⁶ *Ultimate price: The value we place on life*, p. 27, https://www.amazon.com/Ultimate-Price-Value-Place-Life-dp-0520343220/dp/0520343220/ref=mt_other?encoding=UTF8&me=&qid=

⁵⁷ Howard Steven Freeman, *Ultimate price: The value we place on life*, p. 91

⁵⁸ I arrived at these number by dividing case fatality rates (CFR) by 1/10th to take account of the undercount of cases. For CFR estimates see: <https://www.statista.com/statistics/1105431/covid-case-fatality-rates-us-by-age-group/>

proportions, the fifth column projects how many people in each group would die using the Wharton estimate of the extra 79,000 fatalities as a baseline.

Table 3: Estimating fatalities

Age group	Number	Infection fatality rate	Fatalities in whole population	Fraction of fatalities	Fatalies in the 79,000
50-59	42,830,000	0.10%	42,830	6.2%	4,866
60-69	37,410,000	0.35%	130,935	18.8%	14,877
70-79	22,660,000	1.20%	271,920	39.1%	30,896
80+	12,480,000	2.00%	249,600	35.9%	28,360
TOTALS	115,380,000		695,285	100.0%	79,000

The next table calculates how many *life years* would be saved if none of the extra 79,000 people died. This means taking account of the life expectancy of people at different ages.

Table 4: Life Years saved

Age group	Fatalies in the 79,000	Life expeancy in years	Life years saved
50-59	4,866	27	133,665
60-69	14,877	19	289,609
70-79	30,896	12	383,113
80+	28,360	4	116,277
TOTAL	79,000		922,664

If we experienced none of the extra fatalities we would save about 900,000 life years but suffer about a \$2 trillion loss in GDP, for an estimated cost per life year of \$2.2 million. There is a formula for converting the value of a life year into a VSL. (see appendix) The result: we are valuing the statistical life of an older person at about \$23 million. This slightly less than the Wharton model estimate of the tradeoff between life and dollars. This is neutral between reopening or not. But this estimate is sensitive to the interest rate used to convert the VSL to the VSLY. I used the 12-month LIBOR of .556%. A higher interest rate would result in a larger VSL.

Some Reflections

It is time to step back and consider our results. Three estimates suggests that we could tolerate a full reopening, despite the extra deaths we would incur. Does this make sense? Consider some corroborating facts. The 9/11 fund, established to compensate the relatives of those killed

in the Twin Towers collapse, awarded between two and four million dollars per life lost,⁵⁹ significantly less than our estimates. Medical spending in the last three years of life in the U.S. is about \$150,000, two orders of magnitude less than our estimates.⁶⁰

We might counter with the simple fact that the seniors we are sacrificing are the parents and grandparents of those younger people who will pay the greatest cost in terms of jobs and incomes lost if we do not reopen. Would they willingly sacrifice their elders? Or would they willingly forgo \$20 to \$30 million to save a parent or grandparent? One survey found that ¼ of parents gave money to their adult children but only 5% of adult children gave money to their parents.⁶¹ Moreover, wage earners, who are younger, are already transferring half a trillion dollars per year to seniors through the payroll tax every year.⁶² Should they be expected to pay more?

My argument brings me to an emotionally distressing moment, which is just the right trigger for sound moral reasoning! I only have questions now. I am a senior with two children and five grandchildren. What would I willingly sacrifice for their welfare? Were I deathly ill would I expect a hospital to spend \$39 million to save me? Would I ask my children to borrow \$39 million, if that were even possible, to try to save me? Would I leave it to them to decide how much effort, measured in dollars, they should spend to save me? I am faced with the trolley problem, only now **I** am the person on the tracks!

Stepping back, let me suggest that we have come to a central ethical question. Should we sacrifice some so that others can flourish? After all we make this decision every time we go to war. But is this really a war? Or should our frame of reference be our cohesion as a society, about the tissue of relationships that connect us all through our friendships and family ties? But is cohesion an ideal unlikely to be realized in the push and pull of who pays and who benefits? On the other hand, if young people have more years to live, isn't that time enough for them bounce back, to recover? If that were true why sacrifice their elders? Or, are the experiences of early adulthood dispositive, forever marking how a cohort marches through life and experiences its chances? People who started out their working lives in the Great Depression were forever marked.

I ask that the reader consider these questions. My own response, considering the weight of evidence I have been able to pull together, is to favor a full reopening. I feel the gravity of my preference but also protected by the thought that from a pragmatic point of view we can work to relax, though not eliminate, the tradeoff between livelihoods and lives.

Relaxing the tradeoff

I suggested that the antidote to omnipotence consisted of five steps:

- ▶ Looking at our situation objectively.
- ▶ Acknowledging its gravity.

⁵⁹Howard Steven Freeman, *Ultimate price: The value we place on life*, p. 11

⁶⁰ <https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2017.0174>

⁶¹ https://www.amazon.com/dp/B0013PTZIY/ref=dp-kindle-redirect?_encoding=UTF8&btcr=1, p. 13

⁶²<https://www.ssa.gov/news/press/factsheets/HowAreSocialSecurity.htm#:~:text=Employers%20and%20employees%20each%20pay,income%20came%20from%20payroll%20taxes.>

- ▶ Using our moral compass to assess impossible choices, the risks they create and the tradeoffs they impose.
- ▶ Drawing on our pragmatism and inventiveness to resolve some of these tradeoffs.
- ▶ Making decisions knowing we will stumble and possibly fail.

Let me suggest that I have taken the reader part way through this process by providing an objective look, facing its gravity and confronting the moral choices we face as we consider sacrificing some so that others can flourish. Let me turn to the next step; thinking pragmatically to relax the apparent tradeoff between lives and livelihoods. If we accept that we should reopen, we can nonetheless work to reduce the number of deaths that reopening brings.

A pragmatic world views counters one centered on fate or tragedy. In pre-modern times the response to death was cultural and religious, centered on consolation and tragedy. Friedrich Nietzsche, the philosopher and psychologist, argued that the ancient Greeks invented the tragic play to bring people closer to death while consoling them with its aesthetics. This was the "birth of tragedy."⁶³ The modern era's central achievement is pushing back death through the best that our science and inventiveness can offer, often achieved through relaxing tradeoffs.

Relaxing a tradeoff sounds quotidian, but it is the heart and soul of continuous improvement, one essential contribution of modernism. When entrepreneurs create lighter weight garments that are just as warm, they have relaxed a tradeoff. When automobile manufacturers produce safer cars that are just as light, they have relaxed a tradeoff. When a factory manager uncovers and corrects a defective part early in the production process, rather than at the end, she has relaxed the tradeoff between cost and quality. When a software designer creates a password storage system for a laptop user, she has relaxed the tradeoff between security and ease of use. You don't have to remember your passwords!

If the reader will give this a moment's thought they will see tradeoffs everywhere.⁶⁴ The psychology of continuous improvement is based on the idea that one does not have to accept the constraint the tradeoff imposes. Every tradeoff can be challenged. We substitute amelioration for fate. But on the other side, the pragmatic stance does not focus on absolutes. Unlike the omnipotent stance we do not expect to eliminate constraints. In that spirit we can challenge the tradeoff between deaths and livelihoods. We won't eliminate it, but we can diminish it.

Six steps we could take

We can relax the tradeoff between livelihoods and lives if we take up policies that protect seniors from becoming infected, or if they do, from suffering long hospital stays. Were we to accomplish this we would also achieve the happy outcome of protecting hospital surge capacity so that people don't die needlessly because hospitals are overwhelmed. However, if we reopened and changed nothing I project, based on CDC estimates, that we may need as many as 285,00 hospital beds at the peak.(see Appendix). This is close to unoccupied bed capacity in

⁶³ Dennis Sweet, "The Birth of Tragedy." *Journal of the History of Ideas*, Volume 60, No. 2

⁶⁴ <https://en.wikipedia.org/wiki/Trade-off>

the U.S. and is likely to strain hospital staffs who are sized to manage occupied beds.⁶⁵ The table in Appendix 2 presents estimates of how by protecting seniors and reducing hospital length of stay could cut peak hospital capacity utilization by almost ½ to 134,000 beds. To accomplish this we could do the following.

- ▶ Provide the best possible care to nursing home residents. There are currently 1.3 million people in nursing homes.⁶⁶ It is estimated that they have accounted for 40% of total deaths to date.⁶⁷ Hospitalized nursing home residents impose the greatest burden on a hospital staff and its resources. Since nursing homes are enclosed facilities they can be used to quarantine its residents as long as health care workers and visitors do not infect them. This also means not only protecting them from the virus, but also addressing their social isolation; a great burden on their emotional well-being.
- ▶ Support seniors, people 65 and older, in their self-isolation. Seniors have an inherent interest in protecting themselves, but we should also protect them. This means creating special hours for senior shopping in supermarkets and other common use stores, creating special hours for senior use of parks and other outdoor common use settings, assigning social workers to monitor the living conditions of those seniors who are poor and/or live alone, helping multigenerational households organize their living space to protect their senior members, supporting local volunteer organizations dedicated to protecting vulnerable seniors.
- ▶ Mobilize a national effort to support front line clinicians working to reduce hospital length of stay. My calculations suggest that reducing average length of stay from about its current 11 days to 8 days reduces peak capacity by about 130,000 beds even if nothing else changes.
- ▶ Create a public health campaign to improve people’s self-care at the earliest stages of their Covid illness. It is now well established that people with Covid do not realize how low their oxygen levels are. They have pneumonia without knowing it, a condition called “silent hypoxia.”⁶⁸ This means that when they finally come to the hospital their lungs are already deeply compromised. Support the mass distribution of pulse oximeters and train public health nurses or paraprofessionals in helping people use them to good effect.
- ▶ Mobilize advertising and public health professionals to create the best social marketing campaign for instilling covid behaviors that limit the infection’s spread; such as mask wearing, hand washing, and staying six feet apart. The campaign should not be stentorian in tone but should engage people’s many different motives, for example, to

⁶⁵ <https://www.pnas.org/content/pnas/117/16/9122.full.pdf>

⁶⁶ <https://www.kff.org/other/state-indicator/number-of-nursing-facility-residents/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D>

⁶⁷ <https://www.cidrap.umn.edu/news-perspective/2020/06/nursing-homes-site-40-us-covid-19-deaths>

⁶⁸ <https://www.nytimes.com/2020/04/20/opinion/sunday/coronavirus-testing-pneumonia.html>

help others, to identify with celebrities, to win points or contests, to appear fashionable, to be a social media hero. No motive is bad if it can be harnessed toward this good end.

- ▶ Provide subsidies and support to private or not-for-profit consulting firms that can help organizations of all kinds reconfigure their workspace so that people can work together safely.

My readers can no doubt imagine other strategies. The underlying spirit is to relax the tradeoff between lives and livelihoods while accepting the reality that more deaths will ensue.

IV. In sum

The pandemic makes us feel helpless. We can respond to its predation pragmatically but its silent march through the population promotes dread. Our helplessness undermines our belief in our culture as the source of our self-esteem and felt significance. One response to our experience of helplessness is the omnipotent stance, the idea that we can master the virus, stop it in its tracks, command one another to comply with injunctions and wreak a path of destruction by devastating the economy. Omnipotence promotes magical thinking. In the service of defeating death we ignore actual suffering; deaths of despair and deaths in nursing homes. There is an antidote to omnipotence: Look at our situation objectively, acknowledge its gravity, use our moral compass to assess impossible choices, and the tradeoffs they impose and draw on our pragmatism and inventiveness to relax the tradeoffs.

A model that Wharton school researchers developed provides a framework for looking at our situation objectively. It posits a tradeoff between deaths and livelihoods should we fully reopen the economy. Three estimates of the value of lives- the value of a "statistical life," the value of a statistical life-year and the value of a life based on highway fatalities,--together suggest to this author that we should fully reopen, with the precondition that we take six steps to protect seniors and hospital surge capacity. To arrive at such a choice we must navigate the moral terrain of sacrificing lives so that other may flourish. This entails examining our thoughts and feelings in response to the moral dilemmas we encounter.

V. Appendix

1. The projected ratio of hospitalizations of people over 65 to total hospitalizations.

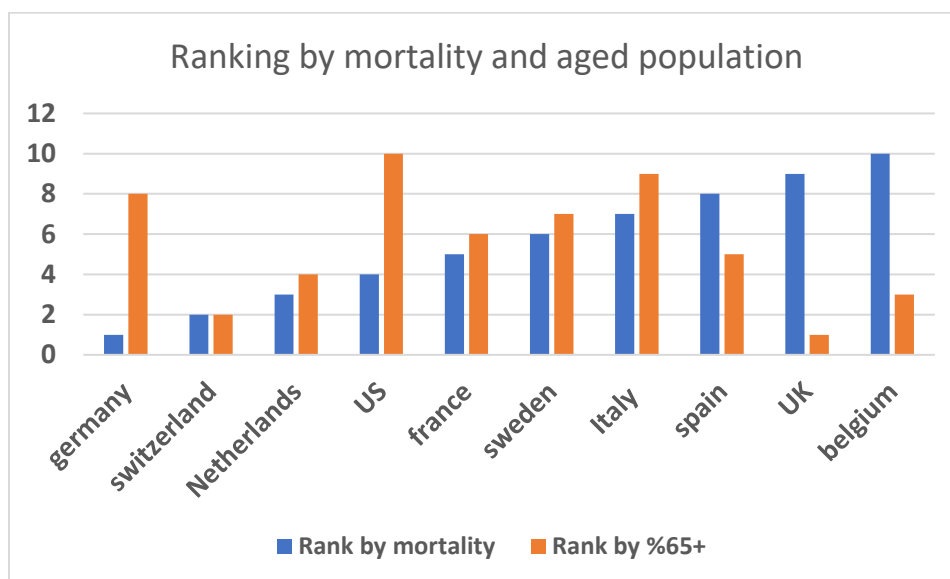
The CDC estimates that currently people over 65 are hospitalized at a rate of 254 people per 100,000 and that the ratio for the whole population is 82 per 100,000.⁶⁹ These estimates are cumulative and so may change. But the ratio between these two estimates is likely to stay the same. If true, these estimates allow us to calculate the what fraction of hospitalization are due to people over 65.

⁶⁹ <https://www.cdc.gov/coronavirus/2019-ncov/covid-data/covidview/index.html>

	HOSPITALIZATION	
	Over 65	Total
rate per 100,000	254	82
10^5	100000	100000
total popouation	52,000,000	328,000,000
amount	132,080.00	268,960.00
RATIO	49.1%	

2. Sweden's performance

This chart shows ranks Sweden's performance. It show the rank of each country's according to how high its mortality rate is and how high the percent of people over 65 years is. Germany has a low mortality rate and high percentage of its population over 65, Belgium is the reverse. Sweden is in the middle of the pack.



<https://www.cebm.net/covid-19/global-covid-19-case-fatality-rates/>

3. Converting VSLY to VSL

To convert the value of a life year VSLY to the value of a life, VSL we use the following formula

$$VSL = (VSLY/r) / (1+r)^L$$

Where "r" is the discount rate and "L" is the weighted average of years left to live. I used a discount rate of 1% and a weighted average life expectancy of 19.8 years.

4. The impact of keeping seniors out of hospitals on hospital bed capacity

	Current state	Fraction of seniors kept out of hospital:50%	Seniors at 70% and Length of Stay is reduced
Population	328,000,000	328,000,000	328,000,000
Fraction infected	0.7	0.7	0.7
Hospitaliation rate*	0.0221	0.0221	0.0221
Hospitalizations if no change	5,074,160	5,074,160	5,074,160
Numer of seniors: 65+	52,000,000	52,000,000	52,000,000
Senior hospitalization rate*	0.0481	0.0481	0.0481
Fraction of seniors kept out of hospital	0	0.5	0.7
Number of seniors kept out of hospital	0	1,250,600	1,750,840
Number of people who have already died	128,000	128,000	128,000
Net number of hospitalizations	4,946,160	3,695,560	3,195,320
Patients/day hospitalized	9,034	6,750	5,836
Hospital Length of Stay in days	11	11	8
Average Beds required per day	99,375	74,249	46,690
Ratio of beds at peak to averag beds**	2.87	2.87	2.87
Peak beds required to accommodate patients	285,206	213,094	133,999

*Hospitalization rate is based on CDC estimates of their best estimate scenario. See <https://www.cdc.gov/coronavirus/2019-ncov/hcp/planning-scenarios.html#box>

**Ratio of beds at peak to average bed are derived from two sources. The first from the IHME tracking of bed occupancy between March 1 and April 16, the latter date was peak use in the “first wave” of infection. See <https://covid19.healthdata.org/projections>. The second from my own SIR model with an added module tracking hospitalizations based on a Length of Stay of 11 days. I took the ratio of peak to average when 70% of the population recovers. The value was 2.37 close to the IHME number of 2.87