The Value of Social Distancing is Not Equally Distributed

By Zachary Barnett-Howell[[1]](#endnote-1) and Ahmed Mushfiq Mobarak[[2]](#endnote-2)

In the past months governments around the world have implemented social distancing and lockdown policies designed to inhibit the spread of the coronavirus by restricting the movement and everyday activity of billions of people. Despite the uniformity of this policy prescription, the expected benefit to widespread restrictions on mobility varies significantly from country to country.

In our study “The Benefits and Costs of Social Distancing in Rich and Poor Countries” we used the Imperial College London COVID-19 Response Team’s [epidemiological model](https://www.imperial.ac.uk/media/imperial-college/medicine/sph/ide/gida-fellowships/Imperial-College-COVID19-Global-Impact-26-03-2020v2.pdf) to estimate the benefit to a set of social distancing and suppression policies in different countries.[[3]](#footnote-1) We find that the value of lockdowns and other social distancing policies is heavily tilted towards richer countries. Moreover, the marginal value of an increasing policy stance—moving from social distancing to full lockdown and suppression—is relatively small in poorer countries. Our conclusion is that the benefit of lockdowns does not support their ubiquity, and that each government should carefully consider how social distancing and lockdown policies will benefit their citizens. Instead, we recommend the immediate deployment of harm-reduction measures that reduce the spread of COVID-19 while allowing permitting economic activity to continue.

Using the current best understanding of COVID-19, the value of social distancing and lockdown policies varies widely across countries based primarily on two factors:

1. Demographics: the fraction of the population that is elderly within a society
2. Risk valuation: how each society might trade economic for health security

# Demographics

The fatality risk of COVID-19 increases sharply with age. The case fatality ratio from COVID-19 for a sixty year old is approximately 30 times greater than that of a thirty year old, and 60 times greater for a seventy year old.[[4]](#footnote-2) While there should be no debate about the absolute risk that COVID-19 presents—it is significantly more dangerous than the seasonal influenza—the majority of that risk is concentrated among the elderly.

Richer countries tend to have lower fertility rates, and therefore relatively older populations than poorer countries. For example, In Italy and the United States the percentage of the population above the age of 65 is 22.8 and 15.8, respectively. In Bangladesh only 5.2 percent of the population is above the age of 65. There are simply more people at greater risk in high- than low-income countries, which is borne out by the epidemiological model’s estimate that the unmitigated spread of the novel coronavirus would lead to the deaths of 0.21 percent of the sub-Saharan African population; for the United States and other OECD countries predicted mortality is 0.8 percent of the population.

# Valuing Risk

Lockdowns impose a tradeoff on their populations: lowering the mortality risk from COVID-19 while increasing economic deprivation. Yet individuals within each country have their own calculus over how they would exchange risk for money. One example is the proposed strike by workers for the Instacart service in the United States, who go to stores to shop and deliver goods for other people. These workers have demanded $5 in hazard pay per order in compensation for their increased risk to COVID-19.[[5]](#footnote-3) Using individual preferences for compensation for increased exposure to mortality risk, the exchange between money and risk can be estimated for a population.[[6]](#footnote-4) Poorer people are less willing to make economic sacrifices to reduce their risks. This is not a normative statement, rather it reflects the fact that people living closer to the margin, who require a daily wage feed their families and make ends meet, are willing to accept higher levels of risk for less compensation.

By accounting for the country-specific valuation of risk, we find that the difference between countries in the benefit afforded by suppression and lockdown measures is even more stark. The value of mortality risk reduction by moving from a scenario where COVID-19 is unmitigated to a social distancing policy that reduces interpersonal contact rates by approximately half, provides the United States with an estimated benefit equal to 59% of its GDP; in Germany the benefit is estimated at 85% of its GDP. In contrast, the marginal value of the same policy in Bangladesh and India is only 14% and 19% of their GDP, respectively.

# Capacity Constraints

The purpose of social distancing and lockdown policies is to “flatten the curve” of the pandemic, to buy time for healthcare systems to accommodate the number of people requiring medical attention.[[7]](#footnote-5) However, the capacity of healthcare systems varies widely between countries. If we consider estimates of the number of hospital and ICU beds as a proxy for the capacity of each country’s medical capacity, high-income countries have more than twice the per-capita capacity of low-income countries.[[8]](#footnote-6) Increasingly suppressive policies are necessary to stretch the number of people contracting COVID-19 so that it falls within the capacity of poor countries. In many countries such a flattening of the curve is impossible: Somalia’s Health Ministry claims no ventilators, the Central African Republic, South Sudan, and Liberia have less than six ventilators each, Nigeria has approximately one ventilator per 2 million people.[[9]](#footnote-7)

Another equally crucial difference between rich and poor countries is the government capacity to provide social welfare to its citizens. Even generous welfare schemes like in Denmark, which will pay workers 75% of their salaries during the lockdown period, are only functional for people working in the formal sector.[[10]](#footnote-8) In Denmark only 5% of workers are outside the formal sector; by contrast, in Bangladesh 55% of workers are either informally or self-employed. This is more than a question of policy design: informal workers are do not always appear in government and bureaucratic records, it is uncertain how quickly such people could be located, if at all, to deliver relief aid to them.

# Conclusion

There is considerable space between doing nothing and enforcing strict lockdowns on a population. We estimate that the benefit of social distancing and suppression policies are significantly lower in poor countries. The costs in poor countries also stand to be higher for households that rely on a daily wage to feed themselves and their families. Already we see brewing healthcare crises as routine medical care and vaccinations fall in countries across the world.[[11]](#footnote-9) A tailored response to each country’s situation is necessary.[[12]](#footnote-10) To this end we recommend:

1. The public adoption of masks and home-made face coverings, which are comparatively cheap and feasible to implement.
2. Improving access to clean water, hand-washing and sanitation, especially in public places and around transport hubs.
3. Widespread social influence and information campaigns to encourage behaviors that slow the spread of disease, but do not undermine economic livelihoods. This could include restrictions on the size of religious and social congregations, or programs to encourage community and religious leaders to endorse safer behaviors.

1. Yale University and Y-Rise. Email: [zachary.barnett-howell@yale.edu](mailto:zachary.barnett-howell@yale.edu). Twitter: @zackt\_bh [↑](#endnote-ref-1)
2. Yale University, Y-RISE, NBER, CEPR and IGC. Email: [ahmed.mobarak@yale.edu](mailto:ahmed.mobarak@yale.edu). Twitter: @mushfiq\_econ [↑](#endnote-ref-2)
3. Walker et al. “The Global Impact of COVID-19 and Strategies for Mitigation and Suppression.” *Imperial College London*. March 26, 2020. [↑](#footnote-ref-1)
4. See: Verity et al., “Estimates of the severity of coronavirus disease 2019: a model-based analysis.” *The Lancet*. March 30, 2020. Ruan, “Likelihood of survival of coronavirus disease 2019.” *The Lancet Infectious Disease.* March 30, 2020. [↑](#footnote-ref-2)
5. Ghaffary. “The Instacart strike, explained.” *Vox*. March 30, 2020. <https://www.vox.com/recode/2020/3/30/21200495/instacart-strike-coronavirus-covid-19-working-conditions-amazon-whole-foods-gig-economy> [↑](#footnote-ref-3)
6. See: Viscusi and Masterman. “Income Elasticities and Global Values of a Statistical Life.” Journal of Benefit Cost Analysis. 8(2):226–250. Robinson et al. “Valuing Mortality Risk Reductions in Global Benefit-Cost Analysis.” Journal of Benefit Cost Analysis. 10(S1):15–50. [↑](#footnote-ref-4)
7. Pierre-Olivier Gourinchas. “Flattening the pandemic and recession curves.” In *Mitigating the COVID Economic Crisis: Act Fast and Do Whatever It Takes*. Eds. Richard Baldwin and Beatrice Weder di Mauro. pp. 31-40. [↑](#footnote-ref-5)
8. Walker et al. “The Global Impact of COVID-19 and Strategies for Mitigation and Suppression.” *Imperial College London*. March 26, 2020. [↑](#footnote-ref-6)
9. Bearak and Paquette. “Africa’s most vulnerable countries have few ventilators — or none at all.” *Washington Post*. April 18, 2020. https://www.washingtonpost.com/world/africa/africa-coronavirus-ventilators/2020/04/17/903163a4-7f3e-11ea-84c2-0792d8591911\_story.html [↑](#footnote-ref-7)
10. Collington “Denmark is helping those who can't work due to coronavirus – why isn't the UK?” *The Guardian.* March 18, 2020. <https://www.theguardian.com/commentisfree/2020/mar/18/denmark-coronavirus-uk-government-workers-employees>. Hansen “Denmark’s Answer to the Coronavirus Recession.” *Tribune Magazine*. March 16, 2020. https://tribunemag.co.uk/2020/03/denmarks-answer-to-the-coronavirus-recession [↑](#footnote-ref-8)
11. Nelson. “COVID-19 disrupts vaccine delivery.” *The Lancet Infectious Diseases*. April 17, 2020. <https://doi.org/10.1016/S1473-3099(20)30304-2> [↑](#footnote-ref-9)
12. Mehtar et al. Limiting the spread of COVID-19 in Africa: one size mitigation strategies do not fit all countries. *The Lancet Global Health*. April 28, 2020. https://doi.org/10.1016/S2214-109X(20)30212-6 [↑](#footnote-ref-10)