

Infected by Bias: Behavioral Science and the Legal Response to COVID-19

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This Article presents the first comprehensive analysis of the contribution of behavioral science to the legal response to the COVID-19 pandemic. At the descriptive level, the Article shows how different psychological phenomena such as loss aversion and cultural cognition influenced the way policymakers and the public perceived the pandemic, and how such phenomena affected the design of laws and regulations responding to COVID-19. At the normative level, the Article compares nudges (i.e., choice-preserving, behaviorally informed tools that encourage people to behave as desired) and mandates (i.e., obligations backed by sanctions that dictate to people how they must behave). The Article argues that mandates rather than nudges should serve in most cases as the primary legal tool used to regulate behavior during a pandemic. Nonetheless, this Article highlights ways in which nudges can complement mandates.

I. INTRODUCTION

“There’s no magic bullet. There’s no magic vaccine or therapy. It’s just behaviors. Each of our behaviors, translating into something that changes the course of this viral pandemic over the next 30 days.”

— Ambassador Deborah L. Birx, M.D., White House Coronavirus Task Force Coordinator, 2020.¹

In December of 2019 a novel coronavirus (“SARS-CoV-2”) causing an acute respiratory syndrome (“COVID-19”) appeared in the Chinese province of Wuhan.² After the virus quickly spread to 114 countries and infected over 100,000 people, the World Health Organization declared a pandemic.³ By April 2021, the virus had spread across the

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¹Remarks at a White House Coronavirus Task Force Press Briefing, 2020 DAILY COMP. PRES. DOC. 1, 4 (Mar. 31, 2020).

²See Peng Zhou et al., *A Pneumonia Outbreak Associated with a New Coronavirus of Probable Bat Origin*, 579 NATURE 270, 270 (2020).

³Dr. Tedros Adhanom Ghebrey, Dir. Gen., World Health Org., WHO Director-General’s Opening Remarks at the Media Briefing on COVID-19 (Mar. 11, 2020), <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020> [<https://perma.cc/Q93A-ZMU7>].

globe with more than 130 million confirmed cases claiming the lives of more than 2.9 million people.⁴

The combination of a highly contagious and lethal virus along with the lack of a therapy or a vaccine led public health officials around the world to recommend non-pharmaceutical interventions that are geared towards social distancing: namely, limiting “mixing of susceptible and infectious people through early ascertainment of cases or reduction of contact.”⁵ This, in turn, brought about an unprecedented governmental response.⁶ International borders were closed overnight and travel within countries was significantly limited.⁷ Stay-at-home orders were put in place and public gatherings were restricted.⁸ In many jurisdictions, all non-essential segments of the economy were closed, along with schools, universities, and places of worship.⁹ Sectors of the economy that remained open were quickly subjected to a comprehensive new regulatory framework.¹⁰

The ultimate goal of policymakers was to bring about a change in human behavior to lower the transmission rate, so central players across the globe quickly advocated for the use of behaviorally informed policies to combat COVID-19.¹¹ *The Lancet*, one of the world’s leading medical journals, noted that “[b]ehavioural insights for COVID-19 are, therefore, of critical importance.”¹² Similarly, the World Health Organization published a statement emphasizing that “[b]ehavioural insights are valuable to inform the planning of appropriate pandemic response measures.”¹³ The academic

⁴Jordan Allen et al., *Coronavirus World Map: Tracking the Global Outbreak*, N.Y. TIMES, <https://www.nytimes.com/interactive/2020/world/coronavirus-maps.html> [https://perma.cc/YB6T-K22T] (last updated Apr. 14, 2021).

⁵See Joseph A. Lewnard & Nathan C. Lo, *Scientific and Ethical Basis for Social-Distancing Interventions Against COVID-19*, 20 LANCET INFECTIOUS DISEASES 631, 631 (2020).

⁶See, e.g., Thomas Hale et al., *Variation in Government Responses to COVID-19* 11 (Blavatnik Sch. of Gov. Working Paper Series, No. BSG-WP-2020/032, 2021), <https://www.bsg.ox.ac.uk/research/publications/variation-government-responses-covid-19> [https://perma.cc/5ERL-9F7B] (reviewing the legal response to the pandemic across the world).

⁷*Id.* at 11; see also Proclamation No. 9984, 85 Fed. Reg. 6709 (Jan. 31, 2020) (travel limitations into the United States).

⁸Hale et al., *supra* note 6, at 11; see also Cal. Exec. Order No. N-33-20 (Mar. 19, 2020), <https://www.gov.ca.gov/wp-content/uploads/2020/03/3.19.20-attested-EO-N-33-20-COVID-19-HEALTH-ORDER.pdf> [https://perma.cc/CUY3-L5XP] (stay-at-home order); Mass. COVID-19 Order No. 13 § 3 (Mar. 10, 2020), <https://www.mass.gov/doc/march-23-2020-essential-services-and-revised-gatherings-order/download> [https://perma.cc/G9WU-E7CP] (limiting gatherings to no more than ten people).

⁹Hale et al., *supra* note 6, at 9; see also, Mich. Exec. Order No. 2020-35 (Apr. 3, 2020), https://www.michigan.gov/whitmer/0,9309,7-387-90499_90705-524032--,00.html [https://perma.cc/S6B5-XWJX] (school closure); Ill. Exec. Order No. 2020-32 § 2.2 (Apr. 30, 2020), <https://www2.illinois.gov/Pages/Executive-Orders/ExecutiveOrder2020-32.aspx> [https://perma.cc/T6X7-9APD] (closure of non-essential businesses).

¹⁰See, e.g., Mich. Exec. Order No. 2020-114 (June 5, 2020), https://www.michigan.gov/whitmer/0,9309,7-387-90499_90705-531123--,00.html [https://perma.cc/5DNY-GYG6] (worker-safety regulation); N.C. Exec. Order No. 131 (Apr. 9, 2020) <https://files.nc.gov/governor/documents/files/EO131-Retail-Long-Term-Care-Unemployment-Insurance.pdf> [https://perma.cc/M64R-7DZA] (retail-sector regulation); N.J. Exec. Order No. 125 § 5 (Apr. 11, 2020), <https://nj.gov/infobank/eo/056murphy/pdf/EO-125.pdf> [https://perma.cc/NZD4-CLZ4] (restaurant regulation).

¹¹See Christopher Adolph et al., *Pandemic Politics: Timing State-Level Social Distancing Responses to COVID-19*, 46 J. HEALTH POL., POL’Y & L. 211, 217-19 (2021) (showing how many U.S. states adopted gathering restrictions, school closures, restaurant restrictions, nonessential business closures, and stay-at-home orders during the “early period” of COVID-19, February 26 through March 23); Thomas Hale et al., *A Global Panel Database of Pandemic Policies (Oxford COVID-19 Government Response Tracker)*, 5 NATURE HUM. BEHAV. 529, 531 fig.1 (2021) (illustrating rapid changes in the adoption of containment and health policies worldwide responding to COVID-19 between March 1 and April 1, 2020).

¹²See Cornelia Betsch et al., *Monitoring Behavioural Insights Related to COVID-19*, 395 LANCET 1255, 1255 (2020).

¹³See Press Release, Hans Henri P. Kluge, Reg’l Dir. for Eur., World Health Org., Statement – Behavioural Insights are Valuable to Inform the Planning of Appropriate Pandemic Response Measures

community quickly joined the effort, and numerous reviews by behavioral scientists highlighted potential interventions.¹⁴

The call to incorporate behavioral insights into *legal* policymaking invokes behavioral law and economics. Over the past two decades, behavioral law and economics has had a profound impact on the legal discourse.¹⁵ Citations of behavioral work within legal scholarship have grown exponentially.¹⁶ A wide range of legal questions have been reexamined using this new method, and a new research paradigm has emerged.¹⁷ Yet the broad and unprecedented legal response to the COVID-19 pandemic, which, as noted, entailed a significant behavioral component, has yet to be analyzed systematically using the tools of behavioral law and economics.¹⁸

This Article aims to fill this gap. More specifically, this Article deals with two distinct questions. First, it explores the way in which different behavioral phenomena influenced the political debate over the legal response to the pandemic. It analyzes the different behavioral phenomena that might have impacted the public's perception of the pandemic and examines their potential effects on the policies that were put in place.

Second, this Article considers which legal tools should be used to further the policy the law wishes to promote. More specifically, it taps into a long-standing debate about whether policymakers should make use of *nudges* (i.e., choice-preserving, behaviorally informed tools that encourage people to behave as desired) or *mandates* (i.e., obligations backed by sanctions that dictate to people how they must behave).¹⁹ Having presented this dichotomy, this Article argues that when peoples' choices generate massive negative externalities and when the government aims to bring about an immediate change of behavior—as is the case with a highly contagious and deadly virus—policymakers should (and for the most part did)²⁰ opt for mandates. Nonetheless, nudges can contribute to the legal response in two situations: (1) when mandates are less effective or hard to implement due to political or legal constraints, and (2) when nudges complement mandates and help foster voluntary compliance with them.

This Article is organized as follows: Part II introduces the strategic question each jurisdiction faced at the outset of the pandemic: whether to mitigate or to suppress entirely the spread of the virus. Part II then considers how different behavioral phenomena

(May 14, 2020), <http://www.euro.who.int/en/media-centre/sections/statements/2020/statement-behavioural-insights-are-valuable-to-inform-the-planning-of-appropriate-pandemic-response-measures> [https://perma.cc/Z357-EZWD].

¹⁴See, e.g., Chris Bonell et al., *Harnessing Behavioural Science in Public Health Campaigns to Maintain 'Social Distancing' in Response to the COVID-19 Pandemic: Key Principles*, 74 J. EPIDEMIOLOGY & COMMUNITY HEALTH 617, 617 (2020); Peter D. Lunn et al., *Using Behavioural Science to Help Fight the Coronavirus: A Rapid, Narrative Review*, 3 J. BEHAV. PUB. ADMIN. 1, 1 (2020); Moslem Soofi et al., *Using Insights from Behavioral Economics to Mitigate the Spread of COVID-19*, 18 APPLIED HEALTH ECON. & HEALTH POL'Y 345, 346 (2020); Jay J. Van Bavel et al., *Using Social and Behavioural Science to Support COVID-19 Pandemic Response*, 4 NATURE HUM. BEHAV. 460, 464 (2020).

¹⁵See EYAL ZAMIR & DORON TEICHMAN, BEHAVIORAL LAW AND ECONOMICS 141–56 (2018) (reviewing the development of the field).

¹⁶See *id.* at 143–44.

¹⁷For a systematic introduction to the field, see *id. passim*.

¹⁸For an early contribution, see Anne-Lise Sibony, *The UK COVID-19 Response: A Behavioural Irony?*, 11 EUR. J. RISK REG. 350, 351 (2020) (examining the legal British response to COVID-19 from a behavioral perspective).

¹⁹The term nudge was popularized in RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* 6 (rev. ed. 2009). For a critical evaluation of nudges, see ZAMIR & TEICHMAN, *supra* note 15, at 171–85 and Ryan Bubb & Richard H. Pildes, *How Behavioral Economics Trims Its Sails and Why*, 127 HARV. L. REV. 1593, 1594 (2014).

²⁰See Adolph et al., *supra* note 11 (reviewing state mandates enacted in the early phase of COVID-19); Hale et al., *Global Panel*, *supra* note 11 (reviewing global mandates enacted in the early phase of COVID-19).

impacted this policy debate. Part III turns from ends to means and examines which legal tools should be employed to further the policy goal the jurisdiction wishes to promote: nudges or mandates. This analysis will show that, despite some thoughts that nudges could play a central role in the legal response to COVID-19, legislators and regulators should primarily rely on mandates. With this insight, Part IV shifts to examine the domains in which nudges could nonetheless be useful, providing concrete examples of nudges that have been implemented during the pandemic. Finally, Part V offers some concluding remarks on the general lessons that could be drawn from this case study and sketches potential paths for future research.

An important preliminary note is in order. Although the scientific knowledge on COVID-19 is growing, it remains incomplete. Core issues, such as the long-term implications of the virus, the strength and duration of post-infection antibodies, and the precise transmission mechanisms, are unknown at the time of publication of this Article.²¹ Similarly, the social science research on human behavior during a pandemic is nascent.²² Drawing causal inferences in the social sciences is always a tricky task.²³ Doing so in the present context based on a small set of studies—some of which only report correlations²⁴—is impossible. Generalizing about human behavior is further complicated when behavioral choices vary across cultures (e.g., wearing a face mask),²⁵ and when attitudes evolve within communities over time.²⁶ Consequently, the claims made in this Article should be read with caution. To state things explicitly: this Article does not aim to end the debate regarding the appropriate legal response to COVID-19. Rather, it aims to lay the foundations for an ongoing evidence-based discussion.

II. BEHAVIORAL SCIENCE AND THE COVID-19 POLICY DEBATE

This Part presents a behavioral analysis of the policy debate leading to the adoption of governmental policies aimed to deal with the pandemic. It first describes the strategic dilemma all societies faced when initially confronting the pandemic: whether to aim to eradicate the spread of the virus or attempt to manage the gradual spread of the virus throughout the population. This Part then explores how different psychological phenomena might have influenced the public discourse surrounding this question.

²¹See, e.g., Kathleen M. O'Reilly et al., *Effective Transmission Across the Globe: The Role of Climate in COVID-19 Mitigation Strategies*, 4 LANCET PLANETARY HEALTH e172, e172 (2020) (lack of clear evidence regarding the connection between temperature and transmission); Michael T. Heneka et al., *Immediate and Long-Term Consequences of COVID-19 Infections for the Development of Neurological Disease*, ALZHEIMER'S RSCH. & THERAPY, June 4, 2020 at 1, 2 (the long-term cognitive implications of the virus); Quan-Xin Long et al., *Clinical and Immunological Assessment of Asymptomatic SARS-CoV-2 Infections*, 26 NATURE MED. 1200, 1204 (2020) (antibodies for SARS-CoV-2 infections decrease within 2-3 months after infection).

²²See Bonell, *supra* note 14, at 1 ("Interventions have been developed rapidly and could not be informed directly by evidence, given the novelty of the virus and rapid spread of the pandemic.").

²³See ZAMIR & TEICHMAN, *supra* note 15, at 145–50 (describing the different methodologies used in the social sciences).

²⁴See Soofi et al., *supra* note 14, at 347–48.

²⁵See Shuo Feng et al., *Rational Use of Face Masks in the COVID-19 Pandemic*, 8 LANCET RESPIRATORY MED. 434, 435 (2020) (contrasting the cultural paradigms of mask usage in Asia as opposed to Europe and North America).

²⁶See Jillian J. Jordan et al., Don't Get it or Don't Spread it? Comparing Self-Interested Versus Prosocially Framed COVID-19 Prevention Messaging 1 (2020) (MIT Initiative on the Digital Economy Working Paper), <http://ide.mit.edu/sites/default/files/publications/Working%20paper%20to%20post.pdf> [<https://perma.cc/MJQ5-JE2K>] (reporting a shift in survey results between a survey conducted on March 14–16, 2020 and one conducted on April 17–30, 2020).

A. THE DILEMMA

The initial decision policymakers must make when facing a pandemic is to define their overall policy goal. Fundamentally, all pandemic responses are geared towards minimizing harm, including both morbidity and mortality. Policymakers who focus on overall welfare, however, must consider other social goods as well, such as constitutional rights, human rights, and the likely economic and health consequences of any risk mitigation efforts. In the COVID-19 context, the tradeoff between COVID-19 morbidity and economic harm was salient, and it was often framed as a “lives vs. livelihood” dilemma.²⁷ In actuality, policymakers were also required to weigh non-consequentialist considerations such as the protection of individual liberty and privacy when contemplating the use of maximally effective infection control measures, such as electronic surveillance or forcible detention.²⁸ At the end of the day, a pandemic is in every respect a case of risk management that requires difficult choices.²⁹

From a public health perspective, all policymakers who engaged with the COVID-19 pandemic sought to *flatten the curve*³⁰: namely, to slow the spread of the virus so that cases are distributed across a longer period of time, and thereby less likely to overwhelm health systems resources at any peak point. This approach projects that unchecked transmission of the infection will eventually yield so many cases that hospitals will be overfilled, leading to deaths among patients who cannot access treatment in time.³¹ Drawing on lessons from historical episodes of infectious disease, policymakers also understood early in the pandemic that *social distancing* can promote this goal.³² Measures such as maintaining physical distance from others, wearing masks, washing hands, avoiding crowded or prolonged gatherings, and remaining home when potentially sick, were all viewed as important tools in combating the virus.³³ Even very early in the pandemic, models of COVID-19 spread projected that quarantine measures would

²⁷See Darren Dodd, *The COVID-19 Conundrum: Lives vs Livelihood*, FIN. TIMES (May 20, 2020), <https://www.ft.com/content/66fca681-f559-48ca-802d-b0f97dead4ee> [<https://perma.cc/29KW-BXNX>].

²⁸See, e.g., Cali Curley, Nicky Harrison & Peter Federman, *Comparing Motivations for Including Enforcement in US COVID-19 State Executive Orders*, 23 J. COMP. POL’Y ANALYSIS RES. & PRAC. 191, 193 (2021) (finding that 180 of approximately 1,300 executive orders enacted February-May 2020 in the U.S. included sanctions for non-compliance with COVID-19 control measures, and finding that “decisions to include sanctions or enforcement language may be dictated by the political self-interest and perceived risks of the decision-maker”); Kai Kupferschmidt & Jon Cohen, *Can China’s COVID-19 Strategy Work Elsewhere?*, 367 SCIENCE 1061 (2020) (describing tradeoffs between infection control and the severity of lockdowns and electronic surveillance in China during early phases of the epidemic); Lawrence O. Gostin & Lindsay F. Wiley, *Governmental Public Health Powers During the COVID-19 Pandemic: Stay-at-Home Orders, Business Closures, and Travel Restrictions*, 323 JAMA 2137, 2138 (2020) (noting that physical distancing requirements implicate “rights, including liberty, privacy, and freedoms of speech, religion, and assembly”).

²⁹See Juliet Bedford et al., *COVID-19: Towards Controlling of a Pandemic*, 395 LANCET 1015, 1016 (2020) (noting that countries determine their policy strategy “based on national risk assessments”).

³⁰See WORLD HEALTH ORG., COVID-19 STRATEGY UPDATE 5 (Apr. 14, 2020), <https://www.who.int/publications/i/item/strategic-preparedness-and-response-plan-for-the-new-coronavirus> [<https://perma.cc/7PWM-4JQM>] (“The overarching goal is for all countries to control the pandemic by slowing down the transmission and reducing mortality associated with COVID-19.”).

³¹See Seyed M. Moghadas et al., *Projecting Hospital Utilization During the COVID-19 Outbreaks in the United States*, 117 PROCEEDINGS NAT’L ACAD. SCI. 9122, 9123 (2020) (in the United States, without intervention at the peak of the pandemic the demand for ICU beds would be three times greater than supply).

³²See, e.g., Richard Albert Stein, *The 2019 Coronavirus: Learning Curves, Lessons, and the Weakest Link*, INT’L J. CLINICAL PRAC., Feb. 13, 2020, at 1–2 (describing historical lessons from past pandemics).

³³See Bedford et al., *supra* note 29, at 1017 (outlining the main recommendations of The World Health Organization’s Strategic and Technical Advisory Group for Infectious Hazards).

reduce infections and deaths, and that early implementation would optimize quarantine effectiveness.³⁴

Although policymakers worldwide aimed to flatten the curve, countries diverged in their strategies for controlling the pandemic.³⁵ Two principal approaches took shape: the *suppression strategy* and the *mitigation strategy*.³⁶ According to the *suppression strategy*, the policy goal is not only to flatten the curve, but also to reduce sharply—or ideally, to halt—the number of total cases by adopting aggressive prevention policies.³⁷ Countries following this line of thought (e.g., China, New Zealand) shut down large parts of their economies that were deemed non-essential, closed schools and universities, prohibited public gatherings, and limited international and domestic travel (reverting to curfews in the most extreme cases).³⁸ Additionally, countries that used suppression strategies isolated infected individuals and quarantined those who were exposed to the virus (using monitored house arrests in the most extreme cases).³⁹ The impact of these measures was dramatic. In London, for instance, the day after a mandated lockdown went into effect, movement of residents had dropped from approximately fifty percent to fifteen percent of the usual movement level.⁴⁰ Similarly, travel in New York City's public transportation system plummeted by over ninety percent during the early part of the pandemic.⁴¹ One should be careful, however, not to overstate the impact of the governmental restrictions on human behavior. The pandemic itself, with the attendant deaths, illness, expenses, reallocation of resources, psychological distress, and disruption of economic sectors, influences behavior, even (and perhaps especially) if it is not accompanied by lockdown measures. For example, one study comparing Sweden (which did not lock down the economy) with neighboring Denmark (which did lock down the economy) documented relatively small differences in consumer spending between the two countries, despite their similarity along other dimensions.⁴² In the United States, an analogous picture emerged from data using county level comparisons.⁴³

³⁴BARBARA NUSSBAUMER-STREIT ET AL., COCHRANE DATABASE SYSTEMATIC REVIEWS, QUARANTINE ALONE OR IN COMBINATION WITH OTHER PUBLIC HEALTH MEASURES TO CONTROL COVID-19: A RAPID REVIEW 1, 3 (2020).

³⁵See NEIL M. FERGUSON ET AL., IMPERIAL COLLEGE COVID-19 RESPONSE TEAM, REPORT 9: IMPACT OF NON-PHARMACEUTICAL INTERVENTIONS (NPIs) TO REDUCE COVID-19 MORTALITY AND HEALTHCARE DEMAND 3 (2020), <https://www.imperial.ac.uk/mrc-global-infectious-disease-analysis/covid-19/report-9-impact-of-npis-on-covid-19/> [<https://perma.cc/RTP9-7ZBT>] (describing mitigation and suppression as the two fundamental strategies to deal with a pandemic).

³⁶See *id.* at 1.

³⁷See *id.* at 3.

³⁸See David Koh, *COVID-19 Lockdowns Throughout the World*, 70 OCCUPATIONAL MED. 322, 322 (2020) (reviewing suppression measures in different countries); Solomon Hsiang et al., *The Effect of Large-Scale Anti-Contagion Policies on the COVID-19 Pandemic*, 584 NATURE 262, 262 (2020) (analyzing the effectiveness of quarantine suppression measures).

³⁹See Benjamin F. Maier & Dirk Brockmann, *Effective Containment Explains Subexponential Growth in Recent Confirmed COVID-19 Cases in China*, 368 SCI. 742, 742 (2020) (describing isolation and quarantine policies in China).

⁴⁰See *Slow Starter: The Prime Minister's Belated Lockdown May Determine His Political Future*, ECONOMIST (London), March 28, 2020, at 26.

⁴¹See Nathan Layne, *Overnight Closure of New York Subways May Presage Bigger Changes*, REUTERS (May 1, 2020, 6:25 AM), <https://www.reuters.com/article/us-health-coronavirus-newyork-subway/overnight-closure-of-new-york-subways-may-presage-bigger-changes-idUSKBN22D55D> [<https://perma.cc/FFU2-65N3>].

⁴²See Asger Lau Andersen et al., *Pandemic, Shutdown and Consumer Spending: Lessons from Scandinavian Policy Responses to COVID-19 14–15* (May 12, 2020) (working paper), <https://arxiv.org/abs/2005.04630> [<https://perma.cc/6BDE-Y7G6>].

⁴³See Austan Goolsbee & Chad Syverson, *Fear, Lockdown, and Diversion: Comparing Drivers of Pandemic Economic Decline 2020 12* (Nat'l Bureau of Econ. Research, Working Paper No. 27432, 2020).

Other countries, however, pursued a different strategy to cope with the pandemic. Some countries (e.g., Sweden, the United Kingdom at the outset of the pandemic) opted for a *mitigation strategy*, aiming to manage, but not to eliminate, the spread of the disease throughout the population.⁴⁴ In some cases, the overall goal of the measures was to allow the virus to gradually infect a large part of the population over time, while keeping the rate of transmission low enough that hospitals would maintain capacity to treat infected people.⁴⁵ Assuming that infected people subsequently have some immunity against reinfection, this strategy is projected to yield *herd immunity* over time.⁴⁶ That is, a proportion of people in the population will have been infected (and therefore immune to reoccurrence), and this proportion will be large enough that uninfected people have a very low, or negligible, chance of exposure.⁴⁷ Countries that chose the mitigation strategy did not initiate a complete lockdown of their economies.⁴⁸ Rather, they shut down only the industries that posed the highest transmission risk, while allowing broad sectors of the economy, such as manufacturing, construction, retail, and restaurants, to remain open.⁴⁹

Finally, a notable distinct group of countries (e.g., South Korea, Taiwan) adopted a suppression strategy that did not involve a massive closure of the economy, but rather focused on screening at international borders, mass-testing, and comprehensive contact tracing.⁵⁰ These countries could adopt this strategy since they had a preexisting infrastructure in place to support such an approach.⁵¹ This policy option was unavailable to other countries that were not as prepared for the outbreak.

Resolving the policy dilemma between suppression and mitigation raises ethical, distributional, and scientific questions that cannot be answered here. Furthermore, for the purposes of this Article there is no need to assume that a single correct answer to this dilemma fits all countries.⁵² Rather than prescribing one of these policy approaches,

⁴⁴See FERGUSON ET AL., *supra* note 35, at 3.

⁴⁵See Tobias S. Brett & Pejman Rohani, COVID-19 Herd Immunity Strategies: Walking an Elusive and Dangerous Tightrope 1 (April 2020) (preprint), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7276024/pdf/nihpp-2020.04.29.20082065.pdf> [<https://perma.cc/22EZ-97TE>].

⁴⁶See Nils Karlson et al., *Sweden's Coronavirus Strategy Will Soon Be the World's*, FOREIGN AFFAIRS (May 12, 2020), <https://www.foreignaffairs.com/articles/sweden/2020-05-12/swedens-coronavirus-strategy-will-soon-be-worlds> [<https://perma.cc/B52M-TR9A>] (noting that while the Swedish government has not officially aimed for herd immunity, “augmenting immunity is no doubt part of the government’s broader strategy”); Mark Rutte, Prime Minister, Netherlands, Television Address by Prime Minister Mark Rutte of the Netherlands (Mar. 16, 2020), <https://www.government.nl/documents/speeches/2020/03/16/television-address-by-prime-minister-mark-rutte-of-the-netherlands> [<https://perma.cc/NXY2-RKD3>] (stating that the Netherlands is aiming to achieve “population immunity”); see also Benjamin Mueller, *As Europe Shuts Down, Britain Takes a Different, and Contentious, Approach*, N.Y. TIMES (Mar. 13, 2020), <https://www.nytimes.com/2020/03/13/world/europe/coronavirus-britain-boris-johnson.html> [<https://perma.cc/N7X5-R6AC>] (quoting Sir Patrick Vallance, England’s chief scientific adviser, in noting “the government was looking to build up some kind of herd immunity so more people are immune to this disease and we reduce the transmission”). The British government attempted to back away from this term following wide criticism. See Ed Yong, *The U.K.’s Coronavirus ‘Herd Immunity’ Debate*, ATLANTIC (Mar. 16, 2020, 1:13 PM), <https://www.theatlantic.com/health/archive/2020/03/coronavirus-pandemic-herd-immunity-uk-boris-johnson/608065/> [<https://perma.cc/8Z6U-7SUK>].

⁴⁷See T. Jacob John & Reuben Samuel, *Herd Immunity and Herd Effect: New Insights and Definitions*, 16 EUR. J. EPIDEMIOLOGY 601, 601–02 (2000).

⁴⁸Karlson et al., *supra* note 46 (describing policies in Sweden).

⁴⁹*Id.* (noting that in Sweden “[m]any restaurants remain open, although they are lightly trafficked; young children are still in school”).

⁵⁰See Ning Lu et al., *Weathering COVID-19 Storm: Successful Control Measures of Five Asian Countries*, 48 AM. J. INFECTION CONTROL 851, 852 (2020) (describing the responses in Taiwan and South Korea).

⁵¹*See id.*

⁵²See Hilary Brueck et al., *China Took at Least 12 Strict Measures to Control the Coronavirus. They Could Work for the US, but Would Likely be Impossible to Implement*, BUSINESS INSIDER (Mar. 24, 2020, 8:51 AM), <https://www.businessinsider.com/chinas-coronavirus-quarantines-other-countries-arent-ready-2020-3>

we focus on the discourse surrounding the choice. More specifically, we now turn to describe how different behavioral phenomena impacted this political debate.

B. THE IMPACT OF BEHAVIORAL PHENOMENA ON THE COVID-19 DEBATE

This Subsection reviews the potential impact of different psychological phenomena on the COVID-19 policy debate. As the analysis shows, whereas some of these psychological forces pushed the political debate towards an aggressive legal response, countervailing psychological phenomena pushed policymakers towards the adoption of less stringent policies (or even inaction at times).

Surely, in addition to heuristics and biases, other factors had a profound effect on the policy debate. People have strong preexisting views regarding the issues on the table, and given the large stakes involved, one would expect interest groups to take an active role in crafting new policies.⁵³ Furthermore, the application of psychological phenomena to decisions made by the state is not obvious. For the most part, the vast body of behavioral studies focuses on *individual* decision making.⁵⁴ Consequently, the patterns of behavior documented in such studies might not transcend into complex institutions, such as parliaments and bureaucratic agencies. That said, there are two channels through which psychological phenomena might impact state policies.⁵⁵ First, political decision makers, just like any other persons, might be directly influenced by cognitive biases and heuristics.⁵⁶ Second, even if politicians are perfectly rational (e.g., if rational people tend to succeed in politics, or if the bureaucratic apparatus of the state leads them to more rational decisions), they may nonetheless design policies that appeal to the irrational views of the population to which they are accountable.⁵⁷ With these caveats, we can now explore the impact of behavioral phenomena on the political discourse surrounding COVID-19.

1. The Pandemic at Day 1: Risk Seeking, Omission Bias, and Procrastination

As news of COVID-19 from China, and later from Italy, spread in early 2020,⁵⁸ leaders across the world faced a dilemma whether to immediately begin implementing measures aimed at preventing transmission of the virus or to wait and see how events unfolded. While some countries were relatively quick to respond to the emerging threat,⁵⁹

[<https://perma.cc/64XM-E4E7>] (noting that some measures taken by China would be viewed as unacceptable “digital authoritarianism” in the United States); Karlson et al., *supra* note 46 (“Sweden’s approach to COVID-19 reflects the country’s distinctive culture, and aspects of it may not be easy to replicate elsewhere.”).

⁵³See Brody Mullins & Ted Mann, *Coronavirus Stimulus Package Fuels Boom for Lobbyists*, WALL STREET J. (Apr. 1, 2020), <https://www.wsj.com/articles/coronavirus-stimulus-package-fuels-boom-for-lobbyists-11585761148> [<https://perma.cc/64MH-CSSQ>] (reporting on interest-group activity with respect to the federal stimulus plan).

⁵⁴See, e.g., Elizabeth Bruch & Fred Feinberg, *Decision-Making Processes in Social Contexts*, 43 ANN. REV. SOCIO. 207, 207, 210 (2017).

⁵⁵See Doron Teichman & Eyal Zamir, *Nudge Goes International*, 30 EUR. J. INT’L L. 1263, 1266–68 (2020) (examining the mechanisms through which behavioral phenomena impact states’ decisions).

⁵⁶See *id.* at 1266–67.

⁵⁷See *id.*

⁵⁸See, e.g., World Health Organization (@WHO), TWITTER (Jan. 4, 2020, 1:13 PM), <https://twitter.com/WHO/status/1213523866703814656> [<https://perma.cc/LE56-CMG3>]; World Health Organization (@WHO), TWITTER (July 1, 2020, 11:31 AM) <https://twitter.com/who/status/1278350498416996354> [<https://perma.cc/F25C-RFTL>].

⁵⁹Notably, the countries who reacted quickly to the threat of COVID-19 were countries like Taiwan, Singapore and South Korea, which had recent experience with epidemics. See Lu et al., *supra* note 50, at 852. This observation is consistent with the claim presented below regarding the role of the availability heuristic with respect to decisions made during the pandemic. See *infra* notes 100–110 and accompanying text.

“most countries hesitated to introduce strict and unpopular measures to stop the pandemic early on.”⁶⁰ The lack of timely response has been captured in New York Governor Andrew Cuomo’s acknowledgment that the virus “is an enemy that we have underestimated from Day 1 ... and we have paid the price dearly.”⁶¹

The reluctance to act on “Day 1” in many jurisdictions stemmed from numerous factors, including lack of clear information. It also seems to have had a psychological underpinning, as it persisted even in the face of clear scientific evidence that the risk was imminent.⁶² In New York City, for example, the mayor pushed back the closure of public schools up until the city’s head of disease control threatened to step down.⁶³ More specifically, the initial tendency towards inaction might have been connected to three distinct psychological phenomena: *risk seeking*, *omission bias*, and *procrastination*.

Prospect theory, the most influential behavioral theory, suggests that people who face low-probability risks tend to exhibit risk-seeking behavior when they choose among options that are framed in terms of losses, and risk-averse behavior when they choose among options that are framed in terms of gains.⁶⁴ Notably, perhaps the most famous single experiment within behavioral economics is an experiment dealing the policy decisions relating to an “unusual” disease.⁶⁵ This experiment highlights individuals’ willingness to make risk seeking decisions in the context of a deadly disease when they perceive their choice involves losses.⁶⁶

A distinct psychological phenomenon is the omission bias.⁶⁷ The omission bias alludes to individuals’ tendency to prefer omissions over commissions, thus hindering deviations from the existing state of affairs.⁶⁸ To a large degree this bias is tied to loss aversion: people assign greater weight to the losses incurred when deviating from the status quo than to the potential unattained gains.⁶⁹ Furthermore, studies suggest that the omission bias transcends into individuals’ moral judgments.⁷⁰ That is, people are viewed as less responsible for harms caused by their omissions compared to harms caused by their commissions.⁷¹ This final point could be of particular importance to politicians, who might wish to minimize their perceived responsibility for decisions that turn out badly.⁷²

Finally, the tendency to postpone decisions at the outbreak of the pandemic might be directly tied to a phenomenon that most readers may be closely familiar with—procrastination. Procrastination involves a voluntary delay of making a decision, despite

⁶⁰See David Klenert et al., *Five Lessons from COVID-19 for Advancing Climate Change Mitigation* 7 (June 8, 2020) (working paper), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3622201 [<https://perma.cc/G4CH-A23U>].

⁶¹See J. David Goodman, *How Delays and Unheeded Warnings Hindered New York’s Virus Fight*, N. Y. TIMES (April 8, 2020), <https://www.nytimes.com/2020/04/08/nyregion/new-york-coronavirus-response-delays.html> [<https://perma.cc/6LXK-U8HP>] (last updated July 18, 2020).

⁶²See Klenert et al., *supra* note 60, at 4 (noting that most countries “acted decisively only after local virus transmission had occurred and a large number of cases were reported, despite evidence of the gravity of the situation from other countries”).

⁶³Goodman, *supra* note 61.

⁶⁴For an overview of the later studies, see ZAMIR & TEICHMAN, *supra* note 15, at 42–48.

⁶⁵See Amos Tversky & Daniel Kahneman, *The Framing of Decisions and the Psychology of Choice*, 211 SCI. 453, 453 (1981).

⁶⁶*Id.*

⁶⁷For an overview, see ZAMIR & TEICHMAN, *supra* note 15, at 48–50.

⁶⁸*Id.* at 48–50.

⁶⁹*Id.*

⁷⁰See Mark Spranca et al., *Omission and Commission in Judgment and Choice*, 27 J. EXPERIMENTAL SOC. PSYCH. 76, 81–101 (1991).

⁷¹See *id.*

⁷²See Peter DeScioli, John Christner & Robert Kurzban, *The Omission Strategy*, 22 PSYCH. SCI. 442, 445 (2011) (reporting results showing that people choose omissions strategically to avoid condemnation).

the procrastinator's realization that postponing the decision will leave them worse off than if they engaged in timely action.⁷³ As Amos Tversky and Eldar Shafir have put it: "Many things never get done not because someone has chosen not to do them, but because the person has chosen not to do them *now*."⁷⁴ Unsurprisingly, psychological research has suggested that procrastination is correlated with the aversiveness of the task: people are more likely to put off tasks they view as unpleasant.⁷⁵

Arguably, all three of these psychological forces pushed policymakers towards inaction and deferral at the early stages of the pandemic. Prior to the beginning of the exponential growth in patient numbers, the status quo was one of an active economy, open schools, and freedom of movement. When facing a choice between a certain loss resulting from an affirmative decision to change the status quo and a risk of future losses based on epidemiological models, some policymakers might have viewed risky inaction as the superior option.⁷⁶ Such a choice avoids a certain loss, lowers the chance of harsh judgment because it is an omission, and defers to the future an unpleasant decision. Arguably, as the mayor of New York City faced "a stark and unwelcome choice to harm some New Yorkers in order to save others,"⁷⁷ he was reluctant to choose the certain and immediate harm.

2. Taboo Tradeoffs: Protected Values and Tradeoff Avoidance

Discussions about COVID-19 often noted that "[t]he key tradeoff is between public health and the economy."⁷⁸ When framed in such a way—as lives vs. livelihoods, or health vs. wealth—this tradeoff has only one acceptable solution, and it is to value lives more. Appraising the value of a human life is an example of what social psychologists have termed protected (or sacred) values.⁷⁹ Protected values are instances in which people believe that absolute deontological rules prohibit certain actions no matter what the consequences of following those rules are.⁸⁰ People who hold such values tend to reject the need to conduct a cost benefit analysis with respect to them, and even deny there are any costs entailed with adhering to the protected value.⁸¹ Tradeoffs involving protected values are therefore *taboo*—they stifle the political discussion.

Nonetheless, the realities of policymaking—whether in the context of choosing between investing in highway safety or national parks, or in the context of choosing when to reopen the economy during a pandemic—demand tradeoffs. And when policymakers conduct tradeoffs that weigh the value of human life, they face a significant political risk: treating a protected value like any other commensurable good can provoke moral disgust,

⁷³ See Piers Steel, *The Nature of Procrastination: A Meta-analytic and Theoretical Review of Quintessential Self-Regulatory Failure*, 133 PSYCH. BULL. 65, 66 (2007) (defining procrastination).

⁷⁴ Amos Tversky & Eldar Shafir, *Choice under Conflict: The Dynamics of Deferred Decision*, 3 PSYCH. SCI. 358, 361 (1992).

⁷⁵ See Steel, *supra* note 73, at 68 (reviewing literature on task aversiveness).

⁷⁶ See Sibony, *supra* note 18, at 357 (tying loss aversion to the initial British response).

⁷⁷ Goodman, *supra* note 61.

⁷⁸ Zhixian Lin & Christopher M. Meissner, *Health vs. Wealth? Public Health Policies and the Economy During Covid-19 2* (Nat'l Bureau of Econ. Research, Working Paper No. 27099, 2020).

⁷⁹ Notable contributions to this literature include Jonathan Baron & Mark Spranca, *Protected Values*, 70 ORG. BEHAV. & HUM. DECISION PROCESSES 1 (1997), and Philip E. Tetlock et al., *Proscribed Forms of Social Cognition: Taboo Trade-offs, Blocked Exchanges, Forbidden Base Rates, and Heretical Counterfactuals*, in RELATIONAL MODELS THEORY: A CONTEMPORARY OVERVIEW 247 (Nick Haslam ed., 2004). For a review of the findings, see Michael R. Waldmann et al., *Moral Judgments*, in THE OXFORD HANDBOOK OF THINKING AND REASONING 364, 382–84 (Keith J. Holyoak & Robert G. Morrison eds., 2012).

⁸⁰ See Baron & Spranca, *supra* note 79, at 3.

⁸¹ *Id.* at 5.

and may even be tantamount to “political suicide.”⁸² Politicians seeking to avoid taboos may consequently use rhetorical tools to help conceal the calculus underlying their choices.⁸³ Yet, in the domain of COVID-19, these rhetorical maneuvers may be less effective given heightened public awareness of both death tolls and job losses.⁸⁴

When policymakers advocated for the continued use of suppression measures, such as large-scale business closures and restrictions on contact, the taboo on evaluating the worth of human lives offered a persuasive way of explaining their choices. Governor Cuomo, for example, noted that there were hard tradeoffs associated with deciding to reopen the state’s economy,⁸⁵ but reframed the debate as a taboo: “How much is a human life worth? That’s the real discussion that no one is admitting openly or freely, but we should.”⁸⁶ Given the taboo framing, there was only one palatable answer to this question, and Governor Cuomo provided it: “To me, I say cost of a human—a human life is priceless, period. Our reopening plan doesn’t have a tradeoff.”⁸⁷ This is a textbook example of “tradeoff avoidance.”⁸⁸

On occasion, politicians advocating for looser restrictions or a speedy reopening consciously debated the economic value of life, but these arguments drew swift criticism. For instance, after Texas Lieutenant Governor Dan Patrick suggested that elderly grandparents may be willing to run the risk of death for the sake of the nation’s economy, many treated the statement as an example of outrageous priorities.⁸⁹ As Governor Cuomo tersely replied, “My mother’s not expendable And we’re not going to put a dollar figure on human life.”⁹⁰

Without weighing in on the policy choice, focusing the political debate on other tradeoffs could avoid the taboo involved with valuing human lives. More specifically, rather than viewing the decision as a matter of health versus wealth, an alternative frame could instead consider health versus health (or lives versus lives), by weighing the unique

⁸²*Id.* at 14.

⁸³Waldmann, *supra* note 79, at 383. For an experimental demonstration, see Philip E. Tetlock, *Coping with Trade-offs: Psychological Constraints and Political Implications*, in *ELEMENTS OF REASON: COGNITION, CHOICE, AND THE BOUNDS OF RATIONALITY* 239, 254–55 (Arthur Lupia, Mathew D. McCubbins & Samuel L. Popkin eds., 2000).

⁸⁴*See, e.g.*, KIM PARKER ET AL., PEW RESEARCH CTR., ECONOMIC FALLOUT FROM COVID-19 CONTINUES TO HIT LOWER-INCOME AMERICANS THE HARDEST (Sept. 24, 2020), <https://www.pewresearch.org/social-trends/2020/09/24/economic-fallout-from-covid-19-continues-to-hit-lower-income-americans-the-hardest/> [<https://perma.cc/7HFM-H53J>]; Maggie Astor, *How 535,000 Covid Deaths Spurred Political Awakenings Across America*, N.Y. TIMES (Mar. 17, 2020), <https://www.nytimes.com/2021/03/17/us/politics/covid-survivors.html> [<https://perma.cc/DM7X-G2MM>].

⁸⁵*See* Andrew Cuomo, Governor, N.Y. State, Governor Cuomo on Reopening Economies Amid COVID-19 Pandemic: ‘The Fundamental Question Which We’re Not Articulating Is How Much is a Human Life Worth?’ (May 5, 2020), <https://www.governor.ny.gov/news/video-audio-photos-rush-transcript-governor-cuomo-reopening-economies-amid-covid-19-pandemic> [<https://perma.cc/38DN-VTCR>] (“You stay closed, there’s a cost. You reopen quickly and there’s a cost. . . . That, my friends, is the decision we are really making.”).

⁸⁶*Id.*

⁸⁷*Id.*

⁸⁸*See* Daniel M. Bartels & Douglas L. Medin, *Are Morally Motivated Decision Makers Insensitive to the Consequences of Their Choices?*, 18 PSYCH. SCI. 24, 24 (2007) (“[B]y definition, PVs [protected values] are associated with trade-off avoidance.”).

⁸⁹*See* Felicia Sonmez, *Texas Lt. Gov. Dan Patrick Comes Under Fire for Saying Seniors Should ‘Take a Chance’ On Their Own Lives for Sake of Grandchildren During Coronavirus Crisis*, WASH. POST (Mar. 24, 2020, 1:19 PM), https://www.washingtonpost.com/politics/texas-lt-gov-dan-patrick-comes-under-fire-for-saying-seniors-should-take-a-chance-on-their-own-lives-for-sake-of-grandchildren-during-coronavirus-crisis/2020/03/24/e6f64858-6de6-11ea-b148-e4ce3fbd85b5_story.html [<https://perma.cc/D8DA-P2UL>].

⁹⁰Jesse McKinley & Shane Goldmacher, *How Cuomo, Once on Sidelines, Became the Politician of the Moment*, N.Y. TIMES (Mar. 24, 2020), <https://www.nytimes.com/2020/03/24/nyregion/governor-andrew-cuomo-coronavirus.html> [<https://perma.cc/7WVD-BQ4N>] (last updated Feb. 22, 2021).

health consequences that would result from the suppression measures. Infectious disease prevention strategies—particularly those used to fully suppress a virus, such as business closures and shelter-in-place orders—carry significant health costs that would *not* have occurred if policymakers had made different choices.⁹¹ Some of these health costs are direct, such as deaths due to temporary pauses in non-emergency health care,⁹² food insecurity,⁹³ increased domestic violence,⁹⁴ and social isolation.⁹⁵ Other costs involve indirect health consequences brought about by rapid economic downturns,⁹⁶ such as psychological distress⁹⁷ and lack of access to health insurance.⁹⁸ Furthermore, as governments come under financial stress, declining investments in public infrastructure and social programs may also have indirect health consequences.⁹⁹

Given these costs, discussion over pandemic response policies could be reframed to focus on health versus health rather than health versus wealth. Glimpses of this framing have appeared in the political discourse in the United States. President Trump,

⁹¹See, e.g., Koh, *supra* note 38; Goolsbee & Syverson, *supra* note 43 (noting the distinction between the effects of lockdown measures and the effects of the pandemic itself). Policymakers could mitigate the health costs associated with lockdowns (e.g., by replacing wages for unemployed workers). But even with all possible mitigation, some costs that are unique to suppression measures will remain.

⁹²See, e.g., Lisa Rosenberg, *The Untold Toll — The Pandemic’s Effect on Patients Without COVID-19*, 382 NEW ENG. J. MED. 2368, 2368–71 (2020); Jeanne M. Santoli et al., *Effect of the COVID-19 Pandemic on Routine Pediatric Vaccine Ordering and Administration*, 69 MORBIDITY & MORTALITY WKLY REP. 591, 592 (2020).

⁹³Caroline G. Dunn et al., *Feeding Low-Income Children During the COVID-19 Pandemic*, 382 NEW ENG. J. MED. e40(1), e40(1)–40(3) (2020).

⁹⁴Justin McCrary & Sarath Sanga, *The Impact of the Coronavirus Lockdown on Domestic Violence 1–3* (May 28, 2020) (working paper), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3612491 [<https://perma.cc/VX9C-4RUD>].

⁹⁵Anthony D. Campbell, *Practical Implications of Physical Distancing, Isolation, and Reduced Physicality for Older Adults in Response to COVID-19*, 63 J. GERONTOLOGICAL SOC. WORK 668, 668–69 (2020). Other direct health harms include increases in psychological distress, substance use disorders and other addictions, and child injuries, to list a few. See Teresa Arora & Ian Grey, *Health Behaviour Changes During COVID-19 and the Potential Consequences*, 25 J. HEALTH PSYCH. 1155, 1155–56 (2020) (adverse changes in multiple health behaviors); Yan Sun et al., *Brief Report: Increased Addictive Internet and Substance Use Behavior During the COVID-19 Pandemic in China*, 29 AM. J. ADDICTION 268, 268–69 (2020) (addictive behaviors); Matthew T. Tull et al., *Psychological Outcomes Associated with Stay-at-Home Orders and the Perceived Impact of COVID-19 on Daily Life*, PSYCHIATRY RES., May 12, 2020, at 5 (psychological distress); Anahad O’Connor, *Bike Spills, Trampoline Falls and Sips of Sanitizer: How Kids are Getting Hurt at Home*, N.Y. TIMES (June 19, 2020), <https://www.nytimes.com/2020/06/19/well/family/coronavirus-shutdown-children-injuries.html> [<https://perma.cc/V7LQ-P8L9>] (child injuries).

⁹⁶Scholarship on “deaths of despair” expressly links economic disadvantage to increased mortality through suicide and substance use. See, e.g., ANNE CASE & ANGUS DEATON, *DEATHS OF DESPAIR AND THE FUTURE OF CAPITALISM* 94 (2020). Economic disadvantage has many other linkages to increased morbidity and mortality, as demonstrated by research on social determinants of health. See, e.g., Sandro Galea et al., *Estimated Deaths Attributable to Social Factors in the United States*, 101 AM. J. PUB. HEALTH 1456, 1456 (2011). Another strain of research, however, has found conflicting effects of economic recessions on health; some studies have found reduced mortality overall during times of recession, despite increases in suicide. See, e.g., Jose A. Tapia Granados & Ana V. Diez Roux, *Life and Death During the Great Depression*, 106 PROC. NAT’L ACAD. SCI. 17290, 17290 (2009).

⁹⁷See Wolfram Kawohl & Carlos Nordt, *COVID-19, Unemployment, and Suicide*, 7 LANCET PSYCHIATRY 389, 390 (2020).

⁹⁸See Josh Bivens & Ben Zipperer, *12.7 Million Workers Have Likely Lost Employer-provided Health Insurance Since the Coronavirus Shock Began*, ECON. POL’Y INST.: WORKING ECON. BLOG (Apr. 30, 2020, 10:11 AM), <https://www.epi.org/blog/12-7-million-workers-have-likely-lost-employer-provided-health-insurance-since-the-coronavirus-shock-began/> [<https://perma.cc/Q2GV-REY2>].

⁹⁹See ELIZABETH McNICHOL & MICHAEL LEACHMAN, CTR. ON BUDGET & POLICY PRIORITIES, *STATES CONTINUE TO FACE LARGE SHORTFALLS DUE TO COVID-19 EFFECTS* (July 7, 2020), <https://www.cbpp.org/sites/default/files/atoms/files/6-15-20sfp.pdf> [<https://perma.cc/Y5U5-9KUP>] (projecting a \$555 billion shortfall in a single year post-COVID).

for example, claimed that suicides and deaths resulting from “terrible economies . . . would be in far greater numbers than the numbers that we’re talking about with regard to the virus.”¹⁰⁰ Similarly, when Vice President Mike Pence advocated for the reopening of the economy, his key argument was that “[t]here are real costs, including the health and well-being of the American people, to continue to go through the shutdown that we are in today.”¹⁰¹ Once the debate is reframed in this way, it becomes closer to an empirical question: Which strategy will cause less harm in the aggregate?¹⁰² While this question entails significant (and perhaps some insurmountable) methodological challenges, it allows for rigorous evaluation of factual premises.

To illustrate the power of this framing, a lives versus lives comparison was at the forefront of discussions about whether to apply lockdown rules to the widespread protests against structural racism, which erupted after Minneapolis police killed George Floyd, an unarmed Black man, on May 25, 2020.¹⁰³ Although the format of these protests included large gatherings where it was impossible to maintain social distancing, many public health researchers supported the movement, and voiced their backing in terms of lives versus lives.¹⁰⁴ For example, over a thousand public health professionals wrote that “White supremacy is a lethal public health issue that predates and contributes to COVID-19,” and that they “support [protest gatherings] as vital to the national public health and to the threatened health specifically of Black people in the United States.”¹⁰⁵ As epidemiologist Jennifer Nuzzo summarized on Twitter, “In this moment the public health risks of not protesting to demand an end to systemic racism greatly exceed the harms of the virus.”¹⁰⁶ A survey of United States adults found that sixty-seven percent supported the Black Lives Matter (“BLM”) movement in June 2020, suggesting that this framing was appealing on

¹⁰⁰Linda Qiu, *Trump’s Baseless Claim That a Recession Would Be Deadlier Than the Coronavirus*, N.Y. TIMES (Mar. 26, 2020), <https://www.nytimes.com/2020/03/26/us/politics/fact-check-trump-coronavirus-recession.html> [<https://perma.cc/GW4W-268X>] (updated May 6, 2020). Echoing this sentiment, others such as Indiana Representative Trey Hollingsworth have called reopening “the lesser of these two evils.” Burgess Everett et al., *‘Should Have Happened Yesterday’: Republicans Press Trump to Restart Economy*, POLITICO (Apr. 15, 2020, 4:30 AM), <https://www.politico.com/news/2020/04/15/republicans-trump-economy-coronavirus-186452> [<https://perma.cc/8KT2-KBV9>].

¹⁰¹See Ben Kamisar, *Pence Says Reopening Economy Safely Critical to Ensure ‘Cure Isn’t Worse than the Disease’*, NBC NEWS (Apr. 19, 2020, 10:27 AM), <https://www.nbcnews.com/politics/meet-the-press/pence-says-reopening-economy-safely-critical-ensure-cure-isn-t-n1187371> [<https://perma.cc/JG7Z-VY5F>].

¹⁰²The question of which policy approach yields less harm is “closer” to empirical because it requires not only health costs (which could be quantified in comparable terms across policy options, such as by using quality-adjusted life years), but also unquantifiable concerns such as the demographic distribution of harms. In the US, for example, the pandemic has caused disproportionate harm among populations of color. See, e.g., Eboni G. Price-Haywood et al., *Hospitalization and Mortality Among Black Patients and White Patients with COVID-19*, 382 NEW ENG. J. MED. 2534, 2541–42 (2020). For discussions about the distribution of harms arising from COVID-19 responses, see Rebecca E. Glover et al., *A Framework for Identifying and Mitigating the Equity Harms of COVID-19 Policy Interventions*, 128 J. CLINICAL EPIDEMIOLOGY 35, 41–43 (2020) and Julia Lynch, *Health Equity, Social Policy, and Promoting Recovery from COVID-19*, 45 J. HEALTH POL. POL’Y & L. 983, 984–85 (2020).

¹⁰³Dhaval M. Dave et al., *Black Lives Matter Protests and Risk Avoidance: The Case of Civil Unrest During a Pandemic* 1–6 (Nat’l Bureau of Econ. Research, Working Paper 27408, 2021).

¹⁰⁴See, e.g., Michael Powell, *Experts Feel Torn on Dangers of Different Protests*, N.Y. TIMES, July 11, 2020, at A4 (quoting former New York City health commissioner and Harvard professor Mary Travis Bassett: “Racism has been killing people a lot longer than Covid-19”).

¹⁰⁵Open Letter Advocating for an Anti-racist Public Health Response to Demonstrations Against Systemic Injustice Occurring During the COVID-19 Pandemic (on file at <https://drive.google.com/file/d/1Jyfn4Wd2i6bRi12ePghMHtX3ys1b7K1A/view> [<https://perma.cc/83HA-H529>]).

¹⁰⁶Dan Diamond, *Suddenly, Public Health Officials Say Social Justice Matters More Than Social Distance*, POLITICO (June 4, 2020), <https://www.politico.com/news/magazine/2020/06/04/public-health-protests-301534> [<https://perma.cc/GP5U-7CB2>] (quoting Jennifer Nuzzo @JenniferNuzzo).

a larger scale.¹⁰⁷ Notably, BLM protesters generally wore masks, conducted activities outdoors, and took additional precautions; as of this writing, peer-reviewed papers have shown small, if any, effects of these protests on COVID-19 transmission.¹⁰⁸

Reframing discussions about COVID-19 restrictions in terms of lives and health consequences may sidestep the taboo nature of human-life tradeoffs. Adopting this strategy, however, might be unsuccessful when listeners perceive an ulterior motive—namely, that policymakers emphasizing the costs of pandemic control measures actually seek power, wealth, or political returns from economic activity. Research on the correspondence bias (also called the fundamental attribution bias) demonstrates that when someone takes a given action, even under situational constraints, onlookers tend to interpret that action as evidence of her “true” motives, traits, and character.¹⁰⁹ When, however, onlookers suspect that the actor has an ulterior and self-interested motive, they are less likely to view her behavior as reflective of her actual values; instead, they consider contrary hypotheses about her sincerity, and they raise questions about what she is hiding.¹¹⁰ This state of suspicion disrupts correspondence bias and can prevent actors from credibly signaling good motivations by their good actions.¹¹¹ Unsurprisingly, people are more likely to suspect ulterior motives when the actor is a member of a political outgroup.¹¹²

When people make health-focused arguments, rather than economy-focused arguments, some observers will consider possible ulterior motives that attenuate these messages.¹¹³ Thus, for example, after President Trump attempted to reframe the debated in terms of health versus health, commenters quickly suggested that “Trump will sacrifice Americans to coronavirus if it will save the market and his prospects for re-election.”¹¹⁴

3. Subjective Probability Estimates

Assuming people are willing to conduct tradeoff analysis with respect to the public health policies put in place during a pandemic, this discussion requires some type of risk assessment. Perceptions of risk are particularly important to the COVID-19 policy response because risk perception is a principal driver of support for pandemic control

¹⁰⁷KIM PARKER ET AL., PEW RESEARCH CTR., AMID PROTESTS, MAJORITIES ACROSS RACIAL AND ETHNIC GROUPS EXPRESS SUPPORT FOR THE BLACK LIVES MATTER MOVEMENT 5 (June 12, 2020), <https://www.pewsocialtrends.org/2020/06/12/amid-protests-majorities-across-racial-and-ethnic-groups-express-support-for-the-black-lives-matter-movement/> [<https://perma.cc/4W4R-C2XZ>].

¹⁰⁸See Dave et al., *supra* note 103, at 6–7; Gregory Neyman & William Dalsey, *Black Lives Matter Protests and COVID-19 Cases: Relationship in Two Databases*, J. PUB. HEALTH, Nov. 20, 2020, at 3.

¹⁰⁹Steven Fein, *Effects of Suspicion on Attributional Thinking and the Correspondence Bias*, 79 J. PERSONALITY & SOC. PSYCH. 1164, 1165–66 (1996) [hereinafter Fein, *Effects of Suspicion*]; Steven Fein et al., *Suspicion of Ulterior Motivation and the Correspondence Bias*, 58 J. PERSONALITY & SOC. PSYCHOL. 753, 753–54 (1990) [hereinafter Fein et al., *Suspicion of Ulterior Motivation*].

¹¹⁰Fein, *Effects of Suspicion*, *supra* note 109, at 1165.

¹¹¹*Id.* at 1166–67.

¹¹²Geoffrey D. Munro et al., *Motivated Suspicion: Asymmetrical Attributions of the Behavior of Political Ingroup and Outgroup Members*, 32 BASIC & APPLIED SOC. PSYCH. 173, 178 (2010).

¹¹³See, e.g., Arch G. Mainous III, *A Towering Babel of Risk Information in the COVID-19 Pandemic: Trust and Credibility in Risk Perception and Positive Public Health Behaviors*, 52 FAM. MED. 317, 318 (2020) (arguing that where it is possible to interpret COVID-19 recommendations as economically self-serving, lack of trust will undermine the message).

¹¹⁴See Jamelle Bouie, *Opinion, Trump Thinks He Knows Better Than the Doctors About Coronavirus*, N.Y. TIMES (Mar. 24, 2020), <https://www.nytimes.com/2020/03/24/opinion/trump-coronavirus-economy.html> [<https://perma.cc/2GME-P45U>].

measures.¹¹⁵ This understanding echoes findings from previous pandemics, which highlight a correspondence between people's perceived susceptibility to the disease and their preventative behavior.¹¹⁶

Since the emergence of behavioral economics in the 1970s, behavioral scientists have studied extensively the processes through which people derive the subjective probability of an event.¹¹⁷ The main finding of this body of work is that when people are asked to estimate the probability of an event, they often are not cold and calculated Bayesians.¹¹⁸ Rather, probability assessments are derived from a subjective process involving an array of heuristics and biases.¹¹⁹

A well-documented behavioral phenomenon that seems to have played a role in the initial stages of the pandemic is the *availability heuristic*. This heuristic suggests that people often determine the likelihood of events and the frequency of occurrences according to the ease of recalling similar events or occurrences.¹²⁰ Events that are vivid and salient (e.g., an airplane crash) are presumed to be more likely, simply because they are memorable.¹²¹ Interestingly, some of the seminal studies on availability dealt with the question of how people estimate the frequency of different types of lethal events, including distinct diseases.¹²² These studies suggest that people tend to overestimate causes of death that are vivid and sensational, whereas they underestimate causes of death that may be described as undramatic, quiet killers.¹²³

Moving from the individual to the collective, it has been suggested that *availability cascades* might further impact political decisions. Such cascades involve “a self-reinforcing process of collective belief formation by which an expressed perception triggers a chain reaction that gives the perception [of] increasing plausibility through its rising availability in public discourse.”¹²⁴ The resulting mass pressure could cause policymakers to misjudge particular risks, leading to disadvantageous regulation.

As others have noted, the COVID-19 pandemic “hits all the hot buttons” as far as availability is concerned.¹²⁵ It is new, mysterious, and drew global attention. The places worst hit by the virus—Wuhan, northern Italy, New York City—generated dramatic pictures and heartbreaking stories, which were reported widely on traditional and social

¹¹⁵Craig A. Harper et al., *Functional Fear Predicts Public Health Compliance in the COVID-19 Pandemic*, INT'L J. MENTAL HEALTH & ADDICTION, Apr. 27, 2020, at 8–9.

¹¹⁶See Alison Bish & Susan Michie, *Demographic and Attitudinal Determinants of Protective Behaviours During a Pandemic: A Review*, 15 BRIT. J. HEALTH PSYCH. 797, 810 (2010) (reporting on such findings from the United Kingdom, Hong Kong, Korea, Australia and the Netherlands).

¹¹⁷See ZAMIR & TEICHMAN, *supra* note 15, at 28–42.

¹¹⁸See *id.*

¹¹⁹See *id.*

¹²⁰See Amos Tversky & Daniel Kahneman, *Availability: A Heuristic for Judging Frequency and Probability*, 4 COGNITIVE PSYCH. 207, 209 (1973) [hereinafter Tversky & Kahneman, *Availability*]; see also Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCI. 1124, 1127–28 (1974) [hereinafter: Tversky & Kahneman, *Judgment Under Uncertainty*].

¹²¹Tversky & Kahneman, *Judgment Under Uncertainty*, *supra* note 120, at 1127.

¹²²The classic early work is Sarah Lichtenstein et al., *Judged Frequencies of Lethal Events*, 4 J. EXPERIMENTAL PSYCH. 551 (1978). For a later study, see, e.g., Ralph Hertwig, Thorsten Pachur & Stephanie Kurzenhäuser, *Judgments of Risk Frequencies: Tests of Possible Cognitive Mechanisms*, 31 J. EXPERIMENTAL PSYCH. 621 (2005).

¹²³See Lichtenstein et al., *supra* note 122, at 575–76.

¹²⁴Timur Kuran & Cass R. Sunstein, *Availability Cascades and Risk Regulation*, 51 STAN. L. REV. 683, 683 (1999).

¹²⁵Terje Aven & Frederic Boudier, *The COVID-19 Pandemic: How Can Risk Science Help?*, 23 J. RISK RES. 849, 851 (2020); see also Sweta Chakraborty, *How Risk Perceptions, Not Evidence, Have Driven Harmful Policies on COVID-19*, 11 EUR. J. RISK REG. 236, 236 (2020) (“COVID-19 hits all of the cognitive triggers for how the lay public misjudges risk”).

media along with far more limited reporting on areas that were not hit as badly.¹²⁶ Similarly, high profile cases such as the hospitalization of Tom Hanks,¹²⁷ Prime Minister Boris Johnson's "brush with death,"¹²⁸ and the passing away of numerous public figures like the legendary playwright Terrence McNally and Grammy-winning trumpeter Wallace Roney drew significant media attention.¹²⁹ Such coverage likely elevated people's probability assessment of incurring harm from the virus.¹³⁰

While the availability heuristic seems to have played a role in elevating the perceived threat of COVID-19 at the outset of the pandemic, there are reasons to assume that this elevated risk assessment will decline as the pandemic progresses. For one, as the virus becomes part of the "new normal," media coverage and public discourse shift to other topics.¹³¹ Furthermore, people may go through a process of psychological adaptation, and cease viewing COVID-19 as vivid and special.¹³² Consequently, information about the virus becomes less available (relatively speaking), and subjective probability estimates regarding the risk may diminish over time.

Other psychological forces might even cause people to *underestimate* COVID-19 risks. *Over-optimism* is one such force. Behavioral studies show that people tend to systematically underestimate the probability of adverse events, such as car accidents, divorces, unemployment, unwanted pregnancy, and criminal victimization.¹³³ In the health context, it has similarly been shown that over-optimism can lead people to underestimate the risk of heart attacks and other negative health events.¹³⁴ To the extent these findings carry over to the COVID-19 context, they suggest that people might underestimate risks posed by the virus.

Furthermore, people's risk underestimation might rise as the pandemic progresses. When dealing with repeated behavior (and by definition, life during a pandemic entails day-to-day repeated behavior), people tend to estimate risks based on a small sample of their recent experiences.¹³⁵ For example, workers or drivers who routinely

¹²⁶See, e.g., *From Wuhan to Coventry: Tracking the Coronavirus in Pictures*, NBC NEWS, <https://www.nbcnews.com/specials/wuhan-to-coventry-tracking-coronavirus-in-pictures> [<https://perma.cc/HYT5-W8HC>].

¹²⁷See Andrew Pulver, *Tom Hanks 'Feeling Better' After Covid-19 Diagnosis*, GUARDIAN (Mar. 23, 2020 7:35 AM), <https://www.theguardian.com/film/2020/mar/23/tom-hanks-feeling-better-after-covid-19-diagnosis> [<https://perma.cc/8L5E-YP3D>] (Tom Hanks illness). Other publicized cases (among many) include that of actor Daniel Dae Kim, musicians Pink and Scarface, reality TV celebrity Andy Cohen, and singer Plácido Domingo. See Vulture Editors, *All the Celebrities Who Have Tested Positive for the Coronavirus*, VULTURE (July 18, 2020), <https://www.vulture.com/article/famous-people-celebrities-with-coronavirus.html> [<http://web.archive.org/web/20210416033710/https://www.vulture.com/article/famous-people-celebrities-with-coronavirus.html>] (last updated Feb. 25, 2021).

¹²⁸See Guardian Staff, *PM's Covid-19 Timeline: From 'Mild Symptoms' to a Brush with Death*, GUARDIAN (Apr. 12, 2020, 12:34 PM), <https://www.theguardian.com/world/2020/apr/05/timeline-boris-johnson-and-coronavirus> [<https://perma.cc/GBT4-8P92>].

¹²⁹See Vulture Editors, *supra* note 127.

¹³⁰See Lichtenstein et al., *supra* note 122, at 575 ("[T]he media have important effects on our judgments, not only because of what they don't report (successful plane trips or reactor operations), but because of what they do report to a disproportionate extent.")

¹³¹See Cass R. Sunstein, *Precautions Against What? The Availability Heuristic and Cross-Cultural Risk Perception*, 57 ALA. L. REV. 75, 89–92 (2005) (analyzing connections among the availability heuristic, media coverage, and risk perceptions).

¹³²See George Loewenstein & Jane Mather, *Dynamic Processes in Risk Perception*, 3 J. RISK & UNCERTAINTY 155, 166 (1990) (reviewing the psychological literature on adaptation).

¹³³See Sean Hannon Williams, *Probability Errors: Overoptimism, Ambiguity Aversion, and the Certainty Effect*, in THE OXFORD HANDBOOK OF BEHAVIORAL ECONOMICS AND THE LAW 335, 337 (Eyal Zamir & Doron Teichman eds., 2014).

¹³⁴*Id.*

¹³⁵On decisions made based on experience, see Ralph Hertwig et al., *Decisions from Experience and the Effect of Rare Events in Risky Choice*, 15 PSYCH. SCI. 534, 538 (2004), and Ralph Hertwig & Timothy J. Plešac, *Decisions from Experience: Why Small Samples?*, 115 COGNITION 225, 235 (2010).

participate in a risky activity might adopt an “it won’t happen to me” attitude, simply because an accident did not occur recently.¹³⁶ Similarly, those who were not infected by the virus, or those who were unaware of their infection since they were asymptomatic, might underestimate the risks of the virus based on their personal past experience.¹³⁷ Note that even in New York City, one of the early epicenters of the pandemic, the vast majority of the population was not infected by the virus during the first months of the pandemic, and a majority of those infected did not exhibit COVID-19 symptoms.¹³⁸

To conclude, the overall picture with respect to subjective probability assessments seems similar to one described with respect to taboo tradeoffs. Initially, given the novelty of COVID-19, the availability heuristic might have caused people to overestimate the risks associated with the virus, pushing legal policies to be more aggressive. Over time, however, as the virus became part of the daily reality, countervailing behavioral phenomena might have brought about a more complex reality with respect to subjective risk assessments.

4. Evaluability, Ranking, and Public Policy

An additional factor that is likely to play a role in the public debate surrounding COVID-19 is the *evaluability bias*.¹³⁹ Behavioral findings suggest that when people face complex multidimensional decisions, they tend to put excessive weight on the dimensions of the decision that are easy to evaluate.¹⁴⁰ For example, when choosing between charitable organizations, people tend to give greater weight to the overhead ratio (which is easy to evaluate) as opposed to cost-effectiveness (which is difficult to evaluate).¹⁴¹ Because ease of evaluation is not a normative criterion, this bias suggests that people make systematically suboptimal choices when facing complex decisions.¹⁴²

By any account, the political decisions relating to the pandemic involved a complex balancing among many competing interests.¹⁴³ Some of these interests were easy to evaluate. Most notably, the direct health impact of the pandemic in terms of confirmed cases and mortality could be measured on a daily basis. Additional interests impacted by COVID-19 related policies, however, were much more difficult to evaluate. Some of these interests entail complex measurement problems such as ascertaining the increase in domestic violence that could be attributed to lockdowns.¹⁴⁴ Others are simply

¹³⁶See Ido Erev & Ernan Haruvy, *Learning and the Economics of Small Decisions*, in THE HANDBOOK OF EXPERIMENTAL ECONOMICS 638, 648 (John H. Kagel & Alvin E. Roth eds., 2017).

¹³⁷See Emma Teasdale et al., *Public Perceptions of Non-Pharmaceutical Interventions for Reducing Transmission of Respiratory Infection: Systematic Review and Synthesis of Qualitative Studies*, 14 BMC PUB. HEALTH 589, 601 (2014) (noting that during the 2009 N1H1 pandemic the public adopted an “it won’t happen to me” attitude toward risk).

¹³⁸See J. David Goodman & Michael Rothfeld, *New York City Seen Having 1 in 5 Infected*, N.Y. TIMES, Apr. 24, 2020, at A1 (“In New York City, about 21 percent tested positive for coronavirus antibodies during the state survey.”).

¹³⁹See, e.g., Lucius Caviola et al., *The Evaluability Bias in Charitable Giving: Saving Administration Costs or Saving Lives?*, 9 JUDGMENT & DECISION MAKING 303, 304–05 (2014); Christopher K. Hsee, *The Evaluability Hypothesis: An Explanation for Preference Reversals Between Joint and Separate Evaluations of Alternatives*, 67 ORG. BEHAV. & HUM. DECISION PROCESSES 247, 249–50 (1996).

¹⁴⁰Caviola et al., *supra* note 139, at 305–06.

¹⁴¹*Id.*

¹⁴²*Id.* at 304, 311.

¹⁴³See *supra* Part II.A.

¹⁴⁴See Kim Usher et al., *Family Violence and COVID-19: Increased Vulnerability and Reduced Options for Support*, 29 INT’L J. MENTAL HEALTH NURSING 549, 549 (2020).

impossible to measure in a precise fashion, such as the cost of lost privacy due to intrusive surveillance policies.¹⁴⁵

Throughout the pandemic, the major health metrics associated with COVID-19—confirmed cases and mortality rates—were displayed saliently by media outlets around the world.¹⁴⁶ At the same time, other relevant factors that are more difficult to measure, received far less attention in the public discourse. Research on the evaluability bias suggests that policymakers in such a decision-making environment might put excessive weight on the measurable health metrics, and consequently adopt policies that are geared towards minimizing those metrics while undervaluing other dimensions of human welfare.¹⁴⁷

The tendency to give excessive weight to confirmed cases and mortality rates might have been further exacerbated by the fact that countries were constantly compared and ranked throughout the pandemic.¹⁴⁸ These rankings focused on simple quantifiable metrics, most notably case numbers and mortality rates.¹⁴⁹ As the behavioral research has shown, the act of ranking creates a strong motivational force to outperform others.¹⁵⁰ This effect seems to impact policies at the national level, as countries tend to exert additional effort to surpass other countries when international rankings exist.¹⁵¹

5. Parsing the Politics of COVID-19

During the early stages of the pandemic, aggressive suppression measures garnered large margins of political support worldwide.¹⁵² As suggested, this support likely built on numerous psychological phenomena that made restrictive measures more appealing despite their significant costs. For example, one study, conducted between late March and early April of 2020, using survey data from fifty-eight countries and over 100,000 respondents, found that the adoption of stricter measures by the government was associated with an increase in the public's belief that the government's reaction to the pandemic was appropriate.¹⁵³ Another study, conducted in Europe, showed that lockdowns were associated with a statistically significant increase in support for the elected president or prime minister.¹⁵⁴

¹⁴⁵See Leslie Lenert & Brooke Yeager McSwain, *Balancing Health Privacy, Health Information Exchange, and Research in the Context of the COVID-19 Pandemic*, 27 J. AM. MED. INFORMATICS ASSOC. 963, 964, 966 (2020).

¹⁴⁶See e.g., Allen et al., *supra* note 4.

¹⁴⁷See Dorte Gyrd-Hansen et al., *Joint and Separate Evaluation of Risk Reduction: Impact on Sensitivity to Risk Reduction Magnitude in the Context of 4 Different Risk Information Formats*, MED. DECISION MAKING, Jan.–Feb. 2011, at E2.

¹⁴⁸See, e.g., Jinshan Hong et al., *The Best and Worst Places to be During Covid: The US Stages a Recovery*, BLOOMBERG (Mar. 25, 2021), <https://www.bloomberg.com/graphics/covid-resilience-ranking> [<https://perma.cc/9L78-H824>] (updated Mar. 26, 2021).

¹⁴⁹See *id.*

¹⁵⁰See e.g., Ghazala Azmat & Nagore Iriberry, *The Importance of Relative Performance Feedback Information: Evidence from a Natural Experiment Using High School Students*, 94 J. PUB. ECON. 435, 451 (2010); Daniel Herbst & Alexandre Mas, *Peer Effects on Worker Output in the Laboratory Generalize to the Field*, 350 SCI. 545, 549 (2015).

¹⁵¹See Camilla Addey et al., *The Rise of International Large-scale Assessments and Rationales for Participation*, 47 COMPARE 434, 440 (2017).

¹⁵²See Thiemo R. Fetzer et al., *Global Behaviors and Perceptions at the Onset of the COVID-19 Pandemic* 8 (Nat'l Bureau of Econ. Research, Working Paper No. 27082, 2020).

¹⁵³*Id.* at 4–5.

¹⁵⁴See Damien Bol et al., *The Effect of COVID-19 Lockdowns on Political Support: Some Good News for Democracy?*, 60 EUR. J. POL. RES. 497, 502 (2021); see also, Adam Chilton et al., *The Normative Force of Higher-Order Law: Evidence from Six Countries During the COVID-19 Pandemic* 25 (Jan. 25, 2021) (working paper), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3591270 [<https://perma.cc/Q3U8-HDPM>]

As the pandemic progressed, however, discussions about continuing lockdown restrictions have grown more nuanced, with some of the initial support seeming to erode.¹⁵⁵ The causal mechanisms underlying this erosion are complex. Arguably, they stem from multiple factors including the changing realities of the pandemic and the dynamics of psychological phenomena (discussed above). This Subsection highlights an additional factor and considers the role of political partisanship and social norms in risk perceptions surrounding COVID-19 and policy decision-making. Given that risk perception is a principal driver of support for pandemic control measures,¹⁵⁶ and partisanship drives concern about COVID-19, partisanship likely drives preferred responses as well. In the interest of brevity and our comparative competence, this Subsection focuses on the United States.¹⁵⁷

Thus far, the pandemic has illuminated a remarkable correspondence among political affiliation, perceptions of risk, and preferred COVID-19 policy responses in the United States. Risk perceptions diverged at the outset of the pandemic; in early March, polls showed that nearly two-thirds of Republicans, but less than one third of Democrats, believed that concerns about COVID-19 were “greatly exaggerated,” while two-thirds of Democrats, but only one-third of Republicans, were concerned about the virus.¹⁵⁸ Preliminary studies have found partisan divides in predictions of the death toll and perceptions about the effectiveness of pandemic control measures (e.g., social distancing).¹⁵⁹ Republicans and Democrats also differ in their willingness to believe conspiracy theories about the origins of COVID-19.¹⁶⁰ These differences also extended to political leaders and their policy choices. Republican governors were slower to adopt closures and stay-at-home restrictions, and the most crucial predictors of policy timing were political.¹⁶¹ In fact, governors’ political affiliations were far more important than the percentage of a state’s

(reporting that the pandemic has created circumstances in which “high numbers of people were willing to support substantial civil liberty restrictions”).

¹⁵⁵See, e.g., Kevin Freking & Hannah Fingerhut, *AP-NORC poll: Support for Restrictions, Virus Worries Wane*, ASSOCIATED PRESS (June 25, 2020), <https://apnews.com/915fdbccb3434fee125efaaaaefba0af> [<https://perma.cc/BG82-JXKF>] (support for stay-at-home orders declines from 80% in April 2020 to 50% in June 2020).

¹⁵⁶See *supra* notes 115–116 and accompanying text.

¹⁵⁷For research exploring this topic in other countries, see Erik Merkley et al., *A Rare Moment of Cross-Partisan Consensus: Elite and Public Response to the COVID-19 Pandemic in Canada*, 53 CAN. J. POL. SCI. 311 (2020) (consensus in Canada), and Ernesto Calvo & Tiago Ventura, *Will I Get Covid-19? Partisanship, Social Media Frames, and Perceptions of Health Risks in Brazil*, 63 LATIN AM. POL. SOC’Y 1 (2020) (polarization in Brazil).

¹⁵⁸Scott R. Baker et al., *How Does Household Spending Respond to an Epidemic? Consumption During the 2020 COVID-19 Pandemic*, 10 REV. ASSET PRICING STUD. 834, 836 (2020) (citing polls by Axios and Quinnipiac); see John M. Barrios & Yael Hochberg, *Risk Perception Through the Lens of Politics in the Time of the COVID-19 Pandemic* 4 (Nat’l Bureau of Econ. Research, Working Paper No. 27008, 2020) (finding lower perceptions of risk in counties with higher shares of Trump voters). *But see* Shana Kushner Gadian et al., *Partisan Endorsement Experiments do not Affect Mass Opinion on COVID-19* 5, 7 (Apr. 13, 2020) (working paper), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3574605 [<https://perma.cc/JH6N-9LQW>] (finding few partisan differences in people’s response to messages that were manipulated to show different levels of Republican vs. Democratic support for the CDC).

¹⁵⁹Hunt Allcott et al., *Polarization and Public Health: Partisan Differences in Social Distancing During the Coronavirus Pandemic* 17 (Nat’l Bureau of Econ. Research, Working Paper No. 26946, 2020); Shana Kushner Gadian et al., *Partisanship, Health Behavior, and Policy Attitudes in the Early Stages of the COVID-19 Pandemic*, PLOS ONE, Apr. 7, 2021, at 9.

¹⁶⁰Joanne M. Miller, *Psychological, Political, and Situational Factors Combine to Boost COVID-19 Conspiracy Theory Beliefs*, 53 CAN. J. POL. SCI. 327, 329–30 (2020).

¹⁶¹Adolph et al., *supra* note 11, at 221; see also Leonardo Baccini & Abel Brodeur, *Explaining Governors’ Response to the COVID-19 Pandemic in the United States*, 49 AM. POL. RES. 215, 215 (2020) (a study of governors’ characteristics as determinants of implementing stay-at-home orders).

population actually infected with COVID-19 in predicting the timing of lockdown orders.¹⁶²

This divergence in risk perceptions has continued throughout the pandemic. As some states began reopening in May 2020, eighty-seven percent of Democratic-leaning people said they were more concerned states would lift restrictions too quickly, while fifty-three percent of Republican-leaning people said they were more concerned states would not lift restrictions quickly enough.¹⁶³ Even in late June 2020, as cases rose, sixty-one percent of Republicans agreed that “the worst is behind us,” while seventy-six percent of Democrats thought that the worst is “still to come.”¹⁶⁴ In the same poll, Republicans reported declines in the belief that they would personally get COVID-19 and need hospitalization, while Democrats’ beliefs did not change.¹⁶⁵ Political partisanship explained the largest differences in people’s willingness to resume social contact—more so than race, geography, gender, or age.¹⁶⁶

Partisanship has also driven compliance with pandemic control measures. One analysis drawing on county voting records found that Republican counties were less likely to abide by stay-at-home orders than Democratic counties,¹⁶⁷ and that people were more likely to abide by orders issued by governors of their own party.¹⁶⁸ A mid-March 2020 survey found that political partisanship was “the most consistently related” factor to Americans’ attitudes and behaviors regarding COVID-19, with Democrats more likely to report hand-washing, hand sanitizer purchases, avoiding contact with others, self-quarantining, self-educating about COVID-19, worrying about the virus, and believing that the United States should increase spending on the virus.¹⁶⁹ A mid-April 2020 survey

¹⁶²Gerard J. Tellis et al., *Why Did US Governors Delay Lockdowns Against COVID-19? Disease Science vs Learning, Cascades, and Political Polarization* 8, 10 (April 13, 2020) (working paper), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3575004 [<https://perma.cc/VE7J-W8R6>].

¹⁶³Andrew Daniller, *Americans Remain Concerned that States Will Lift Restrictions Too Quickly, but Partisan Differences Widen*, PEW RES. CTR. (May 7, 2020), <https://www.pewresearch.org/fact-tank/2020/05/07/americans-remain-concerned-that-states-will-lift-restrictions-too-quickly-but-partisan-differences-widen/> [<https://perma.cc/Q2KE-L23W>].

¹⁶⁴PEW RESEARCH CTR., *REPUBLICANS, DEMOCRATS MOVE EVEN FURTHER APART IN CORONAVIRUS CONCERNS* 4 (2020), <https://www.pewresearch.org/politics/2020/06/25/republicans-democrats-move-even-further-apart-in-coronavirus-concerns/> [<https://perma.cc/6KBB-225C>].

¹⁶⁵*Id.* at 5.

¹⁶⁶*Id.* at 10.

¹⁶⁷Marcus Painter & Tian Qiu, *Political Beliefs Affect Compliance with Government Mandates*, 185 J. ECON. BEHAV. & ORG. 688, 693, 699 (2021); *see also* Barrios & Hochberg, *supra* note 158, at 11–12 (finding that a greater proportion of Trump voters in a county is correlated with lower social distancing behavior despite state mandates, but that social distancing increased after announcements of COVID exposure at the Conservative Political Action Conference and White House appeals to “slow the spread”); Keena Lipsitz & Grigore Pop-Eleches, *The Partisan Divide in Social Distancing* 20 (May 7, 2020) (working paper), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3595695 [<https://perma.cc/VP8M-PCQJ>] (finding that consumption of Fox News increased retail and recreation visits with high Fox News market shares but did not increase retail and recreation visits in Democratic counties and counties with low Fox News market shares).

¹⁶⁸*See* Painter & Qiu, *supra* note 169, at 699–700 (finding that Democratic counties are more responsive to state policies from Democratic governors, whereas Republican counties show little significant difference in response to state governors from either party); *see also* Daniel A. N. Goldstein & Johannes Wiedemann, *Who Do You Trust? The Consequences of Political and Social Trust for Public Responsiveness to COVID-19 Orders* 19 (May 9, 2020) (working paper), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3580547 [<https://perma.cc/5VA5-MXSE>] (finding a reduction in the stay-at-home compliance gap between Republican and Democratic counties if a Republican governor gave the order).

¹⁶⁹Gadarian et al., *supra* note 159, at 9. Around this time, 33% of Republicans and 59% of Democrats believed that COVID-19 was a “major threat” to the health of the population; 76% and 49%, respectively, believed that media had exaggerated the threat of the virus. PEW RESEARCH CTR., *U.S. PUBLIC SEES MULTIPLE THREATS FROM THE CORONAVIRUS – AND CONCERNS ARE GROWING* 5, 8 (2020), <https://www.pewresearch.org/politics/2020/03/18/u-s-public-sees-multiple-threats-from-the-coronavirus-and-concerns-are-growing/>

reported similar results, additionally finding that Democrats were more likely to wear masks, wear gloves, wipe down groceries, work from home, and refrain from meeting up with friends or families.¹⁷⁰

In more recent months, vaccine uptake has provided a further illustration of partisan differences. Before any vaccines were approved, a national poll by ABC News found that approximately forty percent of surveyed Republicans would be unlikely to get vaccinated for coronavirus (even if the vaccine were free); in contrast, eighty-one percent of Democrats would “definitely or probably” be vaccinated.¹⁷¹ As of April 2021, thirty-one percent of U.S. adults had been fully vaccinated, but there was a “disparity in vaccination rates [that] has so far mainly broken down along political lines.”¹⁷² Counties with a larger proportion of 2020 Trump voters had higher percentages of vaccine-hesitant people and lower rates of vaccination.¹⁷³ Compared to the national average, the rate of full vaccination in Republican-leaning counties was 5% less among older adults and 18% less among younger adults.¹⁷⁴

Several behavioral phenomena may help to explain these striking figures. This subsection will focus on three key phenomena: *cultural cognition*, *motivated reasoning*, and *group polarization*. As the discussion will show, cultural cognition might impact the way in which people develop their risk assessment of COVID-19 and how that assessment is translated into policy preferences. Motivated reasoning and group polarization then build on, and entrench, these preexisting beliefs.

Cultural cognition models of risk perception suggest that people’s beliefs about what is threatening or nonthreatening depend in part on their cultural commitments—and specifically, whether they are more hierarchical or egalitarian, and more individualistic or solidaristic.¹⁷⁵ Although cultural orientation is not a perfect match for conservative versus liberal political affiliation, research has demonstrated that conservatives are more likely to endorse hierarchical and individualistic values, while liberals are more likely to endorse

[<https://perma.cc/FJU2-K288>]. Spending patterns by Democrats and Republicans also began to diverge, with Democrats spending less at restaurants and retail, which is congruent with compliance with stay-at-home orders. See Baker et al., *supra* note 158, at 851–52.

¹⁷⁰Ying Fan et al., *Heterogeneous Actions, Beliefs, Constraints and Risk Tolerance During the COVID-19 Pandemic* 7–10 (Nat’l Bureau of Econ. Research, Working Paper No. 27211, 2020).

¹⁷¹Steven Sparks & Gary Langer, *27% Unlikely to be Vaccinated Against the Coronavirus; Republicans, Conservatives Especially: POLL*, ABC News (June 2, 2020, 7:08 AM), <https://abcnews.go.com/Politics/27-vaccinated-coronavirus-republicans-conservatives-poll/story?id=70962377> [<https://perma.cc/WM9W-HXT2>]; see also Luran Neergaard & Hannah Fingerhut, *AP-NORC poll: Half of Americans Would Get a COVID-19 Vaccine*, ASSOCIATED PRESS (May 27, 2020), <https://apnews.com/dacdc8bc428dd4df6511bfa259cfec44> [<https://perma.cc/Z5LE-GM6Z>] (roughly comparable findings by AP-NORC); Ariel Fridman, Rachel Gershon & Ayelet Gneezy, *COVID-19 and Vaccine Hesitancy: A Longitudinal Study*, 16 PLOS ONE e0250123 (2021) (finding that COVID-19 vaccination attitudes diverged on the basis of political party during 2020, with downward trends in favorable COVID-19 vaccine attitudes among Republicans).

¹⁷²Danielle Ivory, Lauren Leatherby & Robert Gebeloff, *Least Vaccinated U.S. Counties Have Something in Common: Trump Voters*, N.Y. TIMES, (Apr. 17, 2021), <https://www.nytimes.com/interactive/2021/04/17/us/vaccine-hesitancy-politics.html> [<https://perma.cc/23MD-XXMHW>].

¹⁷³*Id.*

¹⁷⁴*Id.*; see also MONMOUTH U. POLLING INST., *National: One in Five Still Shun Vaccine*, MONMOUTH U. 1, 2 (Apr. 14, 2021), https://www.monmouth.edu/polling-institute/reports/monmouthpoll_us_041421/monmouth.edu/polling-institute/documents/monmouthpoll_us_041421.pdf [<https://perma.cc/HLJ7-RAX8>] (finding in a nationally representative U.S. poll that 61% of Democrats had received at least one shot, compared to 47% of independents and 36% of Republicans).

¹⁷⁵For theorists’ further discussions of varying expectations of social order and risk tolerance according to culture worldviews, see Dan M. Kahan & Donald Braman, *Cultural Cognition and Public Policy*, 24 YALE L. & POL’Y REV. 149, 151–54 (2006).

egalitarian and solidaristic values.¹⁷⁶ Hierarchical and individualistic people tend to be less concerned about environmental and technological risks (e.g., global warming), yet more concerned about risks to individual autonomy or social roles (e.g., gun control).¹⁷⁷ Egalitarian and solidaristic people, on the other hand, tend to worry more about threats to the environment and the collective (e.g., human papilloma virus), yet worry less about giving up individual autonomy to benefit the group (e.g., vaccination mandates).¹⁷⁸

Beliefs about the threats of COVID-19 and lockdown policies fit these cultural cognition models. If the theory holds, people who prioritize egalitarianism and solidarity (who are more likely to be liberals), are likely to see COVID-19 as more threatening and to view public health interventions as less threatening.¹⁷⁹ In contrast, the theory predicts that people who prioritize hierarchy and individualism (who are more likely to be conservatives) will be predisposed to minimize the threat of COVID-19 as an environmental risk, and more averse to restrictions on individual choices. Initial findings on cultural cognition and COVID-19 are emerging, and they tend to align with these suggestions.¹⁸⁰ One study of more than 6000 people from the United States and elsewhere found that individualistic values on the cultural cognition model predicted lower perceived risk from COVID-19, while communitarian values predicted greater perceived risk.¹⁸¹ A study of American adolescents found that greater social responsibility predicted more disinfecting behaviors and less hoarding of supplies, while those who valued their self-interest over others reported less social distancing and more hoarding.¹⁸² An analysis of cellphone data in the United States concluded that county-level climate change skepticism predicted lower compliance with stay-at-home orders; where Democratic and Republican counties had similar levels of climate change skepticism, they reported statistically similar patterns of social distancing.¹⁸³ This suggests that cultural threat perceptions, rather than partisanship per se, were drivers of perceived threat.

¹⁷⁶Aaron Wildavsky & Karl Dake, *Theories of Risk Perception: Who Fears What and Why?*, DAEDALUS, Fall 1990, at 41, 50 (indexing risk-perception data archives); see also Kristy E. H. Michaud et al., *The Relationship Between Cultural Values and Political Ideology, and the Role of Political Knowledge*, 30 POL. PSYCH. 27, 39 (2009) (finding that those with high political knowledge tend to assume that egalitarianism and individualism reflect political ideology, rather than cultural worldviews or values). Notably, these cultural values are more predictive of risk perception than party identity alone—and also more predictive than gender or race. Kahan & Braman, *supra* note 173, at 158–59.

¹⁷⁷Kahan & Braman, *supra* note 173, at 158.

¹⁷⁸*Id.*; see also Dan M. Kahan et al., *Who Fears the HPV Vaccine, Who Doesn't, and Why? An Experimental Study of the Mechanisms of Cultural Cognition*, 34 L. & HUM. BEHAV. 501, 504, 511 (2010) (finding that egalitarian communitarians, who support a society “in which the needs of the collective take precedence over those of the individual,” were more likely to accept arguments favoring mandatory vaccination programs).

¹⁷⁹This would echo findings from the HPV and Ebola contexts. See Kahan et al., *supra* note 176, at 511 (finding that subjects with hierarchical and individualistic worldviews were more concerned about the risks of the HPV vaccination than those with egalitarian or communitarian worldviews); see also Z. Janet Yang, *Altruism During Ebola: Risk Perception, Issue Salience, Cultural Cognition, and Information Processing*, 36 RISK ANALYSIS 1079, 1086 (2016) (finding that subjects with individualist or hierarchical worldviews felt less inclined toward altruistic behaviors, whether private donation or government relief, during the U.S. Ebola outbreak).

¹⁸⁰See Sandra Dryhurst et al., *Risk Perceptions of COVID-19 Around the World*, 23 J. RISK RES. 994, 996 (2020) (using the individualism-communitarianism dimension of the cultural cognition scale to assess public risk perception of COVID-19).

¹⁸¹*Id.* at 996, 998.

¹⁸²Benjamin Oosterhoff & Cara A. Palmer, *Attitudes and Psychological Factors Associated with News Monitoring, Social Distancing, Disinfecting, and Hoarding Behaviors Among US Adolescents During the COVID-19 Pandemic*, 174 JAMA PEDIATRICS 1184, 1188 (2020).

¹⁸³Adam Brzezinski et al., *Belief in Science Influences Physical Distancing in Response to COVID-19 Lockdown Policies 6* (Becker Friedman Inst. for Econ. at U. Chi., Working Paper No. 2020-56, 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3587990 [<https://perma.cc/E8W6-J6C3>].

Motivated reasoning is another phenomenon—or rather, a set of behavioral phenomena—that might influence the politics of COVID-19 and further the impact of cultural cognition. Motivated reasoning refers to people’s tendency to notice and interpret new information in ways that reinforce their prior beliefs, rather than doing so objectively.¹⁸⁴ There are a host of underlying reasons for this behavioral pattern.¹⁸⁵ *Biased assimilation* is the process by which people tend to believe new information that validates their prior beliefs, yet are inclined to dismiss new information that challenges their prior beliefs.¹⁸⁶ This is one reason why people tend to grow more polarized, not less so, after reading balanced information about a topic.¹⁸⁷ *Confirmation bias* is a similar process, by which people tend to seek out and process new information in ways that are favorable to their own prior beliefs.¹⁸⁸ *The credibility heuristic* also shapes information processing: people tend to accept or dismiss experts based on their perception of whether the expert is part of an ingroup or an outgroup.¹⁸⁹ Relatedly, people tend to overestimate the likelihood of scientific consensus on their own position,¹⁹⁰ and overestimate the likelihood that others agree with them (i.e., the *false consensus effect*).¹⁹¹ Overall, the mechanisms of motivated reasoning can produce belief perseverance (hewing to irrational beliefs despite contrary evidence) and attitude polarization as information increases.¹⁹²

Early data provide some support for the role of motivated reasoning in partisanship towards the COVID-19 response in the United States. Recent polls suggest that partisan gaps in Americans’ beliefs and actions regarding the novel coronavirus are widening,¹⁹³ including gaps in public trust in medical scientists.¹⁹⁴ Namely, Democrats

¹⁸⁴ZAMIR & TEICHMAN, *supra* note 15, at 58 (describing this mode as directional processing of information, rather than accuracy-motivated processing).

¹⁸⁵See Dan M. Kahan, *Foreword: Neutral Principles, Motivated Cognition, and Some Problems for Constitutional Law*, 125 HARV. L. REV. 1, 19–22 (2011) (describing varieties of motivated reasoning stemming from the unconscious need to sustain one’s identity in a group, or the need to offset others’ motivated reasoning).

¹⁸⁶In a foundational study of biased assimilation, people with strong priors favoring or opposing the death penalty rated research as more convincing when it confirmed their beliefs about deterrence. Charles G. Lord et al., *Biased Assimilation and Attitude Polarization: The Effects of Prior Theories on Subsequently Considered Evidence*, 37 J. PERSONALITY & SOC. PSYCH. 2098, 2099, 2101–02 (1979).

¹⁸⁷*Id.* at 2105 (describing the “rebound effect” in which study subjects reverted to their former attitudes or beliefs, or more extreme positions, after being presented with disconfirming information).

¹⁸⁸See generally Raymond S. Nickerson, *Confirmation Bias: A Ubiquitous Phenomenon in Many Guises*, 2 REV. GEN. PSYCH. 175 (1998) (reviewing research evidence for confirmation bias).

¹⁸⁹See Kahan et al., *supra* note 176, at 511 (finding that participants rated arguments as more persuasive when they believed that the speaker shared their own cultural worldview); see also Chanthika Pornpitakpan, *The Persuasiveness of Source Credibility: A Critical Review of Five Decades’ Evidence*, 34 J. APPLIED SOC. PSYCH. 243, 244–45 (2004) (describing studies which observed greater attitude change toward minority sources of information from the same group).

¹⁹⁰See Dan M. Kahan et al., *Cultural Cognition of Scientific Consensus*, 14 J. RISK RES. 147, 166–67 (2011) (finding that study subjects with hierarchical and individualistic outlooks diverged from those with egalitarian and communitarian outlooks on the state of expert opinion on climate change, gun regulation, and nuclear waste disposal).

¹⁹¹See Lee Ross et al., *The “False Consensus Effect”: An Egocentric Bias in Social Perception and Attribution Biases*, 13 J. EXPERIMENTAL SOC. PSYCH. 279, 286–88 (1977) (demonstrating the “false consensus effect” by asking subjects to estimate the percentage of peers who agreed with their responses to hypothetical choices).

¹⁹²See ZAMIR & TEICHMAN, *supra* note 15, at 59–60 (aggregating findings).

¹⁹³PEW RESEARCH CTR., *supra* note 164, at 6 (“Republicans are now nearly 40 percentage points more likely than Democrats to say they would be comfortable eating out in a restaurant (65% of Republicans vs. 28% of Democrats). In March, the gap was a more modest 13 points (29% of Republicans, 16% of Democrats).”).

¹⁹⁴CAREY FUNK ET AL., PEW RESEARCH CTR., TRUST IN MEDICAL SCIENTISTS HAS GROWN IN U.S., BUT MAINLY AMONG DEMOCRATS 5 (2020), <https://www.pewresearch.org/science/2020/05/21/trust-in-medical-scientists-has-grown-in-u-s-but-mainly-among-democrats/> [<https://perma.cc/H8CT-KV42>].

have moved toward greater confidence in scientists, while Republicans have continued to express lower and unchanged levels of trust.¹⁹⁵ Levels of trust in Dr. Anthony Fauci, Director of the National Institute of Allergy and Infectious Diseases and a member of the White House Coronavirus Task Force, is an illustrative example. Dr. Fauci has advised seven presidents, from both Republican and Democratic administrations.¹⁹⁶ In earlier stages of the pandemic, Dr. Fauci appeared at President Trump's daily briefings and answered questions from reporters.¹⁹⁷ Then, after events in which Dr. Fauci appeared to contradict President Trump (and after which the President subsequently criticized him), Dr. Fauci became a divisive political figure. By mid-May 2020, only fifty-one percent of Republicans trusted Dr. Fauci as a source for coronavirus information according to a CBS News poll, while eighty-three percent of Democrats found him trustworthy.¹⁹⁸

Finally, group polarization may amplify the effects of motivated reasoning across opposing groups, such as political parties. Group polarization refers to the tendency of groups to arrive at a more extreme position as they deliberate, compared to the position each group member would have held if polled before group deliberation.¹⁹⁹ This occurs through a number of group dynamics, including the number of new arguments that people hear for each side, social influences that lead naysayers to self-censor, and the tendency of more confident people to develop more extreme views.²⁰⁰ As people discuss COVID-19 with like-minded others—as people in the United States do for political matters, on social media and in the consumption of siloed news sources²⁰¹—group

¹⁹⁵*Id.* (noting an increase from 37% to 53% of Democrats expressing confidence in medical scientists between January 2019 and May 2020, whereas Republican confidence increased from 31% to 32%).

¹⁹⁶Anthony S. Fauci, M.D., NAT'L INST. OF ALLERGY & INFECTIOUS DISEASES, <https://www.niaid.nih.gov/about/anthony-s-fauci-md-bio> [<https://perma.cc/6J2Q-SEX4>] (last updated Mar. 14, 2021).

¹⁹⁷See, e.g., Monica Alba et al., *Fauci's Absence from Recent Coronavirus Briefings Draws Notice*, NBC NEWS (Apr. 25, 2020, 4:14 PM), <https://www.nbcnews.com/politics/white-house/fauci-s-absence-recent-coronavirus-briefings-draws-notice-n1192421> [<https://perma.cc/C8TG-GV36>] (“Until this week, Dr. Anthony Fauci was a near-constant presence at the daily coronavirus task force briefings at the White House.”).

¹⁹⁸Kabir Khanna & Fred Backus, *Trump's Marks for Handling COVID-19 Outbreak Decline – CBS News Poll*, CBS NEWS (May 14, 2020, 10:37 AM), <https://www.cbsnews.com/news/coronavirus-donald-trump-marks-handling-covid-outbreak-decline-cbs-news-poll-today-2020-05-14/> [<https://perma.cc/C3YD-W5YV>]. A New York Times poll had similar findings. See Margot Sanger-Katz, *On Coronavirus, Americans Still Trust the Experts*, N.Y. TIMES (Sept. 18, 2020), <https://www.nytimes.com/2020/06/27/upshot/coronavirus-americans-trust-experts.html> [<https://perma.cc/G8CE-9W6P>] (citing a New York Times-Siena College poll in which 81% of Democrats, but only 51% of Republicans, trusted Dr. Fauci as an accurate source of information about coronavirus).

¹⁹⁹CASS R. SUNSTEIN & REID HASTIE, WISER: GETTING BEYOND GROUPTHINK TO MAKE GROUPS SMARTER, 77–78 (2015); see also David Schkade et al., *Deliberating About Dollars: The Severity Shift*, 100 COLUM. L. REV. 1139, 1141 (2000) (finding jury deliberation over punitive awards in civil cases produced higher dollar awards and more extreme group judgments than the jurors' median predeliberation amounts).

²⁰⁰SUNSTEIN & HASTIE, *supra* note 197, at 83–84.

²⁰¹See AMY MITCHELL & RACHEL WEISEL, PEW RESEARCH CTR., POLITICAL POLARIZATION & MEDIA HABITS 4, 7 (2014), <https://www.journalism.org/2014/10/21/political-polarization-media-habits/> [<https://perma.cc/KLL2-JC7A>] (finding that nearly half of conservatives are likely to cite Fox News as their main news media source and are twice as likely as the average Facebook user to view political content on the platform that aligns with their own). But note that due to motivated reasoning, being exposed to opposing views may also increase polarization, particularly among Republicans. See Christopher A. Bail et al., *Exposure to Opposing Views on Social Media Can Increase Political Polarization*, 115 PROC. NAT'L ACAD. SCI. 9216, 9217 (2018) (describing Republicans' responses after exposure to a liberal Twitter “bot” that tweeted messages from liberal media, elected officials and opinion leaders). Trends toward consumption of politically biased news long predate the pandemic. See, e.g., Gregory J. Martin & Ali Yurukoglu, *Bias in Cable News: Persuasion and Polarization*, 107 AM. ECON. REV. 2565, 2595–96 (2017) (describing how media providers' ideological positioning attracts like-minded audiences and benefits their viewership ratings). Consumption of biased news sources has been empirically shown to exacerbate group polarization on the basis of political ideology. See Markus Prior, *Media and Political Polarization*, 16 ANN. REV. POL. SCI. 101, 108–09 (2013), for a review of empirical examples of the effects of exposure to partisan media on the politically sophisticated viewers.

polarization could cause them to drift further apart from people in the opposing political camp.²⁰²

Empirical evidence of the role of siloed media in COVID-19 outcomes is building. Trust in media sources about coronavirus news differs greatly between political partisans in the United States, with data showing that Democrats are far more likely than Republicans to trust national newspapers, national news networks, CNN, and MSNBC for coronavirus news, while Republicans are more likely than Democrats to trust information from Fox News.²⁰³ More specific analyses of the effect of Fox News suggest that the network has influenced Republicans' decisions about social distancing, in part through some news hosts' framing of COVID-19 as benign and minor.²⁰⁴ Early in the pandemic, Fox News host Sean Hannity tended to "downplay" the threat, while host Tucker Carlson (also on Fox News) described it as serious and lethal.²⁰⁵ Subsequent analyses showed that Hannity viewers adopted precautionary measures later than Carlson viewers, and that this likely produced differential disease transmission rates (and, likely, death rates) among viewers: viewing Hannity was associated with thirty-four percent more COVID-19 cases by March 14, 2020, and twenty-four percent more COVID-19 deaths by March 28, 2020.²⁰⁶ Other analyses have concurred, without disaggregating viewers of specific programs. One found that a one-unit rating point increase in Fox News predicted more than ten-percent reduced compliance with stay-at-home behavior.²⁰⁷ Another found that viewing the network was associated with fewer social distancing behaviors and reduced purchase of prevention goods like masks and sanitizers.²⁰⁸

While the phenomena reviewed in this Subsection predict growing disparities in views over time, there is a potential major countervailing force—namely, experience with COVID-19. In the multi-county survey described above, people perceived greater risk of COVID-19 after having direct experience with the illness, as well as after receiving information from family and friends.²⁰⁹ Direct exposure to COVID-19 also predicts greater willingness among Americans to contribute to the international COVID-19

²⁰²For overviews of polarization, see Delia Baldassarri & Andrew Gelman, *Partisans Without Constraint: Political Polarization and Trends in American Public Opinion*, 114 AM. J. SOCIO. 408 (2008), and Shanto Iyengar & Sean J. Westwood, *Fear and Loathing Across Party Lines: New Evidence on Group Polarization*, 59 AM. J. POL. SCI. 690 (2015).

²⁰³MATTHEW BALLEW ET AL., YALE PROGRAM ON CLIMATE CHANGE & COMM., AMERICAN PUBLIC RESPONSES TO COVID-19: APRIL 2020 10 (2020), <https://climatecommunication.yale.edu/wp-content/uploads/2020/04/american-public-responses-covid19-april-2020b.pdf> [<https://perma.cc/YL4R-935B>]. A separate preliminary study on political ideology and trust in media among US adults found that conservatives were less likely to believe that the "mainstream media" reported accurate information about COVID-19, and that it was this mistrust (rather than any other factor) that tended to explain partisan differences in compliance with social distancing requirements. Hank Rothgerber et al., *Politicizing the COVID-19 Pandemic: Ideological Differences in Adherence to Social Distancing* 15 (Sept. 27, 2020) (working paper), <https://psyarxiv.com/k23cv> [<https://perma.cc/LNX8-D3NB>].

²⁰⁴See Leonardo Bursztyrn et al., *Misinformation During a Pandemic* 1–2 (Becker Friedman Inst. for Econ. at U. Chi., Working Paper No. 2020-44, 2020), https://bfj.uchicago.edu/wp-content/uploads/BFI_WP_202044.pdf [<https://perma.cc/LCL3-9K5L>] (summarizing the effects of diverging information from Tucker Carlson and Sean Hannity on the hosts' similar viewer populations).

²⁰⁵*Id.* at 6–7.

²⁰⁶*Id.* at 2–3.

²⁰⁷Andrey Simonov et al., *The Persuasive Effect of Fox News: Non-Compliance with Social Distancing During the COVID-19 Pandemic* 20–21 (Nat'l Bureau of Econ. Research, Working Paper No. 27237, 2020), <https://www.nber.org/papers/w27237> [<https://perma.cc/T8PE-8ZQK>].

²⁰⁸Elliott Ash et al., *The Effect of Fox News on Health Behavior During COVID-19*, at 6 (Aug. 7, 2020) (working paper), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3636762 [<https://perma.cc/88PP-LRSJ>].

²⁰⁹Dryhurst et al., *supra* note 178, at 998.

response, particularly among Republicans.²¹⁰ Consequently, as the virus spreads across the United States, it might also bring about greater convergence in public views regarding the risks it poses and the legal responses it demands.

* * *

This Part presented an overview of the role behavioral science played in the political debate surrounding a jurisdiction's governmental policies vis-à-vis the COVID-19 pandemic. It reviewed several psychological phenomena that seem to have impacted this debate. The picture emerging from this Part is of a dynamic process in which public opinion towards the pandemic constantly shifts due to these phenomena, causing policymakers to both under- and overreact to the pandemic.

III. CHOOSING THE MEANS TO PROMOTE THE GOAL: NUDGES V. MANDATES

After the political leadership determines its strategic goal (i.e., suppression or mitigation), it must select the means that will be used to further this goal. This Part will examine this policy choice from a behavioral perspective. More specifically, it will consider the role of behaviorally informed modes of regulation—commonly described as *nudges*²¹¹—within the regulatory response to the pandemic. It will do so while comparing nudges to the main alternative tool regulators might opt for²¹²: namely, *mandates* that are backed by sanctions.

Broadly defined, nudges are “low-cost, choice-preserving, behaviorally informed approaches to regulatory problems.”²¹³ Nudges do not “significantly chang[e] economic incentives”—they affect behavior without modifying prices, fines, or subsidies.²¹⁴ As research has demonstrated, regulators can often change people's decisions by engaging in *choice architecture*—that is, by designing the decision-making environment such that it is likely to induce people to make decisions that the architect wishes to promote.²¹⁵ Examples of nudges include defaults that guide people towards the desired choice,²¹⁶ decision menus that control the order in which options are presented,²¹⁷ sensory cues such as pictures or ambiance that prime people to choose certain options,²¹⁸ and smart disclosures that assist people to make decisions that best serve their long-term interests.²¹⁹

²¹⁰Lindsay Dolan & Quynh Nguyen, *Mutual Gain or Resource Drain? Attitudes Toward International Financial Assistance During the Early COVID-19 Pandemic 1* (May 29, 2020) (working paper), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3577622 [<https://perma.cc/P5J3-7RT5>].

²¹¹See THALER & SUNSTEIN, *supra* note 19, at 6.

²¹² Policymakers could also use positive incentives (i.e., rewards) to encourage desired behavior. However, this tool seems ill fit for dealing with a pandemic given the likely costs of rewarding everyone who participates in routine activities. On the role of positive incentives, see Brian Galle, *Tragedy of the Carrots: Economics and Politics in the Choice of Price Instruments*, 64 STAN. L. REV. 797, 832 (2012), and Gerrit de Geest & Giuseppe Dari-Mattiacci, *The Rise of Carrots and the Decline of Sticks*, 80 U. CHI. L. REV. 341, 353 (2013).

²¹³See Cass R. Sunstein, *Nudges.Gov: Behaviorally Informed Regulation*, in THE OXFORD HANDBOOK OF BEHAVIORAL ECONOMICS AND THE LAW, *in supra* note 133, at 719, 719.

²¹⁴THALER & SUNSTEIN, *supra* note 19, at 6.

²¹⁵See Richard H. Thaler, Cass R. Sunstein & John P. Balz, *Choice Architecture*, in THE BEHAVIORAL FOUNDATIONS OF PUBLIC POLICY 428, 430 (Eldar Shafir ed., 2013).

²¹⁶See, e.g., Eric J. Johnson & Daniel Goldstein, *Do Defaults Save Lives?*, 302 SCI. 1338, 1338 (2003).

²¹⁷See, e.g., Tamara Bucher et al., *Nudging Consumers Towards Healthier Choices: A Systemic Review of Positional Influences on Food Choice*, 115 BRIT. J. NUTRITION 2252, 2252 (2016).

²¹⁸See, e.g., Amy L. Wilson et al., *Nudging Healthier Food and Beverage Choices Through Salience and Priming. Evidence from a Systematic Review*, 51 FOOD QUALITY & PREFERENCE 47, 51–52 (2016).

²¹⁹See, e.g., Richard G. Newell & Juha Siikamäki, *Nudging Energy Efficiency Behavior: The Role of Information Labels*, 1 J. ASS'N ENVTL. & RESOURCE ECONOMISTS 555, 555 (2014).

A key aspect of nudges is that they preserve individual liberty. That is, they aim to guide and assist people in making their decisions while maintaining all options in the choice set.²²⁰ This framework should be contrasted with mandates, which require or prohibit certain behaviors, and are generally backed by sanctions that are applied to those who violate them.²²¹ Thus, for example, traffic regulations requiring the use of a seatbelt or prohibiting exceeding a certain speed are mandates, whereas road designs that make use of people's cognitive setup and cause them to think they are accelerating (and consequently to reduce their speed) are nudges.²²²

Numerous jurisdictions have examined the possibility of putting nudges at the forefront of their regulatory response to the pandemic.²²³ Such regulation would focus on providing people with clear and simple information, which would help foster social distancing, while sustaining individual choice. Examples for such measures include recommendations to stay at home, attempts to create hand washing habits, and advice regarding social interactions.²²⁴

While countries adopted a wide range of legal responses to the pandemic, most developed economies opted for mandates rather than nudges.²²⁵ Countries shut down significant parts of their economies and limited public gatherings.²²⁶ In addition, broad travel restrictions were implemented.²²⁷ International borders were closed, and stay-at-home orders were put in place.²²⁸ Individuals infected by the virus were put in isolation, and those who were exposed to it were required to quarantine.²²⁹ These mandates were backed by significant penalties and were vigorously enforced.²³⁰

²²⁰See Cass R. Sunstein, *The Ethics of Nudging*, 32 YALE J. REG. 413, 417 (2015) (“a nudge must fully preserve freedom of choice”).

²²¹See Curley et al., *supra* note 28 (describing enforcement mechanisms attached to COVID-19 mandates, such as jail time or fines).

²²²See Thaler, Sunstein & Balz, *supra* note 19, at 433–34 (describing the means used in Chicago's Lake Shore Drive).

²²³Three notable examples are the United Kingdom in the initial stage of the pandemic, the Netherlands, and Sweden. See Robert Hutton, *Keep Calm and Wash Your Hands: Britain's Strategy to Beat Virus*, BLOOMBERG (March 11, 2020, 7:41 AM), <https://www.bloomberg.com/news/articles/2020-03-11/keep-calm-and-wash-your-hands-britain-s-strategy-to-beat-virus> [<https://perma.cc/6F3S-9MWN>] (describing the British reliance on nudges); Anne Meuwese, *The Disjointed Dutch Policies to Fight COVID-19*, THE REGULATORY REVIEW (May 18, 2020), <https://www.theregreview.org/2020/05/18/meuwese-disjointed-dutch-policies-fight-covid-19/> [<https://perma.cc/EN8W-UU8U>] (describing the role of soft law, advice and guidelines in the Netherlands); Josh Michaud, *Sweden's Coronavirus Strategy Should Not Be the World's*, FOREIGN AFFAIRS (May 20, 2020), <https://www.foreignaffairs.com/articles/sweden/2020-05-20/swedens-coronavirus-strategy-should-not-be-worlds> [<https://perma.cc/7EUF-CLH7>] (describing the Swedish policies).

²²⁴See Matt Hancock, Sec'y of State, Dep't of Health and Soc. Care, *Controlling the Spread of COVID-19: Health Secretary's Statement to Parliament* (Mar. 16, 2020), <https://www.gov.uk/government/speeches/controlling-the-spread-of-covid-19-health-secretarys-statement-to-parliament> [<http://web.archive.org/web/20210315034158/https://www.gov.uk/government/speeches/controlling-the-spread-of-covid-19-health-secretarys-statement-to-parliament>] (“[W]e are advising people against all unnecessary social contact with others and all unnecessary travel.”); Hutton, *supra* note 221 (promoting a hand-washing habit); *Public Gatherings*, PUB. HEALTH AGENCY OF SWED., <https://www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/communicable-disease-control/covid-19/public-gatherings/> [<https://perma.cc/5K6N-CTS4>] (publishing “recommendation[s] for private events such as weddings, parties and funerals”).

²²⁵See, e.g., Hale et al., *supra* note 6, at 3 (describing the “common measures” used by governments around the world).

²²⁶*Id.*

²²⁷*Id.*

²²⁸*Id.* at 21–22.

²²⁹Wendy E. Parmet & Michael S. Sinha, *Covid-19 – The Law and Limits of Quarantine*, 382 NEW ENGLAND J. MED. e28(1), e28(1) (2020) (describing restrictions enacted around the globe).

²³⁰See Michael D. White & Henry F. Fradella, *Policing a Pandemic: Stay-at-Home Orders and What they Mean for the Police*, 45 AM. J. CRIM. JUSTICE 702, 703 (2020) (in the United States violations of the mandates are “criminal offense[s] with potential sanctions that range from fines to jail time”).

For numerous reasons, it would be unrealistic to expect nudges to carry the bulk of the legal response to the pandemic. This is especially true for countries that decided to adopt a suppression strategy, which aims to push transmissions of the virus within the population down to zero.²³¹ One problem is the lack of relevant knowledge necessary to craft concrete nudges geared towards the specific goals during the pandemic (e.g., maintaining social distance, wearing face masks, quarantining after exposure). The situation regulators faced in late 2019 and early 2020 was unprecedented, and the ability to extrapolate policies from existing research was limited. Often, when knowledge is scarce, policymakers have time to experiment with new nudges, slowly learning what works through experience.²³² Policymakers may, for example, experiment for years before they reach the optimal design of a food label.²³³ This option, however, is problematic in the context of a pandemic because the virus could spread throughout the population during the time of regulatory inaction and experimentation.²³⁴ Mandates, on the other hand, require far less information and can be deployed quickly. Once the required behavior is defined, regulators are only required to put in place an enforcement policy.

Yet, even if behavioral scientists can provide policymakers with timely proposals for concrete nudges, it is unlikely that these interventions could serve as the primary response to a pandemic. Nudges are often considered effective when researchers can detect a *statistically significant* change of behavior between subjects who are treated by the nudge and a control group.²³⁵ Note, however, that statistical significance is a term of art, denoting only that the probability is 0.05 or less that one would not see the given results (e.g., differences between two groups), or results that are more extreme, assuming that groups are sampled at random.²³⁶ Significance testing does not mean that a treatment effect was large, widespread, or clinically meaningful; statistically significant findings could indicate a large change among a small subgroup of people, or an infinitesimal change among a very large group of people.²³⁷ In order to decide whether a policy nudge is worthwhile, the size of an effect matters too.

A recent systematic review covering 100 studies and including 317 effect sizes showed that nudges have a median relative effect size of twenty-one percent,²³⁸ which is typically considered small.²³⁹ This figure probably overstates the actual number given a well-known publication bias in academic journals, which favor publishing studies in which an effect was documented.²⁴⁰ In fact, a recent examination of

²³¹See FERGUSON ET AL., *supra* note 35, at 3.

²³²See DAVID HALPERN, *INSIDE THE NUDGE UNIT: HOW SMALL CHANGES CAN MAKE A BIG DIFFERENCE* 266–99 (2015).

²³³See Christopher Mayes, *Governing Through Choice: Food Labels and the Confluence of Food Industry and Public Health Discourse to Create ‘Health Consumers’*, 12 SOC. THEORY & HEALTH 376, 381 (2014).

²³⁴For an evaluation of the death caused by the delayed response in the US, see Sen Pei, Sasikiran Kandula & Jeffery Shaman, *Differential Effects of Intervention Timing on COVID-19 Spread in the United States*, 1 (May 29, 2020) (preprint), <https://www.medrxiv.org/content/10.1101/2020.05.15.20103655v2.full.pdf> [<https://perma.cc/G3QG-T636>].

²³⁵See Dennis Hummel & Alexander Maedche, *How Effective Is Nudging? A Quantitative Review on the Effect Sizes and Limits of Empirical Nudging Studies*, 80 J. BEHAV. & EXPERIMENTAL ECON. 47, 51 (2019) (describing the difference between statistical significance and magnitude).

²³⁶The threshold of a 0.05 probability uses the standard $\alpha = 0.05$, which is the threshold most commonly used in the social sciences. See REX B. KLINE, *BEYOND SIGNIFICANCE TESTING: STATISTICS REFORM IN THE BEHAVIORAL SCIENCES* 95–96 (2d ed. 2013).

²³⁷See *id.* at 105, 110.

²³⁸See Hummel & Maedche, *supra* note 233, at 48, 53.

²³⁹JACOB COHEN, *STATISTICAL POWER ANALYSIS FOR THE BEHAVIORAL SCIENCES* 25 (2d ed. 1988).

²⁴⁰See Hummel & Maedche, *supra* note 233, at 54 (noting that due to the publication bias this result reflects an “upper bound”).

nudges implemented in the field found that their effect size was only 1.4%.²⁴¹ Furthermore, the most effective nudge that pushes the effect size upward is the default effect,²⁴² which arguably has fewer applications in the COVID-19 context. So, even if some nudges may prove effective, the overall results suggest that their effect size is often simply insufficient during a deadly pandemic, especially for a jurisdiction adopting a suppression strategy.²⁴³

Finally, no matter how expertly behavioral scientists design nudges, these interventions are unlikely to work as the main regulatory response to a deadly infectious disease. Individual choices in the context of a pandemic entail significant *negative externalities*.²⁴⁴ That is, individuals carrying the virus pose a risk not only for themselves, but also for those whom they might infect, and other people who are consequently infected further downstream.²⁴⁵ Furthermore, when the healthcare system reaches capacity, any sick patient impacts the level of care that other patients receive (and in extreme situations, could result in scarcity and care denials).²⁴⁶ One study estimated that the social cost associated with each additional COVID-19 infection may be as high as \$576,000, whereas the private cost internalized by decision makers is only \$80,000.²⁴⁷

Choice-preserving regulation may be useful in cases where the regulator wishes to help people make choices that are in their own best interests. In areas such as dieting, saving for retirement, or choosing financial products, a nudge might improve the choices people make, and will therefore be embraced by those people.²⁴⁸ The response to an infectious disease, however, is a collective action problem—many people might decide that it is in their own best interest to ignore the nudge, creating negative externalities that, in the case of COVID-19, will prove fatal. Consequently, the likelihood that such nudges will prevail over time, certainly among the entire population, is low.²⁴⁹

IV. THE DESIRABLE ROLE OF NUDGES

The previous Part demonstrated that mandates rather than nudges should be, and in fact were, the primary legal tool utilized in the face of a major pandemic. Nudges can, however, still make useful contributions to the governmental response to COVID-19. This Part highlights the conditions in which regulators could turn to nudges, and will review some of the nudges put in place in response to the current pandemic.

²⁴¹ See Stefano DellaVigna & Elizabeth Linos, *RCTs to Scale: Comprehensive Evidence from Two Nudge Units 2* (Nat'l Bureau of Econ. Research, Working Paper No. 27594, 2020).

²⁴² See Hummel & Maedche, *supra* note 233, at 54–55.

²⁴³ To be sure, the impact of mandates on behavior critically hinges on their enforcement. To the extent jurisdictions cannot enforce mandates effectively, their efficacy could be significantly curtailed.

²⁴⁴ See Zachary A. Bethune & Anton Korinek, *Covid-19 Infection Externalities: Trading Off Lives vs. Livelihoods 2* (Nat'l Bureau of Econ., Working Paper No. 27009, 2020), <https://www.nber.org/papers/w27009> (“[W]hen infected individuals engage in social or economic activity, they impose significant externalities on those with whom they interact.”).

²⁴⁵ See Bianca Nogrady, *What the Data Say About Asymptomatic COVID Infections*, 587 NATURE 534, 534 (2020).

²⁴⁶ See Bryn Nelson, *Too Little or Too Much? Missing the Goldilocks Zone of Hospital Capacity During Covid-19*, BMJ, June 16, 2020, at 1.

²⁴⁷ Bethune & Korinek, *supra* note 242, at 1, 4.

²⁴⁸ See, e.g., Bucher et al., *supra* note 215, at 2252.

²⁴⁹ Cass Sunstein, a devout proponent of nudges, also acknowledges that in cases involving negative externalities “choice-preserving approaches might well prove inadequate.” See Cass R. Sunstein, *Nudges that Fail*, 1 BEHAV. PUB. POL’Y 4, 7 (2017).

A. NUDGES: SECOND-BEST SUBSTITUTES OR COMPLEMENTS

At times, nudges might *substitute* mandates. Policymakers may opt to use a nudge even though welfare could be enhanced by using mandates because there are constraints that limit their ability to put an effective mandate in place. This could be the case in situations in which constitutional rules prohibit certain types of legislation. In Japan, for example, much of the country's response to the pandemic was driven by strict constitutional restrictions that limited the government's ability to enact mandates.²⁵⁰ Consequently, the Japanese government put in place a framework of soft regulation based on nudges and requests.²⁵¹

Substitution might also arise due to political constraints, even when policymakers are legally allowed to enact mandates. If the mandate generates significant opposition, then a nudge might be a useful compromise, which could be better than doing nothing.²⁵² Note, however, that the availability of nudges on the political menu might undermine policymakers' ability or motivation to push forward the first-best necessary regulation (i.e., mandates).²⁵³ In such cases, low-cost and choice-preserving nudges might end up substituting much needed and more effective mandates, simply because they are an easier political option.²⁵⁴

In the context of COVID-19, nudges functioned as a substitute in some areas that required a delicate balance between competing values. Religious institutions, for example, pose a significant transmission risk,²⁵⁵ but also play a critical role in the lives of many communities. In the United States, the Supreme Court upheld early restrictions on churches and other religious institutions.²⁵⁶ But several months later, the Court shifted its view and barred states including New York, Colorado, California, and New Jersey from imposing limits on religious gatherings.²⁵⁷ Many states independently declined to regulate religious institutions or carved out exemptions.²⁵⁸ With this backdrop,

²⁵⁰See Susumu Cato et al., Inst. of Soc. Sci., U. Tokyo, *The Effect of Soft Government Directives About COVID-19 on Social Beliefs in Japan 2* (2020) (preprint research report), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3577448 [<https://perma.cc/9SCC-TW8L>] (noting that in Japan, there "have been no lockdown measures analogous to those in East Asia, much of Europe, and many U.S. states, because the national and local governments lack the constitutional authority to enforce business closures or shelter-in-place orders").

²⁵¹See *id.* ("[T]he Japanese government has been limited to requests, nudges, and appeals to social obedience.").

²⁵²See Sunstein, *supra* note 247, at 19.

²⁵³See David Hagmann, Emily H. Ho & George Loewenstein, *Nudging Out Support for a Carbon Tax*, 9 NATURE CLIMATE CHANGE 484, 488 (2019) (reporting experimental results suggesting that nudges "can backfire by reducing the likelihood that the most effective policies will be implemented").

²⁵⁴See ZAMIR & TEICHMAN, *supra* note 15, at 177 (discussing the regulatory substitution effect).

²⁵⁵See Sayed A. Quadri, *COVID-19 and Religious Congregations: Implications for Spread of Novel Pathogens*, 96 INT'L J. INFECTIOUS DISEASES 219, 219 (2020) (noting that religious gatherings "could serve as a potential focal point for dispersal of novel pathogens").

²⁵⁶See *South Bay United Pentecostal Church v. Newsom*, 140 S. Ct. 1613, 1613–14 (2020) (Roberts, J., concurring) (upholding California's limitation on religious institutions); *Calvary Chapel Dayton Valley v. Sisolak*, 140 S. Ct. 2603, 2603 (2020) (denying certiorari in a similar case arising in Nevada).

²⁵⁷See, e.g., *South Bay United Pentecostal Church v. Newsom*, 141 S. Ct. 716, 716 (2021) (barring California from enforcing a prohibition on indoor worship services); *High Plains Harvest Church v. Polis*, 141 S. Ct. 527, 527 (2020) (suspending a Colorado regulation capping attendance in houses of worship); *Roman Catholic Diocese of Brooklyn v. Cuomo*, 141 S. Ct. 63, 74 (2020) (barring New York from enforcing limits on attendance at worship services); *Robinson v. Murphy*, 141 S. Ct. 972, 972 (2020) (suspending a capacity limit on houses of worship in New Jersey).

²⁵⁸See Virginia Villa, *Most States Have Religious Exemptions to COVID-19 Social Distancing Rules*, PEW RESEARCH CTR.: FACTTANK (Apr. 27, 2020), <https://www.pewresearch.org/fact-tank/2020/04/27/most-states-have-religious-exemptions-to-covid-19-social-distancing-rules/> [<https://perma.cc/S7MN-7RGN>].

guidelines and nudges might serve as useful substitutes for mandates, helping lower the risk of transmission.²⁵⁹

Alternatively, nudges can serve as *complements* to a regulatory regime that is based on mandates. The traditional rational-choice model predicts that punishing violators creates specific and general deterrence, which in turn reduce the level of undesirable activity.²⁶⁰ According to this model, sanctions and enforcement efforts geared toward detecting violations are the key tools that policymakers have at their disposal.²⁶¹ A rich body of behavioral research suggests, however, that a wide range of additional factors impact people's decisions whether to obey the law.²⁶² Issues such as social norms, subjective perceptions of probabilities, and the fairness of the legal system, all influence compliance.²⁶³ Building on this body of research, behavioral scientists can guide policymakers with respect to the tools that may serve to bolster compliance with the mandates put in place. Thus, for example, while the payment of taxes is mandatory and is backed by a robust set of sanctions for noncompliance, policymakers could still utilize nudges to elevate the level of voluntary payment.²⁶⁴

Shifting to COVID-19, many of the public health mandates imposed by regulators are self-enforcing or simple to enforce. When countries close down their own borders, public schools, or other governmental services, noncompliance is generally unavailable. Similarly, enforcing a lockdown of major businesses poses less of a challenge, since deviations are easily detected, and sanctions can be swiftly applied. In fact, aggressive measures taken by governments quickly closed down the occasional rogue private school that opened,²⁶⁵ or the defiant restaurant that opened for in-house dining.²⁶⁶

Other public health rules, however, are harder to enforce. Mandates relating to behaviors such as maintaining a proper distance from other people or wearing face masks in public are difficult for governments to enforce.²⁶⁷ Some of these rules include

²⁵⁹See *id.* (noting that in states that carved out religious exemptions to their regulations some churches chose to follow CDC guidelines).

²⁶⁰This is the main framework within the traditional economic analysis of criminal law. See Gary S. Becker, *Crime and Punishment: An Economic Approach*, 76 J. POL. ECON. 169, 204 (1968). For a later review, see STEVEN SHAVELL, FOUNDATIONS OF ECONOMIC ANALYSES OF LAW 473–530 (2004).

²⁶¹See Becker, *supra* note 258, at 204.

²⁶²For an overview of the literature, see ZAMIR & TEICHMAN, *supra* note 15, at 433–455.

²⁶³See, e.g., Ehud Guttel & Alon Harel, *Uncertainty Revisited: Legal Prediction and Legal Postdiction*, 107 MICH. L. REV. 467, 470 (2008) (probability estimates); Janice Nadler, *Flouting the Law*, 83 TEX. L. REV. 1399, 1409–10 (2005) (fairness of the law); Jessica M. Nolan et al., *Normative Social Influence Is Underdetected*, 34 PERSONALITY & SOC. PSYCHOL. BULL. 913, 920 (2008) (social norms).

²⁶⁴See, e.g., HALPERN, *supra* note 230, at 91.

²⁶⁵See, e.g., Luke Kenton, *Cops Shut Down Illicit Orthodox Brooklyn Yeshiva School Where More than 100 Children Without Masks Were Taking Classes While the Rest of the City Is on Lockdown*, DAILY MAIL (May 19, 2020, 11:40 AM), <https://www.dailymail.co.uk/news/article-8336051/NYPD-cops-60-children-taking-classes-Brooklyn-Orthodox-school-despite-coronavirus-lockdown.html> [<https://perma.cc/XL89-TXR8>].

²⁶⁶See, e.g., Erica Evans, *Defying Lockdown Orders: Here's Why These Business Owners Decided to Break the Rules and Open Up*, DESERT NEWS (May 17, 2020, 10:00 PM), <https://www.deseret.com/indepth/2020/5/17/21256650/coronavirus-covid-19-lockdown-orders-california-pennsylvania-business-owners-reopen-restaurants> [<https://web.archive.org/web/20201019182713/https://www.deseret.com/indepth/2020/5/17/21256650/coronavirus-covid-19-lockdown-orders-california-pennsylvania-business-owners-reopen-restaurants>].

²⁶⁷See, e.g., Lauren Zumbach, *Illinois Wants All Shoppers to Wear Masks at the Grocery Store. Enforcing that Rule Is Trickier*, CHI. TRIB. (Apr. 24, 2020), <https://www.chicagotribune.com/coronavirus/ct-coronavirus-illinois-grocery-stores-face-masks-enforcement-20200423-meguzf23ffa65ddr7tei22z6fm-story.html> [<https://web.archive.org/web/20200714190554/https://www.chicagotribune.com/coronavirus/ct-coronavirus-illinois-grocery-stores-face-masks-enforcement-20200423-meguzf23ffa65ddr7tei22z6fm-story.html>] (difficulty enforcing facemask mandate); Luke Money, *Orange County Authorities Won't Enforce Mask Requirement: 'We Are Not the Mask Police'*, L.A. TIMES (May 26, 2020, 3:48 PM), <https://www.latimes.com/california/story/2020-05-26/orange-county-sheriff-wont-enforce-mask-requirement> [<http://web.archive.org/web/20210302161629/https://www.latimes.com/california/story/2020-05-26/orange-county-sheriff-wont-enforce-mask-requirement>] (same).

exemptions that invite elaborate circumvention (e.g., taking a fish for a walk when the rules permit taking pets for walk).²⁶⁸ Once limitations apply to behavior within the home, enforcement might be possible only in cases of exceptionally flagrant violations. Further, some very important forms of behavior, such as hand washing, simply cannot be regulated effectively by the state. While governments may try to bolster deterrence by escalating sanctions, such a policy has significant limitations.²⁶⁹ Thus, policymakers might wish to make use of insights from behavioral economics to complement mandates and bolster voluntary compliance.

B. USING NUDGES IN THE COVID-19 RESPONSE

After highlighting the functions of nudges within a regulatory framework, this Subsection reviews several examples in which behavioral insights contributed to the legal response to COVID-19. As noted above,²⁷⁰ the claims in this Subsection are theory-driven, but speculative, and should therefore be read with caution. The goal of this review is to open and frame a critical discussion that will be enriched as scientists identify and test COVID-19 nudges over time.

1. Behaviorally Informed Messaging

Public messaging—communicating with the general public—is one way to promote compliance using psychological mechanisms rather than incentives. Behavioral insights can help policymakers convey their message more effectively. Just as firms competing in the market or political candidates battling a campaign use psychological insights when designing their messages,²⁷¹ so should regulators during a pandemic. Fields such as marketing, communications, and organizational behavior have made long strides in this area, but we contribute a few insights here from behavioral economics.

Since human attention is a scarce resource, policymakers face a challenge if they want their messages to be noticed, to be understood, and to elicit the desired response. At the broadest level, much like in other contexts of mass communication, effective messages must be “concrete, straightforward, simple, meaningful, timely, and salient.”²⁷² This very general framework has been successfully applied in areas such as energy efficiency and preventative health care.²⁷³

Numerous leaders have used behaviorally informed messaging during the pandemic. In New York state, for example, the message: “*Stay Home, Stop the Spread,*

²⁶⁸See Lauren M. Johnson, *To Get Around Stay-At-Home Orders, Spaniards Have Been Walking Some Unusual 'Pets'*, CNN (Apr. 24, 2020, 6:27 PM), <https://www.cnn.com/2020/04/24/world/spanish-residents-walking-pets-trnd/index.html> [<https://perma.cc/H2UC-X6XZ>] (describing the fish incident); see also, Angela Giuffrida, *'This Is Not a Film': Italian Mayors Rage at Virus Lockdown Dodgers*, GUARDIAN (Mar. 23, 2020, 6:56 AM), <https://www.theguardian.com/world/2020/mar/23/this-is-not-a-film-italian-mayors-rage-coronavirus-lockdown-dodgers> [<https://perma.cc/6BS6-UD34>] (describing lock down circumvention in Italy).

²⁶⁹See Nadler, *supra* note 261, at 1404 (highlighting the possibility that “disproportionate punishments can promote lawbreaking among citizens”).

²⁷⁰See *supra* notes 21–26 and accompanying text.

²⁷¹See, e.g., Durairaj Maheswaran & Joan Myers-Levy, *The Influence of Message Framing and Issue Involvement*, 27 J. MARKETING RES. 361, 361–62 (1990); Tversky & Kahneman, *supra* note 65, at 453, 456.

²⁷²Sunstein, *supra* note 211, at 729.

²⁷³See, e.g., J. S. Blumenthal-Barby & Hadley Burroughs, *Seeking Better Health Care Outcomes: The Ethics of Using the “Nudge”*, AM. J. BIOETHICS, Feb. 2012, at 4 (discussing salience in the context of health care); Christian Schubert, *Green Nudges: Do They Work? Are They Ethical?*, 132 ECOLOGICAL ECON. 329, 332 (2017) (discussing eco-labeling).

Save Lives” was used consistently.²⁷⁴ In the United Kingdom, a similar message that incorporated a reference to nationally cherished institution—“*Stay Home, Protect the NHS, Save Lives*”—was the centerpiece of governmental communications.²⁷⁵ These messages are short, simple, and convey concretely what is required of people (i.e., stay home) and why it is required (i.e., support health care workers and save lives). Consequently, they have been described as “one of the most successful communications in modern political history.”²⁷⁶ Furthermore, this simple wording was often coupled with a visual design that was geared to make it more vivid, which likely bolstered the impact of the message.²⁷⁷ In the United Kingdom, for example, the message appeared in front of the Prime Minister’s podium during his press briefings, and the eye-catching design included a yellow background, black lettering, and red arrows.²⁷⁸

Behavioral insights could also offer guidance about how to frame governmental messages aimed at boosting compliance. A case in point for the COVID-19 response is whether to emphasize people’s self-interest or societal interests when trying to promote compliance with social distancing rules. From a rational choice perspective, this is a no-brainer. According to the assumptions of the rational choice model, people are expected to care foremost about themselves rather than about others.²⁷⁹ Thus, the most effective message should focus on the benefits associated with not catching the virus, rather than the benefits tied to not spreading it to others. A large body of behavioral studies, however, has demonstrated that people’s behavior is influenced by pro-social motivations.²⁸⁰ People cooperate with others voluntarily in non-cooperative games such as the prisoners’ dilemma,²⁸¹ share resources with others in an egalitarian fashion,²⁸² and willingly forgo income to punish people who deviate from such pro-social norms.²⁸³ This body of work suggests that using pro-social messaging might be an effective way to promote compliance with COVID-19 restrictions. This may be especially true with respect to the younger population, which faces significantly lower personal risk in the case of illness.²⁸⁴

Preliminary studies have confirmed the effectiveness of pro-social messaging for promoting precautions against COVID-19.²⁸⁵ One such study found that in the early

²⁷⁴ See Carmine Gallo, *Finding the Right Words in a Crisis*, HARV. BUS. REV., (Apr. 17, 2020), <https://hbr.org/2020/04/finding-the-right-words-in-a-crisis> [<https://perma.cc/D8FH-4VFY>].

²⁷⁵ See Christopher Hope & Hayley Dixon, *The Story Behind ‘Stay Home, Protect the NHS, Save Lives’ - the Slogan that Was ‘Too Successful’*, TELEGRAPH (May 1, 2020, 7:06 PM), <https://www.telegraph.co.uk/politics/2020/05/01/story-behind-stay-home-protect-nhs-save-lives/> [<https://perma.cc/F3AA-EQ7P>].

²⁷⁶ See *id.* (alluding to the British message).

²⁷⁷ See, e.g., ZAMIR & TEICHMAN, *supra* note 15, at 34–36 (describing how vividness and other factors increase the availability effect).

²⁷⁸ See Hope & Dixon, *supra* note 273.

²⁷⁹ ZAMIR & TEICHMAN, *supra* note 15, at 9–10.

²⁸⁰ For a review, see Simon Gächter, *Human Prosocial Motivation and the Maintenance of Social Order*, in *supra* note 133, at 28.

²⁸¹ See, e.g., Martijn J. van den Assem, Dennie van Dolder & Richard H. Thaler, *Split or Steal? Cooperative Behavior When the Stakes Are Large*, 58 MGMT. SCI. 2, 3 (2012).

²⁸² See Christoph Engel, *Dictator Games: A Meta Study*, 14 EXPERIMENTAL ECON. 583, 606 (2011).

²⁸³ See Ernst Fehr & Simon Gächter, *Altruistic Punishment in Humans*, 415 NATURE 137, 138 (2002).

²⁸⁴ See Bonell et al., *supra* note 14, at 1 (“‘Protect yourself’ messages will have limited overall impact among the general public because many consider themselves at low risk of severe consequences from COVID-19 infection.”).

²⁸⁵ See, e.g., Jean-Philippe Gouin et al., *Socio-Demographic, Social, Cognitive, and Emotional Correlates of Adherence to Physical Distancing During the COVID-19 Pandemic: A Cross-sectional Study*, 112 CANADIAN J. PUB. HEALTH 17, 22 (2020) (finding that perceived benefits to others was a significant predictor of adherence to social distancing rules whereas perceived susceptibility to the risks of the virus was not); Stefan Pfattheicher et al., *The Emotional Path To Action: Empathy Promotes Physical Distancing During the COVID-19 Pandemic*, 31 PSYCHOL. SCI. 1363, 1367 (2020) (finding that inducing empathy for those most vulnerable to the virus promotes the motivation to adhere to physical distancing).

stages of the pandemic, a public service announcement focusing on public (other-regarding) benefits was more effective than a message focusing on personal (self-regarding) benefits, and no less effective than a message focusing on both.²⁸⁶ A second identical experiment conducted later during the pandemic showed that the different messages had similar effects, but still suggested that the perceived threat of COVID-19 to the public predicted prevention intentions more strongly than the perceived threat to the individual decision maker.²⁸⁷

Another psychological dimension that could help bolster compliance with public health regulation is the *identifiability* of the victims. Psychological literature shows that people put more weight on the value of an *identifiable* life as opposed to an *unidentifiable statistical* life.²⁸⁸ Merely adding a picture and a name to a message could significantly impact people's willingness to engage in prosocial behavior.²⁸⁹ This is why people will agree to spend tremendous amounts of money to save an identifiable person in peril, while failing to invest in preventative measures that would save many more (unknown) lives.²⁹⁰ Charities routinely construct their messaging based on this insight, and focus their fundraising campaign on an individual story rather than on the broader picture.²⁹¹

These findings suggest that humanizing the messages calling for public health precautions could improve willingness to comply. Thus, the effectiveness of messages regarding protecting health care workers or saving the lives of at-risk populations could be bolstered by incorporating names and pictures of individual clinicians or patients. One preliminary study conducted in Ireland demonstrated that when experimenters led subjects to think of concrete people as potential victims of coronavirus infection, subjects were more willing to adopt some precautions.²⁹² Beyond simply naming individuals, “narrative framing” approaches—telling stories with identifiable characters to illustrate important information—function by eliciting the feeling of relationships with characters, reducing negative cognitive reactions by eliciting a “pleasurable mental state,” and increasing the realism of information.²⁹³ These mechanisms suggest that more detailed individual stories with real or relatable characters may be effective for communicating COVID-19 public health information. Narrative approaches may also reduce culturally polarized responses among listeners.²⁹⁴

Finally, policymakers in later stages of the pandemic may adopt messages that capitalize on the *sunk costs effect*, a phenomenon that stems from loss aversion.²⁹⁵ The sunk costs effect occurs when people who have made past investments in a project

²⁸⁶ See Jordan et al., *supra* note 26, at 9, 12 (studies 1 and 2).

²⁸⁷ See *id.* at 10 (study 2).

²⁸⁸ For an overview, see Daphna Lewinsohn-Zamir, Ilana Ritov & Tehila Kogut, *Law and Identifiability*, 92 IND. L.J. 505, 509–19 (2017).

²⁸⁹ See, e.g., Tehila Kogut & Ilana Ritov, *The Singularity Effect of Identified Victims in Separate and Joint Evaluations*, 97 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESS 106, 109 (2005).

²⁹⁰ See Karen E. Jenni & George Loewenstein, *Explaining the “Identifiable Victim Effect”*, 14 J. RISK & UNCERTAINTY 235, 235 (1997).

²⁹¹ See Lewinsohn-Zamir, Ritov & Kogut, *supra* note 286, at 537 (“Charitable organizations commonly employ this approach, by featuring a single victim on their posters.”).

²⁹² See Peter D. Lunn et al., *Motivating Social Distancing During the Covid-19 Pandemic: An Online Experiment*, 265 SOC. SCI. & MED., no. 113478, 2020, at 1, 6.

²⁹³ See Nancy Grant Harrington et al., *Message Design Approaches to Health Risk Behavior Prevention*, in HANDBOOK OF ADOLESCENT DRUG USE PREVENTION RESEARCH 381, 386, 391 (Lawrence M. Scheier ed., 2015).

²⁹⁴ See Kahan et al., *supra* note 180, at 170.

²⁹⁵ See ZAMIR & TEICHMAN, *supra* note 15, at 56–57 (reviewing the findings on sunk costs).

are biased towards investing more (even if the project is no longer worthwhile).²⁹⁶ The more significant people believe their prior sacrifices were, the stronger this effect becomes.²⁹⁷

Where it is necessary to prolong or reinstate costly measures like lockdowns, this insight may improve compliance. Arguments that invoke the public's fear of losing or wasting the progress they made during the lockdown might prove persuasive. In fact, paradoxically, the *costlier* lockdowns have been, the *more persuasive* sunk costs arguments are likely to be in maintaining them over a long period of time. For example, Scotland's first minister Nicola Sturgeon used sunk costs messaging to ask the public to continue staying home: "We mustn't squander our progress by easing up too soon,"²⁹⁸ and "[W]e are asking you to stick with lockdown for a bit longer—so that we can consolidate our progress, not jeopardize it."²⁹⁹ Officials elsewhere have used similar rhetoric, highlighting sunk costs to bolster support for ongoing restrictions.³⁰⁰

2. Harnessing Social Norms

A separate type of messaging that could bolster compliance relates to *social norms*. A large body of survey and field experiments have shown that people's behavior is unconsciously, but strongly, influenced by what they believe others are doing—more so than by other factors, such as people's own opinion about the desirability of a given behavior.³⁰¹ For example, people tend to contribute more to charity,³⁰² conserve energy,³⁰³

²⁹⁶See generally Hal R. Arkes & Catherine Blumer, *The Psychology of Sunk Cost*, 35 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 124, 124 (1985).

²⁹⁷See *id.* at 128 (finding that participants randomly assigned to pay full price for theater tickets attended more plays than those who had randomly paid a discounted price, because the sunk costs in the former group were higher).

²⁹⁸Hannah Hagemann, *Boris Johnson Outlines Plan to Ease Coronavirus Restrictions in England*, NAT'L PUB. RADIO (May 29, 2020, 9:29 PM), <https://www.npr.org/sections/coronavirus-live-updates/2020/05/10/853538566/boris-johnson-outlines-plan-to-ease-coronavirus-restrictions-in-u-k> [<https://perma.cc/3XT5-CEGU>].

²⁹⁹Jill Lawless, *UK U-Turns on Masks as Lockdown-Easing Steps Spark Confusion*, ASSOCIATED PRESS (May 11, 2020), <https://apnews.com/a37f44148940f8344ec245b54b58a9ad> [<https://perma.cc/3Y9M-RN32>].

³⁰⁰Joshua Chaffin, *New York Poised to Being Reopening as New Virus Cases Fall*, FIN. TIMES (May 11, 2020), <https://www.ft.com/content/f8d44024-ea4d-4d9a-ae21-80b9bb3e6db5> [<https://perma.cc/4Q3B-PYEL>] (Cuomo warning "against squandering the two months of sacrifice that have been required to bring the virus under control"); Mackenzie Wicker, *Don't Want to Waste the Sacrifices We've Made': Buncombe Officials Address 'Reopen' Protests*, CITIZEN TIME (Apr. 20, 2020, 4:52 PM), <https://www.citizen-times.com/story/news/local/2020/04/20/coronavirus-buncombe-health-officials-address-reopen-protests/5164350002/> [<https://perma.cc/8LUK-RPY3>] ("[W]e don't want to waste the sacrifices we've made in our community by opening too early or too quickly."); John Woolfolk, *Coronavirus Q&A: Sara Cody on Testing, Overreacting, and When the County Will Reopen*, MERCURY NEWS (May 5, 2020, 4:46 AM), <https://www.mercurynews.com/2020/05/04/coronavirus-qa-santa-clara-county-health-officer-sara-cody-not-going-to-squander-the-sacrifices> [<https://web.archive.org/web/20210308202553/https://www.mercurynews.com/2020/05/04/coronavirus-qa-santa-clara-county-health-officer-sara-cody-not-going-to-squander-the-sacrifices/>] ("With the economic and social destruction everyone's endured, I for one am not going to squander the sacrifices everyone's made.").

³⁰¹See, e.g., Jessica M. Nolan et al., *Normative Social Influence Is Underdetected*, 34 PERSONALITY & SOC. PSYCHOL. BULL. 913, 920–21 (2008); Noah Goldstein, Robert B. Cialdini & Vladas Griskevicius, *A Room with a Viewpoint: Using Social Norms to Motivate Environmental Conservation in Hotels*, 35 J. CONSUMER RES. 472, 474–75 (2008).

³⁰²See, e.g., Bruno S. Frey & Stephan Meier, *Social Comparisons and Pro-social Behavior: Testing "Conditional Cooperation" in a Field Experiment*, 94 AM. ECON. REV. 1717, 1718 (2004).

³⁰³See, e.g., Ian Ayres, Sophie Raseman & Alice Shih, *Evidence from Two Large Field Experiments that Peer Comparison Feedback Can Reduce Residential Energy Usage*, 29 J. LAW ECON. & ORG. 992, 1015 (2013).

and pay taxes,³⁰⁴ because of the social elements in play rather than because of material factors (e.g., fines).³⁰⁵ A key finding in the social norms literature is that people are *conditional cooperators*.³⁰⁶ That is, people are willing to engage in costly pro-social behavior if they know that other members of the community are reciprocating.³⁰⁷ This insight has highlighted two dimensions that affect social interventions. First, behavior should be observable, so people can know that others are cooperating, and so that they may sanction those who do not cooperate.³⁰⁸ For example, listing the names of those who contribute to the public good (rather than listing anonymous ID numbers) was shown to promote cooperation.³⁰⁹ Second, providing people with information about a compliance norm will elevate their willingness to comply.³¹⁰ For instance, hotel guests were nine percent more likely to reuse their towel if told “Almost seventy-five percent of guests who are asked to participate in our new resource savings program do help by using their towels more than once,” as opposed to a generic message “Help Save the Environment.”³¹¹

Social norms could also play a role in promoting compliance with COVID-19 precautions.³¹² Preliminary empirical findings from several countries suggest that the perceived compliance of others corresponds with greater self-reported compliance with COVID-19 prevention rules.³¹³ These studies further show that the traditional factors of deterrence theory—the probability of detection and the sanction if caught—may not play a significant role in people’s compliance decisions.³¹⁴ These findings suggest that policymakers should convey the message that compliance with precautions is already

³⁰⁴See, e.g., Bruno S. Frey & Benno Torgler, *Tax Morale and Conditional Cooperation*, 35 J. COMP. ECON. 136, 138 (2007).

³⁰⁵See Gordon T. Kraft-Todd et al., *Promoting Cooperation in the Field*, 3 BEHAV. SCI. 96, 98 (2015) (reviewing the literature and concluding that “Social Interventions seem to be more effective than Cost–Benefit Interventions”).

³⁰⁶See Urs Fischbacher, Simon Gächter & Ernst Fehr, *Are People Conditionally Cooperative? Evidence from a Public Goods Experiment*, 71 ECON. LETTERS 397, 403 (2001). For a later review, see Christian Thöni & Stefan Volk, *Conditional Cooperation: Review and Refinement*, 171 ECON. LETTERS 37 (2018).

³⁰⁷See Fischbacher et al., *supra* note 304, at 397.

³⁰⁸See Kraft-Todd et al., *supra* note 303, at 98 (“Making one’s contribution decision observable by others has consistently been found to increase cooperation.”).

³⁰⁹See Erez Yoeli et al., *Powering Up with Indirect Reciprocity in a Large Field Experiment*, 110 PROC. NAT’L ACAD. SCI. 10424, 10426 (2013).

³¹⁰See Kraft-Todd et al., *supra* note 304, at 98 (“People are more likely to cooperate when they are told that others have cooperated, implying that cooperation is the social norm.”).

³¹¹See Goldstein, Cialdini & Griskevicius, *supra* note 299, at 473–75.

³¹²See Van Bavel et al., *supra* note 14, at 463.

³¹³Benjamin van Rooij et al., *Compliance with COVID-19 Mitigation Measures in the United States* 26 (Amsterdam L. Sch., Research Paper No. 2020-21, 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3582626 [<https://perma.cc/XNV8-534H>] (reporting on data suggesting that “[t]he more Americans see others comply, the more likely they are to follow suit”); see Malouke Esra Kuiper et al., *The Intelligent Lockdown: Compliance with COVID-19 Mitigation Measures in the Netherlands* (Amsterdam L. Sch., Research Paper No. 2020-20, 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3598215 [<https://perma.cc/UJN8-MFA8>] (same result in the Netherlands); see also Tim Bogg & Elizabeth Milad, *Demographic, Personality, and Social Cognition Correlates of Coronavirus Guideline Adherence in a U.S. Sample*, 39 HEALTH PSYCHOL. 1026, 1030 (2020) (reporting on a correlation between guideline adherence and perceived norms). *But see*, Emmeke Barbara Kooistra et al., *Mitigating COVID-19 in a Nationally Representative UK Sample: Personal Abilities and Obligation to Obey the Law Shape Compliance with Mitigation Measures* 25 (Amsterdam L. Sch., Research Paper No. 2020-19, 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3598221 [<https://perma.cc/BQ9C-LS6R>] (finding no association between compliance with COVID-19 related measures in the United Kingdom and perceived social norms).

³¹⁴See van Rooij et al., *supra* note 311, at 26 (noting that in the United States “[t]he data did not show that deterrence was associated with compliance”); Kuiper et al., *supra* note 311, at 25–26 (noting that in the Netherlands “no relation for severity of deterrence with compliance” was found); Kooistra et al., *supra* note 311, at 25 (noting that in the United Kingdom “[t]he data show no association between deterrence and compliance”).

widespread.³¹⁵ This message could be relayed by sharing images of compliance (e.g., social distancing at a local grocery store) and data (e.g., usage of public transportation statistics) that demonstrate conformity with the norm.³¹⁶ Conversely, when facing flagrant violations of the rules, policymakers should attempt to contain those violations quietly,³¹⁷ rather than expressing their rage on social media as some have done.³¹⁸ In Japan, for example, an initiative to shame pachinko parlors (i.e., shops that offer a form of gambling that is a mixture of pinball and slots, and that tend to draw large crowds), which remained open despite a non-binding call to close, was counterproductive because it drew attention to violators and attracted consumers to them.³¹⁹

Social norms and conditional cooperation can also guide the strategic decision of whether to lock down the economy. At the outset of the pandemic, policymakers' goal was not to achieve change in slow incremental steps, but rather to bring about a swift and immediate change in behavior. To this end, the lockdown itself, along with the imagery that it created, may have facilitated a quick shift in norms. Observing landmarks such as Times Square, Trevi Fountain, the Eiffel Tower, and the Great Wall stand empty, carries a powerful message that business is not as usual.³²⁰ This, in turn, could help facilitate a speedy shift in social norms by vividly (and saliently) illustrating that the vast majority of the public is adhering to a new set of pandemic-related rules. The Dutch Prime Minister used this point when he stated in March that “[m]ost of us comply with the measures, almost all do so [W]hen you see the empty streets, the empty offices, the empty highways, the empty train platforms, I think the message has landed with many people in the country, and many comply with the measures.”³²¹

Finally, leaders (both political and social) can play a central role in fostering (or, regretfully, undermining) cooperative norms. Social norms scholarship often discusses “norm entrepreneurs.”³²² These individuals function as social focal points and can powerfully shift social norms.³²³ More specifically, they can do so by: “(a) signalling their own commitment to change, (b) creating coalitions, (c) making defiance of the norms seem or

³¹⁵This may be less effective, however, in subgroups with countervailing norms (e.g., norms against mask-wearing), in situations where actual compliance is low, or where people already believe that overall compliance is high. See, e.g., Colleen A. Carter & William M. Kahnweiler, *The Efficacy of the Social Norms Approach to Substance Abuse Prevention Applied to Fraternity Men*, 49 J. AM. C. HEALTH 66, 69 (2010) (social norms approach fails to change behavior when people are in a sub-culture with a conflicting norm); Dennis L. Thombs & Monair J. Hamilton, *Effects of a Social Norm Feedback Campaign on the Drinking Norms and Behavior of Division I Student-Athletes*, 32 J. DRUG. EDUC. 227, 241 (2002) (social norms approach fails to change behavior when people already know what their closest friends are doing).

³¹⁶See Bonell et al., *supra* note 14, at 617 (“Images and accounts of widespread population adherence (rather than examples of non-adherence) can persuade ‘conditional co-operators’ (those whose willingness to help others is conditional on being aware of others doing so) to over-ride individual self-interest and to act in the collective interest.”).

³¹⁷See *id.* at 618.

³¹⁸See, e.g., Liam Stack, *De Blasio Breaks Up Rabbi’s Funeral and Lashes Out Over Virus Distancing*, N.Y. TIMES, April 28th, 2020, <https://www.nytimes.com/2020/04/28/nyregion/hasidic-funeral-coronavirus-de-blasio.html> [<https://perma.cc/2AK9-VYM9>] (describing Mayor’s De Blasio social media response to a case of public violation of social distancing rules).

³¹⁹See William Sposato, *Japan’s Halfhearted Coronavirus Measures Are Working Anyway*, FOREIGN POL’Y (May 14, 2020, 4:01 PM), <https://foreignpolicy.com/2020/05/14/japan-coronavirus-pandemic-lockdown-testing/> [<https://perma.cc/6RNE-WMXN>].

³²⁰See Carlie Porterfield, *See Photos of Eerily Deserted Places Around the World as a Result of the Coronavirus*, FORBES (Mar. 23, 2020, 4:20 PM), <https://foreignpolicy.com/2020/05/14/japan-coronavirus-pandemic-lockdown-testing> [<https://perma.cc/TV42-W3CU>].

³²¹See Kuiper et al., *supra* note 311, at 6–7.

³²²For an overview, see David E. Pozen, *We Are All Entrepreneurs Now*, 43 WAKE FOREST L. REV. 283, 305–10 (2008).

³²³See Cass R. Sunstein, *Social Norms and Social Roles*, 96 COLUM. L. REV. 903, 929 (1996).

be less [or more] costly, and (d) making compliance with new norms seem or be more [or less] beneficial.”³²⁴

In recent years, behavioral economists have developed this concept, and documented empirically how leadership can elevate the level of cooperation in public good experiments.³²⁵ The paradigmatic design of such studies requires designated leaders to make a contribution to the public good prior to other players in the game, thus allowing them to lead by example.³²⁶ In one such study conducted in rural Bolivia, local leaders exerted a significant influence over voluntary contributions to a public resource, even without the ability to monitor, sanction, or coerce.³²⁷ More concretely, adding an elected leader to the group increased total contributions by approximately twenty percent.³²⁸ Evidently, by setting a positive example, leaders can reassure members of the community that others will cooperate, and thus facilitate conditional cooperation.

Shifting back to COVID-19, several high-ranking leaders have conspicuously violated social distancing norms. In the United States, President Trump repeatedly refused to wear a face mask,³²⁹ and Vice President Pence similarly visited patients and took pictures with campaign staff unmasked.³³⁰ In Israel, Prime Minister Netanyahu violated public health directives and hosted his son in his house.³³¹ In the United Kingdom, Professor Ferguson, one of the nation’s leading epidemiologists who participated in crafting local COVID-19 policies, was caught violating the lockdown to meet with his lover.³³² The list goes on and on.³³³

The behavioral findings on social norms and conditional cooperation suggest that such behavior might undermine compliance with COVID-19 related regulation.³³⁴ One study from Brazil, for example, estimates that President Jair Bolsonaro’s participation in a demonstration defying public health regulations in March 2020 brought about a

³²⁴*Id.*

³²⁵See, e.g., B. Kelsey Jack & María P. Recalde, *Leadership and the Voluntary Provision of Public Goods: Field Evidence from Bolivia*, 122 J. PUB. ECON. 80, 92 (2015) (field experiment); Simon Gächter et al., *Who Makes a Good Leader? Cooperativeness, Optimism, and Leading-by-Example*, 50 ECON. INQUIRY 953, 964–66 (2012) (lab study).

³²⁶See Michael Eichenseer, *Leading by Example in Public Good Games: What Do We Know?* 2 (Aug. 24, 2019) (working paper), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3441638 [<https://perma.cc/W2TZ-GMW7>] (describing the payoff structure in a public goods game).

³²⁷See Jack & Recalde, *supra* note 323, at 92.

³²⁸*Id.*

³²⁹See Tom Krisher & David Eggert, *Trump Could Violate Ford Face Mask Requirement on Plant Tour*, ASSOCIATED PRESS (May 19, 2020), <https://apnews.com/9ca93f81c2aa227184247b4e19c46e86> [<https://perma.cc/JFF6-RQEG>]. In fact, President Trump has gone beyond mere incompletion, and some of his messages on social media could be read to be encouraging defiance. See Michael D. Shear & Sarah Mervosh, *Trump Encourages Protest Against Governors Who Have Imposed Virus Restrictions*, N.Y. TIMES (Apr. 29, 2020), <https://www.nytimes.com/2020/04/17/us/politics/trump-coronavirus-governors.html> [<https://perma.cc/ZSC8-X2CN>].

³³⁰Rebecca Klar, *Pence Posts, Deletes Photo of Trump Campaign Staff Without Face Masks, Not Social Distancing*, HILL (June 11, 2020, 9:51 AM), <https://thehill.com/homenews/administration/502225-pence-posts-deletes-photo-trump-campaign-staff-without-face-masks-not> [<https://perma.cc/9D3R-CHHS>].

³³¹See Josh Breiner, *Netanyahu Violated Coronavirus Regulations by Meeting Son While Quarantined*, HAARETZ (Apr. 9, 2020), <https://www.haaretz.com/israel-news/.premium-netanyahu-denies-violating-coronavirus-regulations-when-photographed-with-son-1.8754841> [<https://perma.cc/W5WC-SAA3>].

³³²See Ashley Cowburn, *Neil Ferguson: Government Coronavirus Adviser Quits After Home Visits from Married Lover*, INDEPENDENT (May 5, 2020, 9:11 PM), <https://www.independent.co.uk/news/uk/politics/neil-ferguson-resigns-coronavirus-antonia-staats-social-distancing-government-a9500581.html> [<https://perma.cc/A26U-3L7D>].

³³³See, e.g., Siobhán O’Grady, *Top Officials Around the World Keep Getting Caught Breaking Lockdown Rules*, WASH. POST (May 26, 2020, 1:00 AM), <https://www.washingtonpost.com/world/2020/05/06/top-officials-around-world-keep-getting-caught-breaking-lockdown-rules/> [<https://perma.cc/6SB8-9RGY>].

³³⁴See Sibony, *supra* note 18, at 350–55 (comparing the behavior of leaders in numerous countries during March of 2020 and tying it to public behavior).

decrease in social distancing and an increase in COVID-19 cases in municipalities with high concentrations of his supporters.³³⁵ Given the seemingly diminished impact of deterrence considerations on people's COVID-19 prevention decisions, social norms may be acutely important for compliance. Global leaders should realize that with great power comes great responsibility to lead by example—and to adhere to the new norms.

3. Addressing Motivated Reasoning and Partisanship

A central feature of the public response to COVID-19, particularly in the United States, is the political polarization described above.³³⁶ Behavioral research can also help policymakers address cultural cognition, motivated reasoning, and group polarization through scientifically grounded debiasing approaches. These mechanisms are difficult to shift, and are amplified, not decreased, with greater information.³³⁷ But research in this area also holds clues for mitigating partisan responses to scientific information.

Cultural cognition research in particular has yielded insights that could boost the impacts of messaging and public education. One strategy is to increase the public's exposure not only to information, but to information from *speakers* that are perceived to share the listeners' values. When people see their *disfavored* arguments expressed by someone who *shares* their values, and where they see their *favored* arguments expressed by someone who *does not share* their values, listeners display less pronounced group polarization in their responses.³³⁸ Although speakers with such mismatched views may be difficult to identify, this research suggests that they may be effective conduits for information in a culturally polarized environment.³³⁹ Research in the COVID-19 context bears out this insight; as noted above, viewers of the Tucker Carlson program on Fox News saw someone of their own cultural orientation taking the threat of the novel coronavirus seriously, which led to increased adoption of social distancing behavior.³⁴⁰ One analysis of United States governors' messaging on social media found that stay-at-home cues from Republican governors (which promoted a policy that was unpopular among national Republican leaders) were significantly more effective than cues from Democratic governors, in large part because of an "especially responsive" effect in Democratic-leaning counties.³⁴¹ In comparison, as the public's perception of Dr. Fauci altered, aligning him

³³⁵ Lucas Argentieri Mariani, Jessica Gagete-Miranda & Paula Rettl, *Words Can Hurt: How Political Communication Can Change the Pace of an Epidemic*, COVID ECON., May 1, 2020, at 104, 128–29.

³³⁶ See *supra* Section II(B)(5).

³³⁷ See, e.g., Dan M. Kahan et al., *The Polarizing Impact of Science Literacy and Numeracy on Perceived Climate Change Risks*, 2 NATURE CLIMATE CHANGE 732, 732 (2012) (finding that people with greater scientific literacy are most likely to display cultural polarization in their risk perceptions).

³³⁸ Kahan et al., *supra* note 176, at 511.

³³⁹ *Id.* at 512.

³⁴⁰ Bursztyn et al., *supra* note 202, at 1–2; *supra* notes 202–04 and accompanying text.

³⁴¹ Guy Grossman et al., *Political Partisanship Influences Behavioral Responses to Governors' Recommendations for COVID-19 Prevention in the United States* 15 (Apr. 22, 2020) (working paper), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3578695 [<https://perma.cc/2H6V-FK9S>] (finding that stay-at-home messaging by Republican governors "was stronger in Democratic counties and moderate Republic [an] counties than conservative strongholds"). The authors, however, also suggested that there may have been "backlash effects" in the most conservative Republican counties, where stay-at-home tweets from Republican governors may have produced "either indifference or outright hostility" for contradicting national-level party messaging. *Id.* at 15; see also Makoto Yano, *COVID-19 Pandemic and Politics: The Cases of Florida and Ohio* 1–2, 8–9 (Research Inst. of Econ., Trade & Indus., Discussion Paper No. 20-E-040, 2020), <https://www.rieti.go.jp/jp/publications/dp/20e040.pdf> [<https://perma.cc/7L8Y-9ZKJ>] (finding significantly different trajectories of the epidemic in Ohio and Florida, which both had Republican state leadership but whose governors adopted different approaches to COVID-19).

with more Democratic-linked values, he became a less effective source of information for conservative communities.³⁴²

A second strategy that may make people more responsive to unwelcome information is to use arguments that affirm or align with individuals' cultural priors.³⁴³ The long-running "Don't Mess with Texas" campaign for reducing litter provides one such example, promoting non-littering as congruent with residents' widespread state pride (and reinforced through social norms messaging featuring images of popular cultural figures).³⁴⁴ Some COVID-19 response efforts have harnessed similar messaging, such as the #MaskUpHoosiers advertising and social campaign in Indiana, which appeals to state pride.³⁴⁵ But where policymakers seek to persuade people who particularly value *individualism*, which is associated with lower risk perceptions of COVID-19,³⁴⁶ arguments that emphasize protecting oneself and one's own family may be more effective.³⁴⁷ Messaging campaigns can combine these with images that have cultural resonance. For example, the Oregon mask PSA contains language such as "A Mask Should Not Be a Sign of Weakness" and displays "A Barrier to Protect You" while showing images of a mask in camouflage print.³⁴⁸

4. Choice Architecture

Aside from informing messaging, the cultivation of social norms, and efforts to reduce motivated reasoning, behavioral research could also guide the design of the decision-making environment to promote compliance. *Choice architecture* studies have demonstrated that nuanced alterations in the decision-making environment can significantly sway subjects' decisions.³⁴⁹ The order in which different kinds of food are presented in cafeterias, the structure of forms, and the design of highways have all been guided by behavioral insights geared towards bringing about desirable outcomes.³⁵⁰

Policymakers could use choice architecture nudges to facilitate compliance with COVID-19 rules. For example, floor markings that indicate where people should stand in a

³⁴²See *supra* notes 195–96 and accompanying text.

³⁴³Kahan et al., *supra* note 188, at 169 ("[W]hen shown that [risk] information in fact supports or is consistent with a conclusion that affirms their cultural values ... individuals are more likely to consider the information open-mindedly."); see also Geoffrey L. Cohen et al., *Bridging the Partisan Divide: Self-Affirmation Reduces Ideological Closed-Mindedness and Inflexibility in Negotiation*, 93 J. PERSONALITY & SOC. PSYCHOL. 415, 415 (2007) ("[A]ffirmations of personal integrity (vs. nonaffirmation or threat) can reduce resistance and intransigence but ... this effect occurs only when individuals' partisan identity and/or identity-related convictions are made salient."); Kahan et al., *Cultural Cognition and Public Policy: The Case of Outpatient Commitment Laws*, 34 L. & HUM. BEHAV. 118, 135 (2010) ("Individuals conform their factual perceptions to their values in part to avoid the psychic costs of believing that societal well-being depends on either restricting practices essential to their identities or promoting activities inimical to them.")

³⁴⁴SUNSTEIN & THALER, *supra* note 19, at 60.

³⁴⁵*We Need You to #MaskUpHoosiers*, IN.GOV, <https://www.coronavirus.in.gov/maskuphoosiers/> [<https://perma.cc/U3HF-6KQA>] (last updated Apr. 19, 2021, 10:24 AM).

³⁴⁶See Dryhurst et al., *supra* note 178, at 5. This recommendation is in tension with this Section's earlier discussion of pro-social messaging. See *supra* notes 278–285 and accompanying text. But one size need not fit all; campaigns can be tailored differently for different groups.

³⁴⁷These messages may also be effective among communitarians in times of crisis. See Johannes Leder et al., *Even Prosocially Oriented Individuals Save Themselves First: Social Value Orientation, Subjective Effectiveness and the Usage of Protective Measures During the COVID-19 Pandemic in Germany 2* (Mar. 31, 2020) (preprint), <https://psyarxiv.com/nugcr/> [<https://perma.cc/6D9S-2DZS>] (finding that even among individuals high in prosocial values, self-protective behaviors were more frequent than other-regarding behaviors).

³⁴⁸Governor Kate Brown, *PSA, A Mask is Just a Mask*, YOUTUBE (July 1, 2020), <https://www.youtube.com/watch?v=tWpnX-fEq2U> [<https://perma.cc/48FD-TS77>].

³⁴⁹See *supra* notes 213–17 and accompanying text.

³⁵⁰See Thaler, Sunstein & Balz, *supra*, note 213, at 428–30 (examining policy tools).

crowded area nudge people to sustain proper social distance. Numerous regulators have mandated such markings as part of the safety measures required by businesses opened to the public.³⁵¹ Others have used similar methods to promote social distancing in public parks. In response to growing evidence of social distancing non-compliance in popular public parks, New York and San Francisco began to mark circles on the grass creating boundaries between park-goers.³⁵² This method was even used to facilitate safe demonstrations during the pandemic. In Tel Aviv, the city marked its entire central square, which is often used for large demonstrations, with markers indicating where people may stand while maintaining social distance.³⁵³ This allowed for demonstrations with thousands of people to proceed safely during the pandemic.³⁵⁴

Incorporating social distancing into the landscape has two major advantages from a behavioral perspective. First, and perhaps most obvious, is that it makes compliance easy for those who already wish to obey the law. The markings function as a simple instruction that all people can follow. They alleviate the burden of constantly estimating (and maintaining) a six-foot distance from others. This is important because studies have indicated that ease of compliance is a key determinant in compliance decisions.³⁵⁵

Space markers can also bolster the informal enforcement of social distancing norms by peers. Someone sitting in the park might feel uncomfortable confronting another person who sits a couple of feet away from them. Yet, once a circle on the ground marks a territory, the person sitting in the circle first may view themselves as the “possessor” of the circle. A wide body of game theory literature supported by experimental studies has shown that possession plays a central role in people’s willingness to confront others to protect assets (and the tendency of non-possessors to avoid such confrontations).³⁵⁶ Thus, creating areas of possession within the public space might encourage private enforcement of social distancing, which in turn will reinforce the social norm.

Behavioral insights could also be used to shore up compliance among businesses. As different sectors of the economy reopen (or, for essential businesses, remain open), they are subject to new regulations that minimize the risk of transmission. Consequently, business owners might find themselves facing a web of intricate new rules covering issues such as the distance between tables at restaurants, the installation of protective equipment

³⁵¹ See, e.g., N.C. Exec. Order No. 131 § 1(B) (Apr. 9, 2020), <https://files.nc.gov/governor/documents/files/EO131-Retail-Long-Term-Care-Unemployment-Insurance.pdf> [<https://perma.cc/G44M-7PAU>]; Mich. Exec. Order No. 2020-114 § 8(f) (June 5, 2020), https://www.michigan.gov/whitmer/0,9309,7-387-90499_90705-531123--,00.html [<https://perma.cc/JD88-64V5>].

³⁵² See Alex Wigglesworth, *Social Distancing Circles Drawn on Grass at San Francisco Parks*, L.A. TIMES (May 22, 2020, 10:23 AM), <https://www.latimes.com/california/story/2020-05-22/social-distancing-circles-drawn-on-grass-at-san-francisco-parks> [<https://perma.cc/85ZZ-D2XZ>]; Hilary Whiteman, *Domino Park Circles Keep New York City Sunbathers in Check*, CNN: STYLE (May 19, 2020), <https://www.cnn.com/style/article/domino-park-new-york-city-circles-social-distancing/index.html> [<https://perma.cc/X6XH-AMP5>].

³⁵³ A description of the initiative along with the process and relevant legal procedures was publicized on the city’s website. See *Preserving Democracy – Preserving Health*, TEL AVIV-YAFO, <https://www.tel-aviv.gov.il/Pages/MainItemPage.aspx?WebID=3af57d92-807c-43c5-8d5f-6fd455eb2776&ListID=81e17809-311d-4bba-9bf1-2363bb9debed&ItemId=1017> [<https://perma.cc/C3J2-6NK3>].

³⁵⁴ See Yasmeen Serhan, *Israel Shows Us the Future of Protest*, ATLANTIC (Apr. 23, 2020), <https://www.theatlantic.com/international/archive/2020/04/protest-demonstration-pandemic-coronavirus-covid19/610381/> [<https://perma.cc/35Q3-WMZU>] (providing photos of more than 2,000 protestors gathered in Rabin Square, each standing six feet apart on designated markers).

³⁵⁵ See, e.g., Kooistra et al., *supra* note 311, at 26 (reporting an association between capacity to comply and compliance).

³⁵⁶ See, e.g., Jim E. Krier & Christopher Serkin, *The Possession Heuristic*, in LAW AND ECONOMICS OF POSSESSION 149, 150–52 (Yun-chien Chang ed., 2015) (reviewing the game-theoretical literature); Peter DeScioli & Bart J. Wilson, *The Territorial Foundations of Human Property*, 32 EVOLUTION & HUM. BEHAV. 297, 303 (2011) (experimental findings on human protection of territory and “ownership convention”).

at registers, cleaning protocols, maximal capacity, and employee screening.³⁵⁷ Even for business owners with the best intentions, adhering to these new regulations could pose a serious challenge.

One measure from the choice architecture toolkit that could help elevate business compliance with COVID-19 regulations are checklists.³⁵⁸ Mostly studied in the context of medical decisions, checklists have been shown to be an effective tool that can assist decision makers.³⁵⁹ By breaking down a complex decision into smaller simpler steps and reminding decision makers of the steps they are required to take, checklists may improve the quality of decisions.³⁶⁰ Checklists that enumerate all of the measures that a business is required to take (either daily or at the point of reopening, depending on the context), could assist business owners to deal with an unfamiliar complex situation.³⁶¹ In California, for example, regulators have published numerous industry-specific checklists that are geared to ease compliance.³⁶²

Regulators could take checklists further by integrating them with compliance pledges. Research in behavioral ethics has demonstrated that oaths and pledges tend to reduce people's tendency to cheat.³⁶³ More recently, Eyal Pe'er and Yuval Feldman extended this finding to a setting closer to a regulatory setting involving mandates.³⁶⁴ More specifically, they demonstrated that pledges could complement fines: while either a fine or a pledge separately reduced cheating, combining the two reduced cheating even more.³⁶⁵ Thus, adding a personal declaration, in which the business owner attests to adhering to a set of instructions on a checklist, might be a simple and cheap way to promote compliance.³⁶⁶ Private entities have also made use of such pledge-nudges as part

³⁵⁷See, e.g., NED LAMONT, STATE OF CONN., REOPEN CONNECTICUT SAFER. STRONGER. TOGETHER. (June 6, 2020), https://portal.ct.gov/-/media/DECD/Covid_Business_Recovery-Phase-2/0617CTReopens_IndoorDining_C4_V1.pdf [<https://perma.cc/B8BH-PZLG>] (review of rules applying to restaurants in Connecticut); CAL. DEP'T OF PUB. HEALTH ET AL., COVID-19 INDUSTRY GUIDANCE: RETAIL (July 2, 2020), <https://files.covid19.ca.gov/pdf/guidance-retail.pdf> [<https://perma.cc/LDC9-7VRY>] (review of rules applying to retail in California).

³⁵⁸See Thaler, Sunstein & Balz, *supra* note 213, at 433.

³⁵⁹For recent systematic reviews and meta-analyses, see Brigid M. Gillespie et al., *Effect of Using a Safety Checklist on Patient Complications After Surgery—Systematic Review and Meta-Analysis*, 120 J. AM. SOC. ANESTHESIOLOGISTS 1380 (2014), and Christine S. M. Lau & Ronald S. Chamberlain, *The World Health Organization Surgical Safety Checklist Improves Post-Operative Outcomes: A Meta-Analysis and Systematic Review*, 7 SURGICAL SCI. 206 (2016).

³⁶⁰See Thaler, Sunstein & Balz, *supra* note 213, at 433.

³⁶¹To be sure, checklists do come with a set of problems. They could, for example, lead to technocratic compliance that does not truly aim to reduce risk. See, e.g., Daniel E. Ho, Sam Sherman & Phil Wyman, *Do Checklists Make a Difference? A Natural Experiment from Food Safety Enforcement*, 15 J. EMPIRICAL LEGAL STUD. 242, 243 (2018) (finding that in some cases, “[c]hecklists, rather than solving the problem of bureaucracy, may create it”).

³⁶²See, e.g., CAL. DEP'T OF PUB. HEALTH ET AL., CAL/OSHA COVID-19 GENERAL CHECKLIST FOR DAY CAMPS (July 17, 2020), <https://files.covid19.ca.gov/pdf/checklist-daycamps-en.pdf> [<https://perma.cc/Q766-FM9Q>]; CAL. DEP'T OF PUB. HEALTH ET AL., COVID-19 GENERAL CHECKLIST FOR CONSTRUCTION EMPLOYERS (July 2, 2020), <https://files.covid19.ca.gov/pdf/checklist-construction.pdf> [<https://perma.cc/D9DQ-7443>].

³⁶³See, e.g., Tobias Beck et al., *Can Honesty Oaths, Peer Interaction, or Monitoring Mitigate Lying?*, 163 J. BUS. ETHICS 467, 476 (2018) (reporting that “honesty oaths were able to significantly reduce payoff-increasing lies”); Nicolas Jacquemet et al., *Truth Telling Under Oath*, 65 MGMT. SCI. 426, 432 (2019) (reporting that taking a truth-telling “oath decreases lying when lies are made explicit”).

³⁶⁴See Eyal Pe'er & Yuval Feldman, *Honesty Pledges for the Behaviorally-based Regulation of Dishonesty 1* (June 1, 2020) (working paper), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3615743 [<https://perma.cc/2PVG-YTG8>].

³⁶⁵*Id.* at 12–13, 18.

³⁶⁶Connecticut has implemented such a mandatory self-certification program. See *Self-Certify Your Business*, CT.GOV, https://service.ct.gov/recovery/s/?language=en_US [<https://perma.cc/P2S2-QEFL>].

of their reopening process. At Columbia University, for example, members of the university are asked to declare their health status daily before entering the campus,³⁶⁷ and at the University of Illinois, community members are asked to sign a community pledge that delineates their commitment to behaviors promoting public health.³⁶⁸

Finally, choice architecture could attempt to strengthen the influence of beneficial social norms. For example, hand washing could be performed at highly visible places (e.g., the entrance to a school) to raise observability and mutual enforcement. When observation is not possible (e.g., hand washing in the restroom), adding specific visual cues to the environment might help; for example, numerous randomized field experiments have shown that posters of eyes can increase pro-social behavior.³⁶⁹ One such study demonstrated that the image of stern-looking middle aged male eyes increased hand cleaning at a hospital from fifteen percent to about thirty-three percent.³⁷⁰ Alternately, messaging explaining the importance of hand washing or highlighting social norms could be introduced into the decision making environment.³⁷¹

As noted at the outset, the measures reviewed in this Subsection are not meant to be an exhaustive list of the behaviorally informed interventions that can support the regulatory response to a pandemic. Rather, they merely illustrate the constructive role that behavioral science could play in designing a regulatory environment that will foster compliance.

V. CONCLUSION

This Article presented the first comprehensive analysis of the contribution of behavioral science to the legal response to the COVID-19 pandemic. It reviewed how different behavioral phenomena impacted the public debate regarding the legal response to the virus. We also discussed the role of nudges within the legal response to the pandemic and argued that mandates rather than nudges should serve in most cases as the primary legal tool used to promote desirable behavior. Nudges are nonetheless useful supports for behavioral change, and this Article highlighted the role nudges could play in complementing mandates and bolstering compliance.

The intersection between behavioral law and economics and the COVID-19 pandemic is likely to generate significantly more research. This research could examine issues such as public responses to shifting laws, as countries reopen and reclose in response to changes in transmission rates. This research could also address new policy goals as they emerge, such as promoting vaccination.³⁷²

³⁶⁷ See *Symptom Self Checking*, COLUM. U. CITY N.Y.C., <https://covid19.columbia.edu/content/symptom-self-checking> [<https://perma.cc/ZB4Y-G8HZ>] (describing the “symptom self-check” process).

³⁶⁸ See *Illinois Community Pledge*, U. ILL. URBANA-CHAMPAIGN <https://covid19.illinois.edu/pledge/> [<https://perma.cc/QR4S-M22S>] (describing “voluntary” daily personal health checklist).

³⁶⁹ See, e.g., Melissa Bateson, Daniel Nettle & Gilbert Roberts, *Cues of Being Watched Enhance Cooperation in a Real-World Setting*, 2 *BIOLOGY LETTERS* 412, 412 (2006).

³⁷⁰ See Dominic King et al., “Priming” *Hand Hygiene Compliance in Clinical Environments*, 35 *HEALTH PSYCH.* 96, 99–100 (2016).

³⁷¹ See Gaby Judah et al., *Experimental Pretesting of Hand-Washing Interventions in a Natural Setting*, 99 *AM. J. PUB. HEALTH* S405, S407–08 (2009) (reporting that in a field experiment using different messages in a public restroom, results showed that messaging increased compliance by as much as 12.1% from the control group).

³⁷² See, e.g., Alison M. Buttenheim & David A. Asch, *Making Vaccine Refusal Less of a Free Ride*, 9 *HUM. VACCINES & IMMUNOTHERAPEUTICS* 2674, 2675 (2013); Alexander Cappelen, Ottar Mæstad & Bertil Tungodden, *Demand for Childhood Vaccination*, 37 *F. DEV. STUD.* 349, 349 (2010); Frederick Chen & Ryan Stevens, *Applying Lessons from Behavioral Economics to Increase Vaccination Rates*, 32 *HEALTH PROMOTION INT'L* 1067, 1067–68 (2017).

This Article focused on the legal response to COVID-19, but the analysis carries general lessons for behavioral law and economics. Where other policy settings demand a broad behavior change to limit large negative externalities—such as climate change and sustainability policies—this Article suggests that mandates are preferable to choice-preserving nudges. While nudges, such as electric bills that incorporate social comparisons and smart disclosures regarding energy efficiency, might lower the negative externalities people generate, “they are unlikely to make much of a dent in the problem of global warming.”³⁷³ Consequently, behavioral scientists and legal scholars have recognized that traditional regulatory tools like mandates and taxes are necessary to change behavior in this policy domain.³⁷⁴

At the time of this publication, COVID-19 continues to present regulatory challenges across the globe. This Article hopes to guide policymakers and behavioral scientists in this work and help them design effective legal policies that rest on a solid scientific ground.

³⁷³George Loewenstein & Nick Chater, *Putting Nudges in Perspective*. 1 BEHAV. PUB. POL’Y 26, 44 (2017).

³⁷⁴See Bubb & Pildes, *supra* note 19, at 1673–77 (criticizing existing legal views on the behavioral approach to fuel economy); Loewenstein & Chater, *supra* note 371, at 45 (reviewing the behavioral science on climate change and concluding that “there is no way to escape the necessity for stronger policies that either change prices (e.g. a carbon tax or cap and trade) or involve regulation (e.g. far more stringent standards on automobile fuel efficiency”).