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Lessening Anxiety, Panic, and Complacency in Pandemics

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LESSENING ANXIETY, PANIC, AND COMPLACENCY IN PANDEMICS

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ABSTRACT

Pandemics are not just global medical and physical health crises. Covid-19 caused economic, emotional, mental, and psychological suffering. These difficulties are interconnected and lead to a vicious cycle. Fear distorts people's decision readiness, deliberation, information acquisition, risk perception, and thinking. Distortions cause people to make unfortunate eating, financial, health, political, and sleeping decisions, that in turn generate additional fears. Emotions have direct health impacts and indirect behavior impacts with their own health impacts. Covid-19 vividly demonstrates people differ vastly in whether, how much, and when they experience anxiety, complacency, and panic during a pandemic. Most individuals feel some anxiety initially, then panic upon seeing empty grocery shelves in person and on social media, and finally develop a sense of complacency upon settling into the routine of a new normal. Decision-making research experiments find humans generally display such a pattern of risk overestimation followed by risk underestimation, though a significant minority continue to exhibit risk overestimation and engage in such panic behaviors as hoarding. This article advocates lessening anxiety, panic, and complacency in pandemics by:

- (1) paying people monthly pandemic dividends,
- (2) encouraging people to practice mindfulness,
- (3) gentle enforcement of physical distancing and pausing non-essential activities,
- (4) calm, clear, empathetic, honest, science-based, transparent leadership communication, and
- (5) compassionate, courageous decisive, evidence-based, and mindful leadership.

KEYWORDS: Anxiety, complacency, gentle leadership, mindfulness, pandemic dividend, panic

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Pandemics are not just global medical and physical health crises. Covid-19 caused economic, emotional, mental, and psychological suffering. These difficulties are interconnected and lead to a vicious cycle. Fear distorts people's risk estimates,¹ risk perception,² decision readiness,³ deliberation,⁴ thinking,⁵ and information acquisition.⁶ Distortions lead people to make unfortunate eating,⁷ financial,⁸ health,⁹ political,¹⁰ and sleeping decisions,¹¹ that in turn cause additional fears. Emotions have direct health impacts and indirect impacts on (economic¹² and financial¹³) decision-making¹⁴ and behavior,¹⁵ with secondary

¹ Jennifer Lerner et al., Effects of Fear and Anger on Perceived Risks of Terrorism: A National Field Experiment, 14 PSYCHOL. SCI. 144, 148, 149 tbl. 3, (2003).

² Paul Slovic & Ellen Peters, *Risk Perception and Affect*, 15 CUR. DIR. PSYCHOL. SCI. 322 (2006).

³ Peter H. Huang, *Can Practicing Mindfulness Improve Lawyer Decision-Making, Ethics, and Leadership?* 55 HOUSTON L. REV. 63, 90-94 (2017) (defining and explaining decision readiness).

⁴ George Loewenstein et al., Modeling the Interplay Between Affect and Deliberation, 2 DECISION 55 (2015).

⁵ David De Steno, How Fear Distorts Our Thinking About the Coronavirus, N.Y. TIMES, Feb. 11, 2020, <https://www.nytimes.com/2020/02/11/opinion/international-world/coronavirus-fear.html>.

⁶ Peter H. Huang, *Boost: Improving Mindfulness, Thinking, and Diversity*, 10 WM. & MARY L. REV. 139, 173-76 (2018).

⁷ Anahad O'Connor, *How 'Fast Carbs' May Undermine Your Health*, N.Y. TIMES, Apr. 8, 2020, <https://www.nytimes.com/2020/04/14/well/eat/how-fast-carbs-may-undermine-your-health.html>?; Christine Ro, *Coronavirus: How to Avoid Overeating when Working from Home*, BBC, Apr. 1, 2020, <https://www.bbc.com/worklife/article/20200331-how-to-eat-a-healthy-diet-when-work-from-home-coronavirus>.

⁸ Dave Wedge, *Try Not to Panic, and 8 Other Practical Financial Tips*, BOSTON MAG., Apr. 8, 2020, <https://www.bostonmagazine.com/news/2020/04/08/coronavirus-money-tips/>.

⁹ Jessica Flores, You're Not 'Too Busy' to Stay Active During Quarantine: Health Experts Worry about Blood Clots, Weight Gain, USA TODAY, Apr. 8, 2020,

¹⁰ Filipe R. Campante et al., *The Virus of Fear: The Political Impact of Ebola in the U.S.*, Nat'l Bureau Econ. Res. Working Paper No. 26897, Mar. 2020, <https://www.nber.org/papers/w26897>.

¹¹ Nicole Lyn Pesce, *Losing Sleep over the Coronavirus? Having Strange Dreams? Here's What to Do*, MARKET WATCH, Mar. 28, 2020, <https://www.marketwatch.com/story/losing-sleep-over-the-coronavirus-having-strange-dreams-heres-what-to-do-2020-03-27>.

¹² Scott Rick & George Loewenstein, *The Role of Emotions in Economic Behavior*, in HANDBOOK OF EMOTIONS (Michael Lewis et al. eds., 2008).

¹³ Lucy F. Ackert et al., *Emotion and Financial Markets*, 88 FED. RESERVE BANK ATLANTA ECON. REV. 33 (2003).

¹⁴ George Loewenstein & Jennifer S. Lerner, *The Role of Affect in Decision Making*, in HANDBOOK OF AFFECTIVE SCIENCE (Richard J. Davidson et al. eds., 2003).

¹⁵ Peter H. Huang, *Diverse Conceptions of Emotions in Risk Regulation*, 156 U. PA. L. REV. PENNUMBRA 435, 435 (2008).

health impacts. We should care about emotions' health consequences and decision-making consequences, in particular on compliance with NPIs (Non-Pharmaceutical Interventions), such as physical distancing and self-quarantining, to flatten the curve of infection and not overwhelm health care system capacity. The first major study utilizing data from two other coronaviruses, OC43 and HKU1, which cause most cases of the common cold, suggests the possibility that some form of physical distancing might be necessary until 2022.¹⁶ This article advocates lessening anxiety, panic, and complacency in pandemics by:

- (1) paying people monthly pandemic dividends,
- (2) encouraging people to practice mindfulness,
- (3) gentle enforcement of physical distancing and pausing non-essential activities,
- (4) calm, clear, empathetic, honest, science-based, transparent leadership communication, and
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This article introduces the phrase *gentle leadership* to describe (4) and (5). In his famous "shining city on a hill" 1988 State of the Union Address, President Ronald Reagan quoted the Taoist philosopher Lao-Tzu "Govern a great nation as you would cook a small fish; do not overdo it."¹⁷

HEALTH ANXIETIES

On March 11, 2020, the World Health Organization (WHO) declared the novel coronavirus infectious disease (Covid-19) due to the severe acute respiratory syndrome coronavirus 2

¹⁶ Stephen M. Kissler et al., *Projecting the Transmission Dynamics of SARS-CoV-2 Through the Postpandemic Period*, SCL (forthcoming 2020), <https://science.sciencemag.org/content/early/2020/04/14/science.abb5793/tab-article-info>.

¹⁷ Ronald Reagan, *State of the Union*, Jan. 25, 1988, <https://www.reaganlibrary.gov/research/speeches/12488d>.

(SARS-CoV-2) a pandemic,¹⁸ defined as “the worldwide spread of a new disease.”¹⁹ .”²⁰ Covid-19 is the first pandemic the WHO declared since the H1N1 “swine flu” in 2009 and the first pandemic due to a coronavirus.²¹ More people died of Covid-19 in New York City than died on 9/11.²² U.S deaths as of April 6, 2020 surpassed the number of American soldiers who died “died on the battlefield during these six wars: The American Revolution, War of 1812, Mexican War, Indian Wars, Spanish-American War and Desert Shield/Desert Storm.”²³

Dr. Maria Danilychev, a San Diego physician,²⁴ utilized Worldometer²⁵ Covid-19 data²⁶ and extrapolations from the latest (2018) Centers for Disease Control and Prevention (CDC) data to calculate and create a moving bar graph chart showing how quickly Covid-19 became the leading cause of U.S. deaths per day.²⁷ Danilychev also created another bar graph infographic of (daily changes in) in total Covid-19 cases across ten countries since March 15,

¹⁸ World Health Organization, *Rolling updates on coronavirus disease (COVID-19)*, <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen>.

¹⁹ World Health Organization, *What is a Pandemic? Emergencies preparedness, response*, Feb. 24. 2010, https://www.who.int/csr/disease/swineflu/frequently_asked_questions/pandemic/en/.

²⁰ World Health Organization, *What is a Pandemic? Emergencies preparedness, response*, Feb. 24. 2010, https://www.who.int/csr/disease/swineflu/frequently_asked_questions/pandemic/en/.

²¹ Bill Chappell, *Coronavirus: COVID-19 Is Now Officially A Pandemic, WHO Says*, NPR, Mar. 11, 2020, 12:30 PM ET, <https://www.npr.org/sections/goatsandsoda/2020/03/11/814474930/coronavirus-covid-19-is-now-officially-a-pandemic-who-says>.

²² Connor Perrett, *New York City’s Coronavirus Death Toll Officially Passed the Number of People Killed During the 9/11 Attacks*, BUS. INSIDER, Apr. 7, 2020, <https://www.businessinsider.com/new-york-city-covid-19-deaths-surpass-deaths-on-9-11-2020-4>.

²³ Joel Shannon, *10,000 dead of coronavirus in USA, more fatalities than six wars combined*, USA TODAY, Apr. 6, 2020, <https://www.usatoday.com/story/news/health/2020/04/06/coronavirus-death-toll-us-reaches-10000-six-wars-combined/2949285001/>.

²⁴ Maria Danilychev, MD, Scripps <https://www.scripps.org/physicians/7542-maria-danilychev?tab=overview>.

²⁵ Worldometer, *About Worldometer*, <https://www.worldometers.info/about/>.

²⁶ Worldometer, *Coronavirus*, <https://www.worldometers.info/coronavirus/country/us/>.

²⁷ Pat Cortland, *Daily COVID-19 deaths in the U.S. vs. other leading causes of death*, CONSIDERABLE, Apr. 2, 2020, <https://www.considerable.com/health/coronavirus/coronavirus-deaths-vs-leading-causes-death-chart/>; Maria Danilychev, *COVID-19 vs. Top 15 Causes of Death in the U.S.* <https://public.flourish.studio/visualisation/1727839/>.

2020 visualizing how rapidly and by how much Covid-19 cases in the U.S. overtook other countries.²⁸

Pandemics also have adverse mental health consequences,²⁹ particularly creating anxiety and fears.³⁰ Anxiety and depression rates skyrocketed after viral infections³¹ and even fear of exposures to anthrax.³² Mental health experts publicly expressed concerned that anxiety over Covid-19 spread faster than Covid-19.³³ In just a month, Americans' fears over Covid-19 exploded.³⁴ Polls during Covid-19 found Americans concerned about their emotional well-

²⁸ Maria Danilychev, *COVID-19 Total Cases Since March 15, 2020*, <https://app.flourish.studio/visualisation/1755078/>.

²⁹ Betty Pfefferbaum & Carol S. North, *Mental Health and the Covid-19 Pandemic*, NEJM.org, Apr. 13, 2020, <https://www.nejm.org/doi/full/10.1056/NEJMp2008017>.

³⁰ Jianbo Lai et al., *Factors Associated With Mental Health Outcomes Among Health Care Workers Exposed to Coronavirus Disease 2019*, 3 J. AM. MED. ASS'N NETWORK OPEN e203976 (2020); G. James Rubin & Simon Wessely, *The Psychological Effects of Quarantining a City*, 368 BMJ m313 (2020); Jun Shigemura et al., *Public Responses to the Novel 2019 Coronavirus (2019-nCoV) in Japan: Mental Health Consequences and Target Populations*, 74 PSYCHIATRY & CLINICAL NEUROSCI. 277 (2020).

³¹ Shawn D. Gale et al., *Association Between Virus Exposure and Depression in US Adults*, 261 PSYCHIATRY REV. 73, 73 (2018); Leigh van den Heuvel et al., *Frequency and Correlates of Anxiety and Mood Disorders Among TB- and HIV-Infected Zambians*, 25 AIDS CARE 1527 (2013).

³² Carol S. North et al., *Exposure to Bioterrorism and Mental Health Response among Staff on Capitol Hill*, 7 BIOSECURITY & BIOTERRORISM: BIODEFENSE STRATEGY, PRAC., & SCI. 379 (2009); Brendan W. Mason & Ronon A. Lyons, *Acute Psychological Effects of Suspected Bioterrorism*, 57 J. EPIDEMIOLOGY & COMMUNITY HEALTH 353 (2003).

³³ Eden David, *How to Deal with Fear of Novel Coronavirus in the Face of the Unknown*, ABC NEWS, Mar. 5, 2020, <https://abcnews.go.com/Health/deal-fear-coronavirus-face-unknown/story?id=69266506>; Jacek Debiec, DISCOVER, Mar. 25, 2020, <https://www.discovermagazine.com/mind/fear-can-spread-from-person-to-person-faster-than-the-coronavirus-but-there>; Rachel Glaser, *State of Mind: Anxiety Over COVID-19 Spreading Faster Than the Virus*, WWMT, Mar. 16, 2020, <https://wwmt.com/news/state-of-mind/state-of-mind-anxiety-over-covid-19-spreading-faster-than-the-virus>; Bill Miston, *Amid COVID-19, Psychologists Note Stress Can Lead to Illness: 'Fear Spreads Faster Than the Virus'*, FOX6NOW.COM Mar. 9, 2020, <https://fox6now.com/2020/03/09/amid-covid-19-psychologists-note-stress-can-lead-to-illness-fear-spreads-faster-than-the-virus/>; Davidicus Wong, *Opinion: COVID-19 Panic Is (Sadly) Spreading Faster Than the Virus*, BURNABYNOW, Mar. 2, 2020, <https://www.burnabynow.com/opinion/opinion-covid-19-panic-is-sadly-spreading-faster-than-the-virus-1.24088334>.

³⁴ Susan Page, *Exclusive: In Four Devastating Weeks, Americans' Fears of the Coronavirus Have Exploded*, USA TODAY, Apr. 13, 2020, <https://www.usatoday.com/story/news/politics/2020/04/13/poll-americans-fears-covid-19-explode-four-devastating-weeks/2970032001/>.

being,³⁵ health,³⁶ healthcare,³⁷ and healthcare costs.³⁸ Scientists even developed a seven-item Fear of Covid-19 scale.³⁹ Covid-19 also led to anxieties about being victimized by hate crimes and racist incidents against Asians.⁴⁰

Anxiety about Covid-19 is partly due to people's fear of the ambiguous,⁴¹ novel,⁴² and uncertain.⁴³ By definition, pandemics involve new diseases. People craving cognitive closure⁴⁴ explains why people seek out constant media coverage of and engage in social media discussion about Covid-19. Such a plethora of (mis)information also can trigger anxiousness. For example, constant stalking of Covid-19 statistics may itself fuel anxiety.⁴⁵ While it is

³⁵ Margaret Talev, *Axios-Ipsos Coronavirus Index: Everything's Worse*, Mar. 24, 2020, <https://www.axios.com/coronavirus-index-week-2-everythings-worse-5f0af46b-4b73-4058-86f8-79051b4f7ee7.html>.

³⁶ American Psychiatric Association, *New Poll: COVID-19 Impacting Mental Well-Being: Americans Feeling Anxious, Especially for Loved Ones; Older Adults are Less Anxious*, Mar. 25, 2020, <https://www.psychiatry.org/newsroom/news-releases/new-poll-covid-19-impacting-mental-well-being-americans-feeling-anxious-especially-for-loved-ones-older-adults-are-less-anxious>.

³⁷ Sara Burnett & Hannah Fingerhut, *AP-NORC Poll: Americans Increasing Effort to Avoid Infection*, AP, Apr. 6, 2020, <https://apnews.com/d77fc19f5fc596d54ceb9618cd9dc38c>.

³⁸ David Anderson & Nicholas Bagley, *This Is One Anxiety We Should Eliminate for the Coronavirus Outbreak*, N.Y. TIMES, Mar. 15, 2020, <https://www.nytimes.com/2020/03/15/opinion/surprise-billing-coronavirus-.html>.

³⁹ Daniel Kwasi Ahoursu et al., *The Fear of COVID-19 Scale: Development and Initial Validation*, INT'L J. MENTAL HEALTH & ADDICTION, 1, 8 (2020).

⁴⁰ Cathy Park Hong, *The Slur I Never Expected to Hear in 2020*, N.Y. TIMES, Apr. 12, 2020, <https://www.nytimes.com/2020/04/12/magazine/asian-american-discrimination-coronavirus.html>.

⁴¹ Daniel Ellsberg, *Risk, Ambiguity, and the Savage Axioms*, 75 Q. J. ECON. 643 (1961).

⁴² American Psychological Association, *Coronavirus Anxiety (Parts 1 and 2)* with Baruch Fischhoff, PhD, *Speaking of Psychology*, <https://www.apa.org/research/action/speaking-of-psychology/coronavirus-anxiety>, <https://www.apa.org/research/action/speaking-of-psychology/coronavirus-anxiety-part-2>.

⁴³ Julie Beck, *How Uncertainty Fuels Anxiety*, ATLANTIC, Mar. 18, 2015; R. Nicholas Carleton et al., *Increasingly Certain About Uncertainty: Intolerance of Uncertainty Across Anxiety and Depression*, 26 J. ANXIETY DISORDERS 468 (2012); Mark H. Freeston et al., *Why Do People Worry?* 17 PERSONALITY & INDIVIDUAL DIFFERENCES 791 (1994).

⁴⁴ Arie W. Kruglanski & Donna M. Webster, *Motivated Closing of the Mind: "Seizing" and "Freezing"*, 103 PSYCHOL. REV. 263 (1996).

⁴⁵ Ellen Peters, *Is Obsessing Over Daily Coronavirus Statistics Counterproductive?* N.Y. TIMES, Mar. 12, 2020, <https://www.nytimes.com/2020/03/12/opinion/sunday/coronavirus-statistics.html>.

crucial to be informed, people often seek out and then misuse useless information.⁴⁶ People may also avoid information they believe will be negative.⁴⁷ Anxious people seek and take more advice, have impaired information processing and lower self-confidence, fail to differentiate between advisors with and without conflicts of interest, and fail to discern good from bad advice.⁴⁸

Some people understandably seek out expert opinion, especially during times of radical uncertainty.⁴⁹ In pandemics, humility about our and others' (lack of) knowledge is worth remembering.⁵⁰ "No one can easily predict an unknowable future."⁵¹ Covid-19 also reminds us of the importance of numeracy⁵² and scientific literacy⁵³ among the public and policymakers in lessening anxiety, panic, and complacency. Pandemics offer valuable lessons about why some people underestimate the climate change crisis.⁵⁴ Covid-19 may provide an opportunity

⁴⁶ Anthony Bastardi & Eldar Shafir, *On the Pursuit and Misuse of Useless Information*, 75 J. PERSONALITY & SOC. PSYCHOL. 19 (1998); Justin Kruger & Matt Evans, *The Paradox of Aplytus and the Pursuit of Unwanted Information*, 45 J. EXPERIMENTAL SOC. PSYCHOL. 1173 (2009).

⁴⁷ Russell Goldman et al., *Information Avoidance*, 55 J. ECON. LIT. 96 (2017); Emily H. Ho et al., *Measuring Information Preferences*, MGMT. SCI. (forthcoming); Niklas Karlsson et al., *The Ostrich Effect: Selective Attention to Information*, 38 J. RISK & UNCERTAINTY 95 (2009); George Loewenstein, *The Pleasures and Pain of Information*, 312 SCI. 704 (2006).

⁴⁸ Francesca Gino et al., *Anxiety, Advice, and the Ability to Discern: Feeling Anxious Motivates Individuals to Seek and Use Advice*, 102 J. PERSONALITY & SOC. PSYCHOL. 497 (2012).

⁴⁹ Werner De Bondt, *Expert Financial Judgment*, Keynote, Academic Research Colloquium, CFP Board Center for Financial Planning, Feb. 21, 2020.

⁵⁰ Paul Romer, *The Dismal Kingdom*, FOREIGN AFF., Mar./Apr. 2020, <https://www.foreignaffairs.com/reviews/review-essay/2020-02-11/dismal-kingdom>.

⁵¹ Mervyn King, *The End of Alchemy* 3 (2016).

⁵² Marshall Shepherd, *Is Poor Math Literacy Making It Harder For People To Understand COVID-19 Coronavirus?* FORBES, Mar. 23, 2020, <https://www.forbes.com/sites/marshallshepherd/2020/03/23/is-the-math-too-hard-for-people-to-understand-covid-19-coronavirus/#7d67521a6a9c>.

⁵³ Sabrina Sholts, *Accurate Science Communication is Key in the Fight Against COVID-19*, WORLD ECON. FORUM, Mar. 19, 2020, <https://www.weforum.org/agenda/2020/03/science-communication-covid-coronavirus/>.

⁵⁴ Howard Kunreuther & Paul Slovic, *What the Coronavirus Curve Teaches Us About Climate Change*, POLITICO, Mar. 26, 2020, <https://www.politico.com/news/magazine/2020/03/26/what-the-coronavirus-curve-teaches-us-about-climate-change-148318>.

to spark the resurgence of public interest and government financial support of STEM (Science, Technology, Engineering, and Mathematics) much as Sputnik did.⁵⁵

ECONOMIC SHOCKS

Covid-19 disrupted economies globally through three types of shocks:⁵⁶ (1) medical shocks from the sick and dead neither working nor consuming, (2) economic impacts from medical containment measures, such as pausing economic activities and travel bans, and (3) reduced economic expectations leading businesses and consumers to adopt wait-and-see attitudes and postpone spending.⁵⁷ These aggregate supply and aggregate demand shocks led to massive, sudden unemployment for many people. Over one month, U.S. unemployment claims reached over 22 million, “roughly the net number of jobs created in a nine-and-a-half-year stretch that began after the last recession and ended with the pandemic’s arrival.”⁵⁸ The severe global economic recession caused by pandemics and NPIs in response to pandemics⁵⁹ led many people to become concerned about how societies can and should tradeoff public health versus

⁵⁵ Editorial Board, *Coronavirus Crisis is a Sputnik Opportunity to Reverse the Anti-Science pandemic*, USA TODAY, Apr. 13, 2020, <https://www.usatoday.com/story/opinion/todaysdebate/2020/04/13/coronavirus-sputnik-opportunity-reverse-anti-science-pandemic-editorials-debates/5103665002/>.

⁵⁶ MITIGATING THE COVID ECONOMIC CRISIS: ACT FAST AND DO WHATEVER IT TAKES 9-10 (Richard Baldwin & Beatrice Weder di Mauro eds., 2020). *See also* National Academies of Sciences, Engineering, and Medicine, UNDERSTANDING THE ECONOMICS OF MICROBIAL THREATS: PROCEEDINGS OF A WORKSHOP 1-2 (2018); <https://www.nap.edu/catalog/25224/understanding-the-economics-of-microbial-threats-proceedings-of-a-workshop>.

⁵⁷ Scott R. Baker et al., *How Does Household Spending Respond to an Epidemic? Consumption During the 2020 COVID-19 Pandemic*, Nat’l Bureau Econ. Res. Working Paper No. 26949, Apr. 2020, <https://www.nber.org/papers/w26949.pdf>; Lauren Leatherby & David Gelles, *How the Virus Transformed the Way Americans Spend Their Money*, N.Y. TIMES, Apr. 11, 2020, <https://www.nytimes.com/interactive/2020/04/11/business/economy/coronavirus-us-economy-spending.html>.

⁵⁸ Nelson D. Schwartz, *‘Nowhere to Hide’ as Unemployment Permeates the Economy*, N.Y. TIMES, Apr. 16, 2020, <https://www.nytimes.com/2020/04/16/business/economy/unemployment-numbers-coronavirus.html>.

⁵⁹ Peter S. Goodman, *Why the Global Recession Could Last a Long Time*, N.Y. TIMES, Apr. 1, 2020, <https://www.nytimes.com/2020/04/01/business/economy/coronavirus-recession.html>.

economic wealth. The rallying cry for these concerns was the question of whether the cure of NPIs was worse than Covid-19 itself in terms of some metric, be that dollars, lives lost, quality-adjusted life years, or subjective well-being.⁶⁰

Economist Joshua Gans integrated the canonical SIR (Susceptible-Infected-Recovered) epidemiological model⁶¹ with the basic economic notions of a production possibilities set and its upper boundary, a Production Possibilities Frontier (PPF).⁶² Gans demonstrated two reasons that a government's optimal response to a pandemic is to prioritize public health should over economic wealth.⁶³ First, considering incremental trade-offs between public health and economic wealth does not work in pandemics.⁶⁴ Second, prioritizing economic wealth is an irreversible decision because doing so fails to preserve valuable public health options.⁶⁵ Economist Eric Budish considers whether NPIs can expand the frontier of economic activity and societal well-being.⁶⁶

Economists also modified the SIR model to incorporate household economic activity. Economic models demonstrate people's mitigation incentives are too weak due to consumption

⁶⁰ Peter Singer & Michael Plant, *When Will the Pandemic Cure Be Worse Than the Disease?* PROJECT SYNDICATE, Apr. 6, 2020, <https://www.project-syndicate.org/commentary/when-will-lockdowns-be-worse-than-covid19-by-peter-singer-and-michael-plant-2020-04>.

⁶¹ William Ogilvy Kermack & Anderson G. McKendrick, *A Contribution to the Mathematical Theory of Epidemics*, 115 PROC. ROYAL SOC. LONDON 700 (1927).

⁶² JOSHUA GANS, *ECONOMICS IN THE AGE OF COVID-19* (forthcoming), <https://economics-in-the-age-of-covid-19.pubpub.org/>.

⁶³ *Id.* at ch. 1, pp. 4, 11, fig. 1-3.

⁶⁴ *Id.* at 11, n. 10. See also Tiberiu Harko et al., *Exact Analytical Solutions of the Susceptible-Infected-Recovered (SIR) Epidemic Model and of the SIR Model with Equal Death and Birth Rates*, 236 APPLIED MATHEMATICS & COMPUTATION 184 (2014). Mathematically, this is due to a non-convexity of the PPF.

⁶⁵ GANS, *supra* note 62, at ch. 1, pp. 5-6, 12, fig. 1-4.

⁶⁶ Eric Budish, *R < 1 as an Economic Constraint: Can we "Expand the Frontier" in the Fight Against Covid-19*, University of Chicago Booth School of Business, Apr. 1, 2020, https://faculty.chicagobooth.edu/eric.budish/research/Budish_expand_the_frontier_covid19.pdf.

and work choices having infection rate and health care congestion externalities and exhibiting fatalism effects about future infection.⁶⁷ One calibrated model with people working from home and learning by doing finds mitigation produces quantitatively meaningful reductions in disease spread and economic costs.⁶⁸ Economists analyzed NPIs in response to the 1918 flu pandemic and found U.S. cities that enacted NPIs sooner and more aggressively reduced mortality and better mitigated adverse economic consequences.⁶⁹ Behavioral and social science research provide insights on how to achieve large-scale behavior changes that NPIs aspire to accomplish.⁷⁰

ECONOMIC AND FINANCIAL ANXIETIES

Covid-19 also caused specific anxieties about job and income loss.⁷¹ Robert J. Shiller, 2013 economics Nobel laureate,⁷² examined the real and psychological effects of anxieties from the economic pandemic accompanying the Covid-19 pandemic.⁷³ The economic impacts of public

⁶⁷ Callum J. Jones et al., *Optimal Mitigation Policies in a Pandemic: Social Distancing and Working from Home*, 19 Nat'l Bureau Econ. Res. Working Paper No. 26984, Apr. 9, 2020, <https://callumjones.github.io/files/covid.pdf>.

⁶⁸ *Id.* at 3, when “a private agent knows that she is likely to be infected in the future, this reduces her incentives to be careful today.”

⁶⁹ Sergio Correia et al., *Pandemics Depress the Economy, Public Health Interventions Do Not: Evidence from the 1918 Flu*, Mar. 30, 2020, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3561560.

⁷⁰ Jay Van Bavel et al., *Using Social and Behavioral Science to Support COVID-19 Pandemic Response*, NATURE HUMAN BEHAV. (forthcoming), <https://psyarxiv.com/y38m9>.

⁷¹ Scott Keeter, *People Financially Affected by COVID-19 Outbreak are Experiencing More Psychological Distress than Others*, Pew Research Center, Mar. 30, 2020, <https://www.pewresearch.org/fact-tank/2020/03/30/people-financially-affected-by-covid-19-outbreak-are-experiencing-more-psychological-distress-than-others/>.

⁷² NobelPrize.org, Robert J. Shiller – Facts, <https://www.nobelprize.org/prizes/economic-sciences/2013/shiller/facts/>.

⁷³ Robert J. Shiller, *The Two Pandemics*, PROJECT SYNDICATE, Mar. 31, 2020, <https://www.project-syndicate.org/commentary/how-covid19-pandemic-affects-financial-market-narratives-by-robert-j-shiller-2020-03>.

health NPI policies, just like financial regulations themselves (or the lack thereof),⁷⁴ may provoke economic and financial anxiety. These dual pandemics and their corresponding anxieties can be decoupled if a government cushions or mitigates the adverse economic and financial consequences of a health pandemic and NPIs in response to a health pandemic.

Think tank Data for Progress polling found that American voters supported by a whopping 94 percent margin a financial stimulus package of money paid directly to people, instead of to large corporations (97-3).⁷⁵ Instead of directly and efficiently paying people cash, the United States Congress and President chose the indirect and cumbersome route of requiring small businesses to apply through banks for loans that will be forgiven if the proceeds are used to cover payroll costs, and most mortgage interest, rent, and utility costs over the two month period after the loan is made; and the small business maintains employee and compensation levels.⁷⁶ The first round of the so-called Paycheck Protection Program (PPP) of the U.S. CARES (Coronavirus Aid, Relief, and Economic Security) Act,⁷⁷ authorized \$349 billion dollars for loans. The PPP ran out of money within only two weeks, in addition to having access problems, technological delays, and loopholes permitting large corporate chains to benefit over small businesses.⁷⁸ Small business owners filed class action lawsuits alleging

⁷⁴ Peter H. Huang, How Do Securities Laws Influence Affect, Happiness, and Trust? 3 J. BUS. & TECH. L. 257, 292-93 (2008).

⁷⁵ Natalie Foster & Collin McDonough, *Voters Support A Robust Monthly Cash Payment*, DATA FOR PROGRESS, Mar. 21, 2020, <https://www.dataforprogress.org/blog/3/21/voters-support-a-robust-cash-payment>.

⁷⁶ U.S. Treasury, Paycheck Protection Program (PPP) Information Sheet, <https://home.treasury.gov/system/files/136/PPP--Fact-Sheet.pdf>.

⁷⁷ CARES Act, S. 3548, Mar. 19, 2020, <https://www.congress.gov/bill/116th-congress/senate-bill/3548/text?q=product+update>.

⁷⁸ Li Zhou, *The Paycheck Protection Program Has Already Run Out of Money*, VOX, Apr. 16, 2020, <https://www.vox.com/2020/4/16/21223637/paycheck-protection-program-funding>.

JPMorgan Chase, Wells Fargo, Bank of America, and US Bank engaged in unfair lending practices in order to earn higher commissions from the federal government.⁷⁹ The second round of the PPP authorized an additional \$310 billion dollars for loans and an additional \$10 billion for administrative costs(!).⁸⁰ if the goal of the PPP really is to protect people's paychecks, why involve banks at all and why not just pay small businesses directly to pay people's paychecks, or even better why not just pay people directly the amount of their paychecks?

Many countries just paid employers to continue paying employees⁸¹ and preserve those jobs.⁸² Such policies are economically sensible because applying for unemployment insurance is unduly burdensome (and became more so as the unemployment system became overloaded) and when health insurance is an employment benefit (as in the U.S.).⁸³ These policies are psychologically sensible because of unemployment's long-term psychological scarring effects.⁸⁴

⁷⁹ Rachel Green, *Several Major US Banks Are Being Sued for Unfair PPP Lending Practices*, BUS. INSIDER, Apr. 21, 2020, <https://www.businessinsider.com/major-banks-being-sued-for-unfair-ppp-loan-processing-practices-2020-4>.

⁸⁰ Li Zhou, *What the New Stimulus Money Means for Small Business Loan Programs*, VOX, Apr. 23, 2020, <https://www.vox.com/2020/4/23/21232549/paycheck-protection-program-new-stimulus>.

⁸¹ Matt Apuzzo & Monika Pronczuk, *Covid-19's Economic Pain Is Universal. But Relief? Depends on Where You Live*, N.Y. TIMES, Apr. 5, 2020, <https://www.nytimes.com/2020/03/23/world/europe/coronavirus-economic-relief-wages.html>.

⁸² Editorial Board, *Why Is America Choosing Mass Unemployment?* N.Y. TIMES, Mar. 26, 2020, <https://www.nytimes.com/2020/03/26/opinion/covid-economy-unemployment-europe.html>.

⁸³ Emmanuel Saez & Gabriel Zucman, *Jobs Aren't Being Destroyed This Fast Elsewhere. Why Is That?* N.Y. TIMES, Mar. 30, 2020, <https://www.nytimes.com/2020/03/30/opinion/coronavirus-economy-saez-zucman.html>.

⁸⁴ Andrew E. Clark et al., Scarring: The Psychological Impact of Past Unemployment, 68 ECON. J. 221 (2001); Michael Daly & Liam Delaney, The Scarring Effect of Unemployment Throughout Adulthood on Psychological Distress at Age 50: Estimates Controlling for Early Adulthood Distress and Childhood Psychological Factors, 80 SOC. SCI. MED. 19 (2011); Andreas Knabe & Steffen Ratzel, Scarring or Scaring? The Psychological Impact of Past Unemployment and Future Employment Risk, 75 ECON. J. 283 (2013); Victoria Mousteri et al., The Scarring Effect of Unemployment on Psychological Well-Being Across Europe, 72 SOC. SCI. RES. 146 (2018); Mattias Strandh et al., Unemployment and Mental Health Scarring During the Life Course, 24 EUR. J. PUB. HEALTH 440 (2014).

To cushion economic hardships due to pandemics and NPIs in response to pandemics and in so doing reduce financial anxieties, a government can and should pay people monthly pandemic dividends. U.S. House of Representatives Ro Khanna (California) and Tim Ryan (Ohio) proposed the Emergency Money for the People Act to provide income-qualified Americans aged 16 years and higher with a \$2,000 monthly check for guaranteed six months or until “employment returns to pre-COVID-19 levels.”⁸⁵ Numerous political leaders proposed similar monthly payments during Covid-19.⁸⁶

Such payments are essentially an income-qualified, interim form of universal basic income (UBI).⁸⁷ Andrew Yang wrote a book about UBI.⁸⁸ Yang made UBI the centerpiece of his former 2020 Democratic presidential campaign,⁸⁹ in the form of a freedom dividend.⁹⁰ A recent symposium considered theoretical aspects of UBI,⁹¹ as well as the potential role of UBI in the U.S. and other developed countries,⁹² and in developing countries.⁹³ There is enough

⁸⁵ Kelly Anne Smith, *Are More Stimulus Payments On The Way? 4 Things To Know About New Stimulus Proposal*, FORBES, Apr. 20, 2020, https://khanna.house.gov/sites/khanna.house.gov/files/Final_Emergency%20Money%20For%20the%20People.pdf.

⁸⁶ Economic Security Project, *Cost-of-Living Refund*, Apr. 7, 2020, <https://costoflivingrefund.org/blog/cares2>.

⁸⁷ Ellen Brown, *A Universal Basic Income is Essential and Will Work*, COUNTERPUNCH, Apr. 20, 2020, <https://www.counterpunch.org/2020/04/20/a-universal-basic-income-is-essential-and-will-work/>; Emilio Caja & Leonie Hoffman, *A Basic Income is a Lifeline in This Crisis – But Can’t Solve Everything*, GUARDIAN, Apr. 20, 2020, <https://www.jacobinmag.com/2020/04/unconditional-basic-income-coronavirus-pandemic-crisis>.

⁸⁸ Andrew Yang, *The War on Normal People* (2019).

⁸⁹ Intelligencer Staff, *It’s an Emergency Version of UBI’: Andrew Yang on Those \$1,000 Monthly Checks Becoming a Reality*, N.Y. MAG., Mar. 19, 2020, <https://nymag.com/intelligencer/2020/03/andrew-yang-discusses-universal-basic-income-and-coronavirus.html>.

⁹⁰ Freedom Dividend Math, *How We’ll Pay for the Freedom Dividend*, <https://freedom-dividend.com/>.

⁹¹ Maitreesh Ghatak & François Maniquet, *Universal Basic Income: Some Theoretical Aspects*, 11ANN. REV. ECON. 895 (2019).

⁹² Hilary Hoynes & Jesse Rothstein, *Universal Basic Income in the United States and Advanced Countries*, 11ANN. REV. ECON. 929 (2019).

⁹³ Abhijit Banerjee et al., *Universal Basic Income in the Developing World*, 11ANN. REV. ECON. 959 (2019).

evidence to suggest UBI can help reduce health inequities in our world.⁹⁴ Law professors Miranda Perry Fleischer⁹⁵ and Daniel Hemel,⁹⁶ have made a libertarian case for UBI,⁹⁷ identified practical building blocks of a UBI,⁹⁸ and advocated in response to Covid-19, that “A program of monthly payments to all Americans — with the same amount per child and per adult, and without unnecessarily complicated eligibility cutoffs — is the best way to get cash out the door and to sustain support throughout a crisis with no end in sight.”⁹⁹

Central banks can finance pandemic dividends by simply printing money.¹⁰⁰ This would be in essence “helicopter money,”¹⁰¹ a concept macroeconomics students learn, due to economics Nobel laureate,¹⁰² Milton Friedman,¹⁰³ and made (in)famous by then Federal Reserve Board Governor Ben Bernanke in a speech.¹⁰⁴ In discussing the CARES Act, former businessperson Wolf Richter pointed out, “If the Fed had sent that \$1.77 Trillion to the 130

⁹⁴ Anne Ruckert et al., Reducing Health Inequities: Is Universal Basic Income the Way Forward? 40 J. PUB. HEALTH 3 (2017).

⁹⁵ Miranda Perry Fleischer, University of San Diego Law School faculty website, https://www.sandiego.edu/law/about/directory/biography.php?profile_id=3333.

⁹⁶ Daniel Hemel, University of Chicago Law School faculty website, <https://www.law.uchicago.edu/faculty/hemel>.

⁹⁷ Miranda Perry Fleischer & Daniel Hemel, *Atlas Nods: The Libertarian Case for A Basic Income*, 2017 WISC. L. REV. 1189 (2018).

⁹⁸ Miranda Perry Fleischer & Daniel Hemel, *The Architecture of A Basic Income*, 86 U. CHI. L. REV. (forthcoming).

⁹⁹ Daniel Hemel & Miranda Perry Fleischer, *Here’s How to Get Cash to Americans — Quickly and Fairly*, Mar. 19, 2020, <https://medium.com/whatever-source-derived/heres-how-to-get-cash-to-americans-quickly-and-fairly-9b0e4809ded8>.

¹⁰⁰ Jodi Gali, *Helicopter Money: The Time is Now*, VOX, Mar. 17, 2020, <https://voxeu.org/article/helicopter-money-time-now>; Philip Marey & Wim Boonstra, *US Helicopter Money*, RABORESEARCH, <https://economics.rabobank.com/publications/2020/march/us-helicopter-money/>.

¹⁰¹ Willem H. Buiter, *The Simple Analytics of Helicopter Money: Why It Works - Always*, 8 ECON. (2014).

¹⁰² <https://www.nobelprize.org/prizes/economic-sciences/1976/press-release/>.

¹⁰³ Milton Friedman, *The Optimum Quantity of Money* 4-5 (1969).

¹⁰⁴ Ben Bernanke, *Deflation: Making Sure ‘It’ Doesn’t Happen Here*, Remarks to the National Economists Club, Washington, D.C., Nov. 21, 2002, <https://www.federalreserve.gov/boarddocs/speeches/2002/20021121/>.

million households in the US, each household would have received \$13,600. But no, this was helicopter money exclusively for Wall Street and for asset holders.”¹⁰⁵

Economists utilizing Google search activity and individual survey data found Covid-19 contemporaneously and rapidly increased economic anxiety.¹⁰⁶ People overestimated COVID-19 contagiousness and mortality, yet underestimated non-linearity of infection spread.¹⁰⁷ Such anxieties can be labelled irrational because they led to misestimation of probabilities about Covid-19. Irrational anxiety¹⁰⁸ is in a sense the psychological opposite of “irrational exuberance,”¹⁰⁹ a phrase Alan Greenspan uttered while he was Federal Reserve Board chair, and which became his most famous quote.¹¹⁰ Shiller wrote a book titled *Irrational Exuberance* about economic bubbles,¹¹¹ in which he defines irrational exuberance as the psychological basis underlying speculative bubbles.¹¹² Irrational anxiety similarly can be the psychological basis underlying financial panics, asset market crashes, and global economic crises in the form of recessions or depressions.

¹⁰⁵ Wolf Richter, *QE-4 Cut in Half this Week. Fed's Helicopter Money for Wall Street & the Wealthy Hits \$1.8 Trillion in 4 Weeks*, WOLF STREET, Apr. 9, 2020, <https://wolfstreet.com/2020/04/09/qe-4-cut-in-half-this-week-but-still-1-8-tn-helicopter-money-for-wall-street-and-wealthy-in-4-weeks-of-federal-reserve-balance-sheet-money-printing-and-bailouts/>.

¹⁰⁶ Thiemo Fetzer et al., *Coronavirus Perceptions and Economic Anxiety*, arXiv preprint arXiv:2003.03848, <https://arxiv.org/pdf/2003.03848.pdf>.

¹⁰⁷ Thiemo Fetzer et al., *Coronavirus Perceptions and Economic Anxiety*, VOX, Mar. 20, 2020, <https://voxeu.org/article/coronavirus-perceptions-and-economic-anxiety>.

¹⁰⁸ Peter H. Huang, *Regulating Irrational Exuberance and Anxiety in Securities Markets*, in THE LAW AND ECONOMICS OF IRRATIONAL BEHAVIOR 501 (Francesco Parisi & Vernon L. Smith eds., 2005).

¹⁰⁹ Alan Greenspan, *The Challenge of Central Banking in a Democratic Society*, Remarks at the Annual Dinner and Francis Boyer Lecture of the American Enterprise Institute for Public Policy Research, Washington, D.C., Dec. 5, 1996, <https://www.federalreserve.gov/BOARDDOCS/SPEECHES/19961205.htm>.

¹¹⁰ Robert J. Shiller, *Definition of Irrational Exuberance*, IRRATIONAL EXUBERANCE, 2ND ED. website, <http://www.irrationalexuberance.com/definition.htm>.

¹¹¹ Robert J. Shiller, *Irrational Exuberance* (3rd ed., 2015).

¹¹² *Id.* at 2.

Like stress,¹¹³ not all anxiety is bad or inappropriate. In other words, the individually and the socially optimal levels of anxiety are not zero. Rational anxiety is a level of anxiety that is appropriate for the situation and helpful. It is rational to be anxious about pandemics and a helpful level of anxiety spurs us to take precautions to keep us safe.¹¹⁴ Irrational anxiety is anxiety that leads to misestimation of probabilities about risks. Similar to many cognitive biases,¹¹⁵ irrational anxiety reflects a particular type of inattention. Irrational anxiety results from not paying enough attention to rationally estimate relevant probabilities. In this sense, irrational anxiety is a form of mindlessness. Not surprisingly then, practicing mindfulness is one way to lessen anxiety.

PRACTICING MINDFULNESS

Reducing anxiety not only produces important health benefits.¹¹⁶ Less anxiety generates positive externalities, such as improving (ethical) decision-making¹¹⁷ and reducing loneliness,¹¹⁸ due to self-quarantining or self-isolation. It is by now well-documented that

¹¹³ KELLY MCGONIGAL, *THE UPSIDE OF STRESS: WHY STRESS IS GOOD FOR YOU, AND HOW TO GET GOOD AT IT* (2016); Kelly McGonigal, *How to Make Stress Your Friend*, TED GLOBAL, June 2013, https://www.ted.com/talks/kelly_mcgonigal_how_to_make_stress_your_friend?language=en.

¹¹⁴ *Worried Sick: Fighting Stress and Anxiety in the Midst of COVID-19*, Columbia University Irving Medical Center, Mar. 23, 2020, <https://www.cuimc.columbia.edu/news/worried-sick-fighting-stress-and-anxiety-midst-covid-19>.

¹¹⁵ Xavier Gabaix, *A Sparsity-Based Model of Bounded Rationality*, 129 Q.J. ECON. 1661, 1695 (2014); Xavier Gabaix, *Behavioral Inattention*, in 2 HANDBOOK OF BEHAVIORAL ECONOMICS: FOUNDATIONS AND APPLICATIONS 261, 269-77 (B. Douglas Berheim et al. eds., 2019).

¹¹⁶ Jane E. Brody, *Managing Coronavirus Fears*, N.Y. TIMES, Apr. 13, 2020, <https://www.nytimes.com/2020/04/13/well/mind/coronavirus-fear-anxiety-health.html>.

¹¹⁷ Peter H. Huang, *How Improving Decision-Making and Mindfulness Can Improve Legal Ethics and Professionalism*, 21 J.L. BUS. & ETHICS 35 (2015).

¹¹⁸ Emily K. Lindsay et al., *Mindfulness Training Reduces Loneliness and Increases Social Contact in a Randomized Controlled Trial*, 116 PROC. NAT'L ACAD. SCI. 3488 (2019).

practicing mindfulness can reduce anxiety.¹¹⁹ An app-delivered awareness training reduced physician anxiety by 57 percent in one study.¹²⁰ There are many free, online guided mindfulness exercises.¹²¹ Mindfulness practice also directly helps people to make better decisions¹²² about eating,¹²³ finances,¹²⁴ health,¹²⁵ politics,¹²⁶ and sleep.¹²⁷ Mindfulness can mitigate implicit racial bias,¹²⁸ and more relevantly,¹²⁹ reduce racially discriminative

¹¹⁹ Michelle L. Dossett et al., *A New Era for Mind-Body Medicine*, 382 *NEW ENG. J. MED.* 1390, 1391, Supplementary Appendix (2020); Madhav Goyal et al., *Meditation Programs for Psychological Stress and Well-Being: A Systematic Review and Meta-Analysis*, 174 *JAMA INTERNAL MED.* 357 (2014); Ronald Siegel, *The Mindfulness Solution*, <https://mindfulness-solution.com/>.

¹²⁰ Judson A. Brewer, *A Brain Hack to Break the Coronavirus Anxiety Cycle*, *N.Y. TIMES*, Apr. 1, 2020, <https://www.nytimes.com/2020/03/13/well/mind/a-brain-hack-to-break-the-coronavirus-anxiety-cycle.html>; Alexandra Roy et al., *Physician Anxiety and Burnout: Symptom Correlates and a Prospective Pilot Study of App-Delivered Mindfulness Training*, 8 *JMIR MHEALTH UHEALTH* e15608 (2020).

¹²¹ Anna Goldfarb, *How to Meditate Outdoors with Us Right Now*, *N.Y. TIMES*, Apr. 3, 2020, <https://www.nytimes.com/interactive/2020/04/03/style/self-care/coronavirus-guided-meditation-nature.html?referringSource=articleShare>; Janie Haseman & Ramon Padill, *Coronavirus Anxiety Has Upended Our Lives, But Take A Moment to Breathe*, *USA TODAY*, Apr. 1, 2020, <https://www.usatoday.com/in-depth/graphics/2020/04/01/coronavirus-anxiety-real-if-you-feel-stressed-out-and-overwhelmed-page-how-to-calm-down-relax/5107942002/>.

¹²² Leslie A. Loubier & Gisela M. Munoz, *Mindfulness: Tapping Into Its Power to Achieve Professional and Personal Success and Wellness*, *ABSTRACT*, Spring 2017, at 31, <https://www.stearnsweaver.com/files/2017%20Gisela%20Munoz%20ACMA%20Mindfulness.pdf>.

¹²³ Harvard Health Publishing, *8 Steps to Mindful Eating*, Jan. 2016, <https://www.health.harvard.edu/staying-healthy/8-steps-to-mindful-eating>.

¹²⁴ Jonathan K. DeYoe, *Mindful Money: Simple Practices for Reaching Your Financial Goals and Increasing Your Happiness Dividend* (2017); Maria Gonzalez & Graham Bryon, *The Mindful Investor: How a Calm Mind Can Bring You Inner Peace and Financial Security* (2009).

¹²⁵ Quinn A. Conklin et al., *Meditation, Stress Processes, and Telomer Biology*, 28 *CURRENT OPINION PSYCHOL.* 92 (2019); Jeffrey M. Greeson & Gabrielle R. Chin, *Mindfulness and Physical Disease: A Concise Review*, 28 *CURRENT OPINION PSYCHOL.* 204 (2019).

¹²⁶ JONATHAN Jamie Bristow, *Mindfulness in Politics and Public Policy*, 28 *CURRENT OPINION PSYCHOL.* 87 (2019).

¹²⁷ Amanda J. Shallcross et al., *Waking Up to the Problem of Sleep: Can Mindfulness Help? A Review of Theory and Evidence for the Effects of Mindfulness for Sleep*, 28 *CURRENT OPINION PSYCHOL.* 37 (2019).

¹²⁸ Adam Lueke & Bryan Gibson, *Mindfulness Meditation Reduces Implicit Age and Race Bias: The Role of Reduced Automaticity of Responding*, 6 *SOC. PSYCHOL. & PERSONALITY SCI.* 284, 287-89 (2015).

¹²⁹ Adam Lamparello, *The Flaws of Implicit Bias – and the Need for Empirical Research in Legal Scholarship and in Legal Education*, Mar. 19, 2020, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3557041; Michael Selmi, *The Paradox of Implicit Bias and a Plea for a New Narrative*, 50 *ARIZ. ST. L. J.* 193 (2018).

behavior.¹³⁰ Finally, so many people died from Covid-19 that compassion fatigue,¹³¹ psychological or psychic numbing,¹³² psychophysical numbing,¹³³ and pseudoinefficacy¹³⁴ likely occurred and possibly influenced people's decisions to fail to physical distance or self-quarantine.¹³⁵

Mindfulness increases compassion and empathy.¹³⁶ Practicing loving kindness mindfulness meditation can foster compassion, empathy, and gray brain matter, while decreasing chronic (lower back) pain, implicit intergroup bias, negative symptoms of schizophrenia spectrum disorders, posttraumatic stress disorder, self-criticism, and even the aging process.¹³⁷

This article thus advocates encouraging people to practice mindfulness. Such encouragement can take such forms as verbal suggestions, subsidizing mindfulness apps, and

¹³⁰ Adam Lueke & Bryan Gibson, *Brief Mindfulness Meditation Reduces Discrimination*, 3 PSYCHOL. CONSCIOUSNESS: THEORY, RES. & PRAC. 34, 39 (2016).

¹³¹ Jeva Lange, *Compassion Fatigue is About to Set in. Don't Succumb*, WEEK, Apr. 2, 2020, <https://theweek.com/articles/906134/compassion-fatigue-about-set-dont-succumb>.

¹³² Paul Slovic, *If I Look at the Mass I Will Never Act: Psychic Numbing and Genocide*, 2 JUDGMENT & DECISION MAKING 79 (2007).

¹³³ David Fetherstonhaugh et al., *Insensitivity to the Value of Human Life: A Study of Psychophysical Numbing*, 4 J. RISK & UNCERTAINTY 283 (1997); Paul Slovic, *When (In)Action Speaks Louder Than Words: Confronting the Collapse of Humanitarian Values in Foreign Policy Decisions*, 2015 ILL. L. REV. SLIP OPINIONS 24, <https://illinoislawreview.org/wp-content/uploads/2015/04/Slovic.pdf>; Deborah Small et al., *Sympathy and Callousness: The Impact of Deliberative Thought on Donations to Identifiable and Statistical Victims*, 102 ORGANIZATIONAL BEHAV. & HUMAN DECISION PROCESSES 143 (2007).

¹³⁴ Daniel Vastfjall et al, *Pseudoinefficacy: Negative Feelings from Children Who Cannot be Helped Reduce Warm Glow for Children Who Can be Helped*, 6 FRONTIERS PSYCHOL. Art. 616 (2015).

¹³⁵ Jeva Lange, *Compassion Fatigue is About to Set in. Don't Succumb*, WEEK, Apr. 2, 2020, <https://theweek.com/articles/906134/compassion-fatigue-about-set-dont-succumb>.

¹³⁶ Shauna Shapiro, *Does Mindfulness Make You More Compassionate?* Greater Good, Feb. 27, 2013, https://greatergood.berkeley.edu/article/item/does_mindfulness_make_you_compassionate.

¹³⁷ Peter H. Huang & Kelly J. Poore, *Can You Hear Me Later and Believe Me Now? Behavioral Law and Economics of Chronic Repeated Ambient Acoustic Pollution Causing Noise-Induced (Hidden) Hearing Loss*, S. CA. REV. L. & SOC. JUST. (forthcoming).

role modelling. Practicing mindfulness can take on many forms, such as practicing awareness and focus while washing your hands.¹³⁸ NPR produced a helpful comic strip for children about Covid-19 including advice on frequent handwashing.¹³⁹

PANICS AND COMPLACENCY

Pandemics can also trigger panics, defined as “sudden extreme anxiety or fear that may cause irrational thoughts or actions.”¹⁴⁰ Panic behavior includes hoarding food and panic selling of stocks. Ironically, if matters improve or do not worsen over time, pandemics can lead to complacency, defined as “a feeling of contentment or self-satisfaction, especially when coupled with an unawareness of danger, trouble, or controversy.”¹⁴¹ Complacent behavior includes not following CDC recommendations to wear cloth face coverings,¹⁴² or practice physical distancing, self-quarantining, and self-isolating.¹⁴³

If anxiety lies along a continuum, then panic lies on the far right of that continuum with an excessive amount of anxiety, while complacency lies on the far left of that continuum with too little or zero anxiety. Irrational anxiety is a level of anxiety that is too high like panic or too low like complacency. Panic is unhealthy for individuals because of the unnecessary stress it

¹³⁸ Thanks to Mary Mulligan for this timely suggestion!

¹³⁹ Malaka Gharib, Just For Kids: A Comic Exploring The New Coronavirus, NPR, Feb. 28, 2020, <https://www.npr.org/sections/goatsandsoda/2020/02/28/809580453/just-for-kids-a-comic-exploring-the-new-coronavirus>.

¹⁴⁰ National Cancer Institute, *Panic*, Dictionary of Cancer Terms, <https://www.cancer.gov/publications/dictionaries/cancer-terms/def/panic>.

¹⁴¹ *Complacency*, AM. HERITAGE DICTIONARY (5th ed., 2020), <https://www.ahdictionary.com/word/search.html?q=complacency>.

¹⁴² Centers for Disease Control and Prevention, *Recommendation Regarding the Use of Cloth Face Coverings, Especially in Areas of Significant Community-Based Transmission*, <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover.html>.

¹⁴³ Centers for Disease Control and Prevention, *Social Distancing, Quarantine, and Isolation*, <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/social-distancing.html>.

causes and unhelpful for people's decision-making because of the overestimation about relevant probabilities. Complacency is unhealthy for individuals because of the unnecessary recklessness it causes and unhelpful for people's decision-making because of the underestimation about relevant probabilities.

Covid-19 vividly showed that people differ vastly in how much, when, and even whether they experience anxiety, complacency, and panic in pandemics.¹⁴⁴ The same individual may start by feeling some anxiety, then panic upon seeing empty grocery shelves in person and on social media, and finally develop complacency upon settling into the routine of a new normal. Decision-making research experiments find the majority of humans display such a pattern of risk overestimation followed by risk underestimation, though a significant minority continue to exhibit risk overestimation and engage in such panic behaviors.¹⁴⁵ A cross-cultural study found little between-problem consistencies in people's reaction to rare events.¹⁴⁶ People may differ in whether their anxiety rises to panic or falls to complacency if people rely on small samples of their experiences and such experiences vary across individuals.

¹⁴⁴ Benedict Carey, *Complacency, Not Panic, Is the Real Danger*, (interviewing Ido Erev), N.Y. TIMES, Mar. 19, 2020,

<https://www.nytimes.com/2020/03/19/health/coronavirus-panic-anxiety.html?searchResultPosition=1>.

¹⁴⁵ Doron Cohen et al., On the Impact of Experience on Probability Weighting in Decisions Under Risk, 7 DECISION 153 (2020); Ido Erev et al., From Anomalies to Forecasts: Toward a Descriptive Model of Decisions Under Risk, Under Ambiguity, and From Experience, 124 PSYCHOL. REV. 369 (2017); Ralph Hertwig et al., Decisions from Experience and the Effect of Rare Events in Risky Choice, 15 PSYCHOL. SCI. 534 (2004); Amos Schurr et al., The Effect of Unpleasant Experiences on Evaluation and Behavior, 106 J. ECON. BEHAV. & ORG. 1 (2014).

¹⁴⁶ Sibilla Di Guida et al., Cross Cultural Differences in Decisions from Experience: Evidence from Denmark, Israel, and Taiwan, 49 J. ECON. PSYCHOL. 47 (2015).

Ido Erev, professor of behavioral science and management at Technion Israel Institute of Technology,¹⁴⁷ and president¹⁴⁸ of the European Association for Decision Making,¹⁴⁹ and Ori Plonsky,¹⁵⁰ and Yefim Roth¹⁵¹ analyze how the simultaneity of panic and complacency exacerbates the consequences of pandemics.¹⁵² Erev, Plonsky, and Roth focus on three reasons underlying the coexistence of contradictory emotional reactions and behavioral responses to pandemics: (1) description-experience gap, (2) individual differences, and (3) role of experience on social interactions.¹⁵³

Erev and Alvin E. Roth, Craig and Susan McCaw Professor of Economics at Stanford University (and Gund Professor of Economics and Business Administration Emeritus at Harvard),¹⁵⁴ and a 2012 economics Nobel laureate,¹⁵⁵ reviewed a broad spectrum of decision-making research experiments and found that humans tend to underweight rare events when making decisions from experience.¹⁵⁶ Ralph Hertwig, director of the Center for Adaptive Rationality at the Max Planck Institute for Human Development,¹⁵⁷ and Erev reviewed a wide variety of studies to similarly find that decisions based on experience accord rare events less

¹⁴⁷ Ido Erev faculty page, <https://web.iem.technion.ac.il/en/people/userprofile/erev.html>.

¹⁴⁸ Executive Board website, European Association for Decision Making, <http://eadm.eu/executive-board/>.

¹⁴⁹ About EADM, European Association for Decision Making website, <http://eadm.eu/about-eadm-2/>.

¹⁵⁰ Ori Plonsky, <http://oriplonsky.com/>.

¹⁵¹ Yefim Roth, https://www.researchgate.net/profile/Yefim_Roth.

¹⁵² Ido Erev et al., *The Impact of Rare Disasters, and the Value of Gentle Rule Enforcement in Addressing Pandemics*, Mar. 31, 2020, unpublished manuscript.

¹⁵³ *Id.* at 2.

¹⁵⁴ Alvin E. Roth faculty page, <https://web.stanford.edu/~alroth/>.

¹⁵⁵ NobelPrize.org, <https://www.nobelprize.org/prizes/economic-sciences/2012/summary/>.

¹⁵⁶ Ido Rev & Alvin E. Roth, *Maximization, Learning, and Economic Behavior*, 111 PROC. NAT'L ACAD. SCI. 10818, 10819 (2014).

¹⁵⁷ Ralph Hertwig, <https://www.mpib-berlin.mpg.de/staff/ralph-hertwig>.

weight than their objective probabilities.¹⁵⁸ These findings across three non-redundant experiential paradigms (namely, sampling, full-feedback, and partial feedback) all documented a robust and systematic description-experience gap, meaning that in experience-based decision-making people underweight rare events, while in description-based decision-making people overweight rare events.¹⁵⁹ Because people's personal experiences influence their risk perceptions and behaviors, when risks are rare, people mostly experience their non-occurrence and so underperceive such risks and behave accordingly.¹⁶⁰ Non-human animals underweight rare events and overweight common ones because they can only make decisions based on experience as they are not able to process symbolic descriptive representations of risky choices.¹⁶¹

The description-experience gap explains why people initially overestimate pandemic risks, including death, infection, severe disease, and transmission when they first learn of a pandemic through descriptions of that pandemic in the media, social media, and by word-of-mouth. The description-experience gap also explains why people subsequently underestimate pandemic risks when they have first-hand experiences with a pandemic that are not immediately and visibly life-threatening. The description-experience gap thus explains the time course of most people's risk perception and behavior during pandemics. Many people's responses to terrorism

¹⁵⁸ Ralph Hertwig & Ido Erev, *The Description-Experience Gap in Risky Choice*, 13 TRENDS COG. SCI. 517 (2009).

¹⁵⁹ *Id.* at 518.

¹⁶⁰ *Id.* at 522.

¹⁶¹ Hertwig et al., *supra* note 145, at 539; Leslie A. Real, *Animal Choice Behavior and the Evolution of Cognitive Architecture*, 253 SCI. 980, 985 (1991).

displayed a similar temporal pattern.¹⁶² Hand washing also illustrates the description-experience gap.¹⁶³

Erev predicted that analogous phenomena will occur for Covid-19 with people self-isolating initially, after which those who don't get sick will feel nothing bad is happening and so return outside.¹⁶⁴ Computer simulations of a simple Panic (hoarding groceries) or Trust (normal buying) game found relying on small samples leads everyone to panic.¹⁶⁵ Computer simulations of a simple Safe (staying home) or Reckless (running errands) game found relying on small samples leads everyone to recklessness.¹⁶⁶ Over time, the same person may undergo oscillations of panic and complacency as they base decisions on descriptions versus experiences. Different people may feel anxiety and complacency at different rates and times. At any one moment in pandemics, most of society will be anxious, with some complacent, and some panicked.

GENTLE ENFORCEMENT

Erev, Plonsky, and Roth propose achieving physical distancing and self-quarantining during Covid-19 through gentle rule enforcement involving high probability detection and enforcement of violations of rules that are clear and easy to follow.¹⁶⁷ Erev and co-authors

¹⁶² Carey, *supra* note 144; Ido Erev, *On the Weighting of Rare Events and the Economics of Small Decisions*, in DEVELOPMENTS ON EXPERIMENTAL ECONOMICS: NEW APPROACHES TO SOLVING REAL-WORLD PROBLEMS 59, 70-71 (Sobei Hidenori Oda ed., 2007); Eldad Yechiam et al., *The Role of Personal Experience in Contributing to Different Patterns of Response to Rare Terrorist Attacks*, 49 J. CONFLICT RESOL. 430 (2005).

¹⁶³ Ido Erev & Ernan Haruvy, *Learning and the Economics of Small Decisions*, in 2 HANDBOOK OF EXPERIMENTAL ECONOMICS 638, 692-93 (John H. Kagel & Alvin E. Roth eds., 2017).

¹⁶⁴ Carey, *supra* note 144.

¹⁶⁵ Erev et al., *supra* note 152, at 3, 4 tbl. 1, 10.

¹⁶⁶ *Id.* at 4, 5 tbl. 2, 10.

¹⁶⁷ *Id.* at 2.

believe high probability warnings would deter most people, reserving less gentle enforcement for repeated violators who are easier to detect when most people comply.¹⁶⁸

Gentle enforcement causes people relying on small samples to behave socially optimally by changing their probabilities of regret.¹⁶⁹ Gentle continuous punishment by proctors (via, for example, direct glances, moving suspected cheaters to the front row, or verbal warnings) decreased students' perceptions of cheating.¹⁷⁰ Gentle reminders by physicians and nurses in increased adherence to sterile procedure during blood sample withdrawals and insertion of intravenous lines from approximately 55% to 95%.¹⁷¹ Gentle enforcement of safety rules increased utilization of such protective gear as ear plugs, gloves, and safety goggles from about 60% to over 90% in factories.¹⁷² Erev sums up gentle enforcement as steady enforcement, with small penalties.¹⁷³

Erev, Plonsky, and Roth suggest employing such technology as drones and cellular signal tracking to enforce NPIs.¹⁷⁴ China employed tracking software to estimate in real time people's

¹⁶⁸ *Id.* at 6.

¹⁶⁹ *Id.* at 5; Erev & Roth, *supra* note 156, at 10822.

¹⁷⁰ Erev, *supra* note 162, at 69-70; Erev & Roth, *supra* note 156, at 108; Ido Erev et al., *Continuous Punishment and the Potential of Gentle Rule Enforcement*, 84 BEHAV. PROCESSES 366, 370 (2010); Erev & Haruvy, *supra* note 163, at 691.

¹⁷¹ Ido Erev et al., *The Value of 'Gentle Reminder' on Safe Medical Behavior*, 19 QUALITY & SAFETY IN HEALTH CARE 1, 1-2 (2010); Ido Erev & Dotan Rodensky, *Gentle Rule Enforcement*, in AROUND THE PATIENT BED: HUMAN FACTORS AND SAFETY IN HEALTH CARE 271, 271-76 (Yoel Donchin & Daniel Gopher eds., 2010).

¹⁷² Erev et al., *supra* note 152, at 5; Amos Schurr et al., *The Effect of Unpleasant Experiences on Evaluation and Behavior*, 106 J. ECON. BEHAV. & ORG. 1, 1, 7-8 (2014); Amos Schurr et al., *The Peak and Freq Effects*, <http://fbm.bgu.ac.il/amos/Peak.html>.

¹⁷³ Carey, *supra* note 144.

¹⁷⁴ *Id.* at 5-6.

contagion risk¹⁷⁵ and enforce NPIs through a social credit system.¹⁷⁶ Cell-phone based location tracking would facilitate contact tracing and monitoring of self-isolating and self-quarantining.¹⁷⁷ Digital data tracing also raises fundamental and serious civil liberty and privacy concerns.¹⁷⁸ An anonymized and voluntary (opt-in) app-based system offers a potential compromise that balances concerns about public health versus civil liberties and privacy.¹⁷⁹

GENTLE LEADERSHIP

Effective leadership¹⁸⁰ and leadership communication¹⁸¹ are always desirable and all the more so during crises. Pandemics are abnormal, chaotic, confusing, disorienting, distressing, scary, and stressful times. Pandemics provide fertile ground for conspiracy theories,¹⁸² and

¹⁷⁵ Paul Mozur et al., *In Coronavirus Fight, China Gives Citizens a Color Code, With Red Flags*, N.Y. TIMES, Mar. 1, 2020, <https://www.nytimes.com/2020/03/01/business/china-coronavirus-surveillance.html>.

¹⁷⁶ Coronavirus: Chinese Authorities Leverage Social Credit in the Fight Against COVID-19, TRIVIUM SOC. CREDIT, Feb. 21, 2020, <http://socialcredit.triviumchina.com/2020/02/coronavirus-chinese-authorities-leverage-social-credit-in-the-fight-against-covid-19/>.

¹⁷⁷ Associated Press, *Hawaii Enlists Web Program to Help Enforce Travel Quarantine as Hundreds Continue to Arrive*, USA TODAY, Apr. 10, 2020, <https://www.usatoday.com/story/travel/2020/04/10/covid-19-hawaii-enlists-web-program-help-enforce-travel-quarantine/2975208001/>; Jack Nicas & Daisuke Wakabayashi, *Apple and Google Team Up to 'Contact Trace' the Coronavirus*, N.Y. TIMES, Apr. 10, 2020, <https://www.nytimes.com/2020/04/10/technology/apple-google-coronavirus-contact-tracing.html>; Shira Ovide, *Can Our Phones Stop A Pandemic?* N.Y. TIMES, Apr. 10, 2020, <https://www.nytimes.com/2020/04/10/technology/coronavirus-smartphones-surveillance.html>.

¹⁷⁸ Lawrence H. Tribe, *Digital Coronavirus Data Tracing Would Barter Away American Liberties*, USA TODAY, Apr. 22, 2020, <https://www.usatoday.com/story/opinion/todaysdebate/2020/04/21/coronavirus-data-tracing-barter-away-liberties-laurence-tribe-editorials-debates/3000576001/>.

¹⁷⁹ Editorial Board, *Coronavirus Phone Tracing by Apple and Google Could Help America Reopen*, USA TODAY, Apr. 21, 2020, <https://www.usatoday.com/story/opinion/todaysdebate/2020/04/21/coronavirus-tracing-app-apple-google-help-america-reopen-editorials-debates/5152292002/>.

¹⁸⁰ Thomas L. Friedman, *We Need Great Leadership Now, and Here's What It Looks Like*, N.Y. TIMES, Apr. 21, 2020, <https://www.nytimes.com/2020/04/21/opinion/covid-dov-seidman.html?referringSource=articleShare>.

¹⁸¹ David Robson, *Covid-19: What Makes A Good Leader During A Crisis?* BBC, Mar. 27, 2020, <https://www.bbc.com/worklife/article/20200326-covid-19-what-makes-a-good-leader-during-a-crisis>.

¹⁸² Mark Lynas, *COVID: Top 10 Current Conspiracy Theories*, CORNELL ALLIANCE FOR SCIENCE, Apr. 20, 2020, <https://allianceforscience.cornell.edu/blog/2020/04/covid-top-10-current-conspiracy-theories/>.

opportunities for people to mistrust leaders.¹⁸³ People understandably want communications from their leaders during pandemics to be trustworthy.¹⁸⁴ Psychological research documents how leaders through their communications can increase trust and reduce stress.¹⁸⁵

In most of his daily Covid-19 press briefings accompanied by PowerPoint slides,¹⁸⁶ New York governor Andrew Cuomo exemplified calm, clear, empathetic, honest, science-based, transparent leadership communication.¹⁸⁷ I observed two exceptions. First, during his April 7,

¹⁸³ Joey Garrison, *Nearly One-Third of Americans Believe A Coronavirus Vaccine Exists and is Being Withheld, Survey Finds*, USA TODAY, Apr. 24, 2020, <https://www.usatoday.com/story/news/politics/2020/04/24/coronavirus-one-third-us-believe-vaccine-exists-is-being-withheld/3004841001/>.

¹⁸⁴ Ellen Peters et al., *Americans Still Trust Doctors and Scientists During a Public Health Crisis*, CONVERSATION Mar. 5, 2020, <https://theconversation.com/americans-still-trust-doctors-and-scientists-during-a-public-health-crisis-132938>.

¹⁸⁵ American Psychological Association, *How Leaders Can Maximize Trust and Minimize Stress During the COVID-19 Pandemic*, Mar. 20, 2020, <https://www.apa.org/news/apa/2020/03/covid-19-leadership>.

¹⁸⁶ Jon Campbell, *Andrew Cuomo is Having A Moment. So Are His Beloved PowerPoint Slides During the Coronavirus Crisis*, USA TODAY, Mar. 24, 2020, <https://www.lohud.com/story/news/coronavirus/2020/03/24/new-york-andrew-cuomo-coronavirus-briefing-powerpoint/2903009001/>; Shannon Mattern, *Andrew Cuomo's Covid-19 Briefings Draw on the Persuasive Authority of PowerPoint*, ART IN AM., Apr. 13, 2020, <https://www.artnews.com/art-in-america/features/andrew-cuomo-covid-briefings-powerpoint-slideshow-authority-1202683735/>.

¹⁸⁷ Carmine Gallo, *How New York Governor Andrew Cuomo Balances Calm With The Need For 'Drastic Measures'* In COVID-19 Updates, FORBES, Mar. 19, 2020, <https://www.forbes.com/sites/carminegallo/2020/03/19/how-new-york-governor-andrew-cuomo-balances-calm-with-the-need-for-drastic-measures-in-covid-19-updates/#47dbaf745bcc>; Dan Gardner, *Hate Him or Love Him—New York Gov. Andrew Cuomo Can Teach Us A Lot About How to Speak During A Pandemic*, CNBC MAKE IT, Apr. 7, 2020, <https://www.cnbc.com/2020/04/06/what-new-york-governor-andrew-cuomo-teaches-us-about-how-to-speak-lead-in-coronavirus-pandemic.html>; Steve Herz, *What Leaders Can Learn From Governor Cuomo About How to Communicate During a Crisis*, ENTREPRENEUR, Apr. 9, 2020, <https://www.entrepreneur.com/article/348833>; Jesse McKinley & Shane Goldmacher, *How Cuomo, Once on Sidelines, Became the Politician of the Moment*, N.Y. TIMES, Apr. 9, 2020, <https://www.nytimes.com/2020/03/24/nyregion/governor-andrew-cuomo-coronavirus.html>; Alejandro Romero & Gerard Guiu, *Communicating in A Pandemic: New York Governor Andrew Cuomo's Keys to Success*, Ideas LLYC, Mar. 28, 2020, https://ideasen.llorenteycuencia.com/wp-content/uploads/sites/6/2020/03/200327_IDEAS_comunicacionenunapandemia_ENG-2.pdf; Alex Shephard, *How Andrew Cuomo Became a Media Darling*, NEW REPUBLIC, Mar. 26, 2020, <https://newrepublic.com/article/157063/andrew-cuomo-became-media-darling>.

2020 Covid-19 briefing,¹⁸⁸ a reporter named Jesse asked him, “governor, on a more kind of psychological, philosophical issue, 730 people died, these numbers keep rolling out, but it’s easy it would seem to get numb to these sorts of stats. How do you counter that?”¹⁸⁹ Cuomo replied,

You know Jesse, I hear the point. I guess one could get numb to the numbers, that’s why I said remember every number is a human being behind that and a family. For myself, I can tell you, the last thing I do is get numb. I can tell you for the hospital staff that goes through this, they’re not getting numb. For the families who are suffering, they’re not getting numb. The pain is increasing. The grief is increasing.¹⁹⁰

Cuomo’s reply, while completely understandable, was not science-based on psychological research about psychic numbing,¹⁹¹ psychophysical numbing,¹⁹² and economic research finding that charitable donations after natural disasters dropped off quickly.¹⁹³

Second, during his April 22, 2020 Covid-19 briefing,¹⁹⁴ a reporter had an extended exchange with Cuomo during which she asked Cuomo: “I don’t know if you can hear, but there are protesters outside right now honking their horns and raising signs.¹⁹⁵ ... They’re saying that, “Is there a fundamental right to work if the government can’t get me the money when I need it?” Is there a fundamental right to go to work?”¹⁹⁶ Cuomo replied, “By the way, do you want

¹⁸⁸ Rev, *Gov. Andrew Cuomo New York COVID-19 Briefing April 7*, <https://www.rev.com/blog/transcripts/gov-andrew-cuomo-new-york-covid-19-briefing-april-7>.

¹⁸⁹ *Id.* at 37:30 mark.

¹⁹⁰ *Id.* at 37:51 mark.

¹⁹¹ Slovic, *supra* note 132.

¹⁹² Fetherstonhaugh et al., *supra* note 133; Slovic, *supra* note 133; Small et al., *supra* note 133.

¹⁹³ Philip H. Brown & Jessica H. Minty, *Media Coverage and Charitable Giving after the 2004 Tsunami*, 75 S. ECON. J. 9 (2008); Kimberly Scharf et al., *Do Disaster Appeals Reduce Other Donations? Evidence from the U.K.*, unpublished manuscript, Dec. 2015.

¹⁹⁴ Rev, *Gov. Andrew Cuomo New York COVID-19 Briefing April 22*, <https://www.rev.com/blog/transcripts/andrew-cuomo-new-york-covid-19-briefing-transcript-april-22>.

¹⁹⁵ *Id.* at 54:37 mark (Speaker 9), at 59:20 mark.

¹⁹⁶ *Id.* at 59:20 mark.

to go to work? Go take the job as an essential worker. Do it tomorrow.¹⁹⁷ ... there are people hiring. You can get a job as an essential worker, so now you can go to work and you can be an essential worker and you're not going to kill anyone."¹⁹⁸

I cringed as soon as Cuomo said that even though Cuomo was correct in that some essential businesses were hiring, and the protestors would be risking their lives and those of others if they returned to their so-called non-essential jobs. Unsurprisingly, the very next morning, in an interview on the television show, *Fox & Friends*, University of Tennessee law professor Glenn Reynolds¹⁹⁹ criticized Cuomo's remarks: "'That's super insensitive and stupid. I mean, 'let them eat essential jobs,' right? That's basically his line."²⁰⁰ Lawyer and senior fellow at the a politically conservative non-profit think tank, Discovery Institute's Center on Human Exceptionalism, Wesley J. Smith also criticized Cuomo's lack of empathy.²⁰¹ Cuomo non-empathetic communication in that moment perhaps was because he lost patience with the reporter's repeated questions over the same point or the protestors not behaving in a socially responsible way.²⁰² Some form of UBI would have provided the protestors financial relief from economic hardships and related anxieties.

¹⁹⁷ *Id.* at 59:29 mark.

¹⁹⁸ *Id.* at 59:47 mark.

¹⁹⁹ Glenn Reynolds, University of Tennessee law school faculty website, <https://law.utk.edu/directory/glenn-reynolds/>.

²⁰⁰ Julia Musto, *Tennessee Law Professor Slams Gov. Cuomo's 'Out of Touch' Comments on Jobless New Yorkers*, FOX NEWS, <https://www.foxnews.com/media/law-professor-slams-cuomos-out-of-touch-comments>.

²⁰¹ Wesley J. Smith, *Governor Cuomo Is No Governor Compassionate*, NAT'L REV., Apr. 23, 2020, <https://www.nationalreview.com/corner/new-york-governor-andrew-cuomo-should-show-more-empathy/>.

²⁰² Dennis Slettery, *Cuomo Pushes Back on Coronavirus Protesters*, N.Y. DAILY NEWS, Apr. 22, 2020, <https://www.nydailynews.com/coronavirus/ny-coronavirus-cuomo-offers-advice-to-shutdown-protesters-job-20200422-3sbv26zfg5a4dm7i3rw6swhd6q-story.html>

Both of the above incidents were in response to reporters' questions and illustrate how a leader, in the heat of the moment, can take a misstep. Overall, Cuomo provided compassionate, courageous, decisive, evidence-based, and mindful leadership.²⁰³ Cuomo's leadership garnered praise from bipartisan leaders,²⁰⁴ and many others,²⁰⁵ including public health experts,²⁰⁶ epidemiologists and infectious disease physicians.²⁰⁷

There has been much academic research about leaders,²⁰⁸ leadership communication,²⁰⁹ and their interplay.²¹⁰ There has not been much academic scholarship about how leaders and

²⁰³ Rob Asghar, *This Is Cuomo's Moment – And It Offers Essential Leadership Lessons*, FORBES, Apr. 6, 2020, <https://www.forbes.com/sites/robashghar/2020/04/06/this-is-cuomos-moment-and-it-offers-essential-leadership-lessons/#2a95b19f34a4>.

²⁰⁴ Joseph Spector, *Gov. Andrew Cuomo Has 40 Years of Government Experience. He's Facing His Biggest Test Yet*, USA TODAY, Mar. 20, 2020, <https://www.lohud.com/story/news/politics/2020/03/20/governor-andrew-cuomo-coronavirus-in-new-york/2882202001/>; Paul Steinhauser, *Democracy Digest 2020: Cuomo's Profile Rises Amid Coronavirus Storm*, FOX NEWS, Mar. 25, 2020, <https://www.foxnews.com/politics/democracy-2020-digest-cuomos-profile-rises-amid-coronavirus-storm>.

²⁰⁵ Richard Brodsky, *Cuomo Deserves Praise — and Some Words of Caution*, YONKERS TRIBUNE, Mar. 29, 2020, <https://www.yonkertribune.com/2020/03/commentary-cuomo-deserves-praise-and-some-words-of-caution-by-richard-brodsky>; James Doubek, *New York Gov. Andrew Cuomo Takes The Spotlight In Coronavirus Response*, NPR, Mar. 24, 2020, <https://www.npr.org/2020/03/24/820270978/new-york-gov-andrew-cuomo-takes-the-spotlight-in-coronavirus-response>; John Haltiwanger, *People Are Praising New York Gov. Andrew Cuomo's Steady and Calm Leadership During the Coronavirus Pandemic*, BUS. INSIDER AUSTRALIA, Mar. 21, 2020, <https://www.businessinsider.com.au/coronavirus-people-are-praising-new-york-gov-andrew-cuomos-response-2020-3>; Caitlin O'Kane, *New York Governor Andrew Cuomo Takes National Spotlight During Coronavirus Pandemic*, CBS NEWS, Mar. 24, 2020, <https://www.cbsnews.com/news/coronavirus-updates-new-york-governor-andrew-cuomo-takes-national-spotlight-during-coronavirus-pandemic-2020-03-24/>; Susan Milligan, *How Coronavirus Made Andrew Cuomo America's Governor*, U.S. NEWS & WORLD REPORT, Mar. 23, 2020, <https://www.usnews.com/news/health-news/articles/2020-03-23/how-coronavirus-made-andrew-cuomo-americas-governor>; Peter Yacobellis, *In Praise of Cuomo's Leadership*, WASH. BLADE, Apr. 2, 2020, <https://www.washingtonblade.com/2020/04/02/in-praise-of-cuomos-leadership/>.

²⁰⁶ Zach Williams, *Andrew Cuomo: Master of Disaster*, CITY & ST. N.Y., Mar. 4, 2020, <https://www.cityandstateny.com/articles/policy/health-care/cuomo-mobilizes-coronavirus-outbreak.html>.

²⁰⁷ Jerry Zremski, *Pandemic Experts Rate Cuomo: 'A Sense of Order' Amid One of NY's Greatest Crises*, BUFF. NEWS, Apr. 4, 2020, <https://buffalonews.com/2020/04/04/pandemic-experts-agree-cuomo-is-doing-a-good-job/>.

²⁰⁸ Bruce J. Avolio et al., *Leadership: Current Theories, Research, and Future Directions*, 60 ANN. REV. PSYCHOL. 421 (2009).

²⁰⁹ Jacqueline Mayfield & Milton Mayfield, *Leadership Communication: Reflecting, Engaging, and Innovating*, 54 INT'L J. BUS. COMM. 3 (2017).

²¹⁰ Reinout E. de Vries et al., *Leadership = Communication? The Relations of Leaders' Communication Styles with Leadership Styles, Knowledge Sharing and Leadership Outcomes*, 25 J. BUS. PSYCHOL. 367 (2010).

leadership communications can change people's emotions and in so doing, also change people's behaviors. To be sure, there have been inspirational stories of courageous leaders.²¹¹

Chris Guthrie,²¹² John Wathrde-Kent Syverud Professor of Law and Vanderbilt law school Dean since 2009, provided in his presentation on a panel during a Pepperdine law school Straus Institute of Dispute Resolution conference,²¹³ five principles of leadership derived from extensive academic experience and these three research literatures: judgment and decision-making, negotiation and dispute resolution, and psychology of influence and persuasion. These are Guthrie's principles of what he calls, leading without power:

- (1) Serve, instead of lead, e.g., say yes before being asked,
- (2) Ask, instead of direct, e.g., make personalized and effortful requests,
- (3) Listen, instead of talk, e.g., mindful, active listening
- (4) Negotiate, instead of dictate, e.g., interests rather than positions,
- (5) Explain instead of defend, e.g., acknowledge uncertainty, downsides.

This article advocates building rigorous, theoretical models to analyze how leaders and leadership communications in pandemics can reduce anxiety, prevent panic, inhibit complacency, and foster compliance with NPIs. Such models can build on economic models

²¹¹ CAROLINE KENNEDY, *PROFILES IN COURAGE FOR OUR TIME* (2003); JOHN F. KENNEDY, *PROFILES IN COURAGE* (1955).

²¹² Chris Guthrie, faculty page, Vanderbilt law school, <https://law.vanderbilt.edu/bio/chris-guthrie>.

²¹³ Chris Guthrie, Remarks, at Plenary 2: Engaging our Future: Opportunities and Challenges, at Appreciating Our Legacy and Engaging the Future: An International Conference for Dispute Resolution Teachers, Scholars, and Leaders, June 18, 2019, <https://law.pepperdine.edu/straus/training-and-conferences/connecting-in-classrooms.htm>. See also, Chris Guthrie, *Leading without Power*, presentation at Santa Clara University, Jan. 10, 2020.

of decision-making impacts of anticipatory emotions,²¹⁴ anxiety,²¹⁵ depression,²¹⁶ positive affect,²¹⁷ and skewness preferences.²¹⁸ Andrew Caplin²¹⁹ and John Leahy²²⁰ developed psychological expected utility theory to model situations where people experience feelings of anticipation before uncertainty resolves.²²¹ They analyzed how anxiety impacts wishful thinking,²²² asset pricing,²²³ genetic testing,²²⁴ AIDS testing,²²⁵ and supplying information about stressful medical procedures.²²⁶ Caplin analyzed fear appeals in health communications.²²⁷ Koszegi²²⁸ studied how anxiety can influence patient behavior²²⁹ and choices over intimidating decisions.²³⁰

²¹⁴ Martin G. Kocher et al., ‘*Let Me Dream on!*’ *Anticipatory Emotions and Preference for Timing in Lotteries*, 98 J. ECON. BEHAV. & ORGANIZATION 29 (2014).

²¹⁵ Michael T. Raugh & Giulio Seccia, *Anxiety and Performance: An Endogenous Learning-by-Doing Model*, 47 INT’L ECON. REV. 583 (2006).

²¹⁶ Jonathan de Quidt & Johannes Haushofer, *Depression through the Lens of Economics: A Research Agenda*, in THE ECONOMICS OF POVERTY TRAPS 127, 136-39 (Christopher B. Barrett eds., 2019).

²¹⁷ Benjamin E. Hermalin & Alice M. Isen, *A Model of the Effect of Affect on Economic Decision Making*, 6 QUANTITATIVE MARKETING & ECON. 17, 19 (2008).

²¹⁸ Markus Dertwinkel-Kalt & Mats Koster, *Salience and Skewness Preferences*, J. EUR. ECON. ASS’N (2019), <https://doi.org/10.1093/jeea/jvz035>.

²¹⁹ Andrew Caplin, Silver Professor of Economics, N.Y.U. economics department faculty page, <https://wp.nyu.edu/andrewcaplin/>.

²²⁰ John Leahy, Allen Sinai Professor of Macroeconomics and Public Policy, University of Michigan economics department faculty page, <https://lsa.umich.edu/econ/people/faculty/jvleahy.html>.

²²¹ Andrew Caplin & John Leahy, *Psychological Expected Utility Theory and Anticipatory Feelings*, 116 Q.J. ECON. 55 (2001).

²²² Andrew Caplin & John V. Leahy, *Wishful Thinking*, Nat’l Bureau Econ. Res. Working Paper No. 25707, Mar. 2019, <https://www.nber.org/papers/w25707>.

²²³ Caplin & Leahy, *supra* note 221, at 67-69.

²²⁴ Andrew Caplin & John Leahy, *Behavioral Policy*, in 1 THE PSYCHOLOGY OF ECONOMIC DECISIONS: RATIONALITY & WELL-BEING 73 (Isabelle Brocas & Juan Carrillo eds., 2003).

²²⁵ Andrew Caplin & Kfir Eliaz, *AIDS Policy and Psychology: A Mechanism-Design Approach*, 34 RAND J. ECON. 631 (2003).

²²⁶ Andrew Caplin & John Leahy, *The Supply of Information by a Concerned Expert*, 114 ECON. J. 487 (2004).

²²⁷ Andrew Caplin, *Fear as a Policy Instrument*, in TIME AND DECISION: ECONOMIC AND PSYCHOLOGICAL PERSPECTIVES ON INTERTEMPORAL CHOICE 441 (George Lowenstein et al. eds., 2003).

²²⁸ Botond Koszegi, University Professor, Department of Economics and Business, Central European University, faculty website, <https://economics.ceu.edu/people/botond-koszegi>.

²²⁹ Botond Koszegi, *Health Anxiety and Patient Behavior*, 22 J. HEALTH ECON. 1073 (2003).

²³⁰ Botond Koszegi, *Utility from Anticipation and Personal Equilibrium*, 44 ECON. THEORY 415, 434-35 (2010).

John Geanakoplos,²³¹ David Pearce,²³² and Ennio Stacchetti,²³³ developed psychological game theory (PGT) to incorporate emotions that depend on beliefs about actions and beliefs into strategic analysis.²³⁴ PGT can model belief-dependent anger and surprise.²³⁵ PGT models have proliferated.²³⁶ There are PGT models of belief-dependent anger, pride, and vengeance emotions in litigation,²³⁷ belief-dependent embarrassment, guilt, and remorse in maintaining informal social norms,²³⁸ everybody cooperating in a one-shot PGT prisoner's dilemma being sustained by sufficiently averse guilt from violating compliance norms.²³⁹ expressive voting,²⁴⁰ reciprocity,²⁴¹ and sequential reciprocity.²⁴² Experimental play in one-shot public goods games supports PGT models of guilt aversion and reciprocity.²⁴³ Experimental play in sequential public goods games supports PGT models of leaders not free riding to avoid guilt from not

²³¹ John Geanakoplos, James Tobin Professor of Economics, Yale University Economics Department faculty website, <https://economics.yale.edu/people/faculty/john-geanakoplos>.

²³² David Pearce, New York University Economics Department faculty website, <https://as.nyu.edu/content/nyu-as/as/faculty/david-g-pearce.html>.

²³³ Ennio Stacchetti, New York University Economics Department faculty website, <https://as.nyu.edu/content/nyu-as/as/faculty/ennio-stacchetti.html>

²³⁴ John Geanakoplos et al., *Psychological Games and Sequential Rationality*, 1 GAMES & ECON. BEHAVIOR 60 (1989).

²³⁵ *Id.* at 60, 62.

²³⁶ Ofer H. Azar, *The Influence of Psychological Game Theory*, 167 GAMES & ECON. BEHAV. 459 (2019).

²³⁷ Peter H. Huang & Ho-Mou Wu, *Emotional Responses in Litigation*, 12 INT'L REV. L. & ECON. 31 (1992).

²³⁸ Peter H. Huang & Ho-Mou Wu, *More Order without More Law: A Theory of Social Norms and Organizational Cultures*, 10 J.L. ECON. & ORG. 390, 394 fig. 2, 396 fig. 3, 399 fig. 7 (1992).

²³⁹ Gregory DeAngelo & Bryan C. McCannon, *Psychological Game Theory in Public Choice*, 182 PUB. CHOICE 159, 162-63 (2020); Bryan C. McCannon, *Social Norms and Cooperation*, 14 SCOTTISH INT'L J. ECON. THEORY 303 (2018).

²⁴⁰ DeAngelo & McCannon, *supra* note 239, at 172-73.

²⁴¹ Armin Falk & Urs Fischbacher, *A Theory of Reciprocity*, 54 GAMES & ECON. BEHAV. 293 (2006).

²⁴² Martin Dufwenberg & Georg Kirchsteiger, *A Theory of Sequential Reciprocity*, 47 GAMES & ECON. BEHAV. 268 (2004).

²⁴³ Martin Dufwenberg et al., *The Framing of Games and the Psychology of Play*, 73 GAMES & ECON. BEHAV. 459, 470 (2011).

living up to expectations of being a “good leader” and followers not free riding to avoid guilt from not living up to expectations of being a “good follower.”²⁴⁴

Extending PGT to allow emotions to depend on beliefs about actions, others’ beliefs, and states of nature²⁴⁵ permits a general theory of guilt aversion,²⁴⁶ models of how anger and frustration through aggression and blame influence outcomes in leader-follower games,²⁴⁷ studying public administration corruption due to collusion between a bureaucrat and lobbyist,²⁴⁸ examining embezzlement by intermediaries between donors and recipients,²⁴⁹ and analyzing kindness.²⁵⁰

CONCLUSION

Economist Brigitte Madrian²⁵¹ discussed the fundamentals of behavior change by posing a series of thought-provoking and organizing questions about whether people (and organizations) want to change their behavior.²⁵² If yes, then why don’t they? What are the barriers? If no, then can we change what people want, through financial incentives,

²⁴⁴ Bryan C. McCannon, *Leadership and Motivation for Public Goods Contributions*, 65 SCOTTISH J. POL. ECON. 68 (2018).

²⁴⁵ Pierpaolo Battigalli & Martin Dufwenberg, *Dynamic Psychological Games*, 144 J. ECON. THEORY 1 (2009); Pierpaolo Battigalli et al., *Incorporating Belief-Dependent Motivation in Games*, 167 J. ECON. BEHAV. & ORG. 185 (2019).

²⁴⁶ Pierpaolo Battigalli & Martin Dufwenberg, *Guilt in Games*, 97 AM. ECON. REV. 170 (2007).

²⁴⁷ Pierpaolo Battigalli et al., *Frustration, Aggression, and Anger in Leader-Follower Games*, 117 GAMES & ECON. BEHAV. 15 (2019).

²⁴⁸ Loukas Balafoutas, *Public Beliefs and Corruption in a Repeated Psychological Game*, 78 J. ECON. BEHAV. & ORG. 51 (2011).

²⁴⁹ Giuseppe Attanasi et al., *Embezzlement and Guilt Aversion*, 117 GAMES & ECON. BEHAV. 409 (2019).

²⁵⁰ Martin Dufwenberg & Georg Kirchsteiger, *Modelling Kindness*, 167 J. ECON. BEHAV. & ORG. 228 (2019).

²⁵¹ Brigitte C. Madrian, Dean and Marriott Distinguished Professor in the Brigham Young University Marriott School of Business, <https://marriottschool.byu.edu/directory/details?id=63227>.

²⁵² Brigitte Madrian, *Nudges: What Works and for Whom?* Session Discussant Remarks, Boulder Summer Conference on Financial Decision-Making, May 21, 2019, https://www.colorado.edu/business/sites/default/files/attached-files/2019_short_program_5-6_update_cfdm.pdf.

information, or behavioral interventions? Is there one (and the same) barrier for everybody? Are there (the same) multiple barriers for everybody? Are there different barriers for different people? What barriers can we address through cost-effective interventions? Is there one intervention or many interventions? Should there be targeted interventions or one blanket intervention? What types of interventions generalize across multiple decision-making domains? Which interventions are more context-specific? These questions are helpful in thinking about how to achieve compliance with NPIs.

Lessening anxiety, panic, and complacency in pandemics improves mental health and affects the social outcomes and time paths of pandemics by influencing the critical individual decisions of whether people choose to comply with NPIs. People may not comply with NPIs because they:

- (1) can't,
- (2) don't want to, or
- (3) want to and can, yet nonetheless do not.²⁵³

Policies, such as ensuring people have cloth masks,²⁵⁴ enough money to weather the negative income shocks from Covid-19,²⁵⁵ jobs to return to after Covid-19,²⁵⁶ and enough space to physical distance,²⁵⁷ lessen anxiety and address (1). Policies changing people's preferences,

²⁵³ Erev et al., *supra* note 171 (introducing this trichotomy of sources of noncompliance with safe medical practices).

²⁵⁴ James Gorman, *Are Face Masks the New Condoms?* N.Y. TIMES, Apr. 18, 2020, <https://www.nytimes.com/2020/04/18/health/coronavirus-mask-condom.html>.

²⁵⁵ Apuzzo & Pronczuk, *supra* note 81.

²⁵⁶ Editorial Board, *supra* note 82; Saez & Zucman, *supra* note 83.

²⁵⁷ Amina Khan, *Coronavirus Tips: The Do's and Don'ts of Social Distancing*, LOS ANGELES TIMES, Mar. 18, 2020,

such as practicing mindfulness and the social media campaign #IStayHomeFor challenge,²⁵⁸ remind people viscerally and vividly how their individual, private actions have social, public health consequences in terms of infection and healthcare congestion externalities, and in so doing, lessen anxiety and address (2). Gentle leadership lessens anxiety, panic, and complacency and addresses (3).

<https://www.latimes.com/science/story/2020-03-18/coronavirus-tips-the-dos-and-donts-of-social-distancing>.

²⁵⁸ Lisa Respers France, *Kevin Bacon and Others Want You Six Degrees for #IStayHomeFor Challenge*, CNN, Mar. 20, 2020, <https://www.cnn.com/2020/03/20/entertainment/i-stay-home-for-celebs-trnd/index.html>.