March, Raymond J., and Adam Martin, 2026. "The Ought-Does Gap in Pandemic Policy." *Journal of Private Enterprise*, 41(2): 9-39.

The Ought-Does Gap in Pandemic Policy

Raymond J. March*
Angelo State University and Free Market Institute
United States of America

Adam Martin
Texas Tech University and Free Market Institute
United States of America

Abstract
Positive economic analysis brings to bear trade-offs, unintended consequences, and the role of policy in shaping individual behavior in analyzing pandemic policy responses. Welfare economics builds on these observations a set of normative recommendations about how government ought to respond to a pandemic. But there is often a divergence between what even a sophisticated version of welfare economics recommends and what governments actually do: the ought-does gap. Two sources for this gap are knowledge problems and misaligned political incentives. We use the US government's response to the COVID-19 pandemic as a vehicle for explaining the ought-does gap and its implications.

JEL Codes: HI10; H11; H12
Keywords: COVID-19, public health policy, government intervention, regulation, economic freedom

I. Introduction

David Hume ([1739] 2005) developed his "is-ought problem" by noting the challenge of deriving normative stances (ought statements) from positive observations (is statements). Ultimately, Hume concluded that statements regarding how things should be cannot be logically derived from observations about how the world is. The is-ought problem poses a challenge for philosophers and economists hoping to determine how to improve current circumstances through policy and other methods of change.

Welfare economics bridges the gap between is and ought by assigning preferences normative weight and determining an aggregation procedure

* We thank the participants in the Menard Family Institute for Economic Inquiry Mini Conference titled "Economics of Pandemics, Public Health Regulation, Spillover Effects, and Government Bailouts" for helpful feedback.

for weighing those preferences. From positive economic analysis and imputed consumer and producer surpluses, a standard presentation of welfare economics furnishes policy prescriptions. When circumstances within markets prevent markets from maximizing social welfare, governments can enact policies to improve welfare and correct market shortcomings. Theoretically, these policies redirect resources in the economy from a suboptimal allocation of resources toward more efficient outcomes.

But the real-world relationship between welfare economics and government policy is far more complicated. Rather than bridging the gap between is and ought, governments frequently act in ways unsupported by welfare economics. How, when, and for what reasons governments deviate from implementing policies to improve welfare are vital considerations for determining the appropriate role of government in society, especially for those who defend policies using the standard apparatus of welfare economics.

This article explores what we call the "ought-does gap," which is the difference between what governments ought to do according to orthodox welfare economics and what government actually does. We use the US government's response to the COVID-19 pandemic as a case study. Pandemics constitute many of the deadliest events in history. Limiting their destruction often requires a large group of individuals cooperating to avoid disease spread and to mitigate its consequences. Given the difficulty and scale of the resulting collective action problems, governments are often tasked with developing responses and restrictive measures during pandemics. How effectively governments address pandemics, including COVID-19, depends heavily on the divergence in the ought-does gap.

This article uses COVID as a case study to illuminate a broader point. We focus primarily on the case of the US policy response because it is the most studied. Our contribution is not any novel analysis of a specific pandemic response's effectiveness. Instead, we provide a framework for introducing students and nonspecialists to a political economy perspective on pandemic policy making. This framework can also be used as a template for teaching about other policy domains.

Our discussion is organized as follows. First, we discuss what government should do according to welfare economics. In this discussion, we incorporate insights from Coasean analysis to present a more nuanced view of government's potential role in dealing with pandemics than standard presentations do. We introduce key

economic concepts that we posit should inform any normative policy analysis.[1] Second, we discuss what government can do.[2] We introduce the knowledge problem, which limits the set of effective policy tools at government's disposal. Third, we discuss what government does. We introduce public choice theory, which treats government policy as the product of political incentives rather than merely academic economic analysis. Fourth, we discuss what government should not do. We introduce the idea of institutional robustness, arguing that—whatever policies government should pursue in response to a pandemic—we must be wary of undermining the institutions that generate both health and wealth in the long run. Finally, we conclude by drawing out some implications of our general ought-does framework.

II. What Government Should Do

The key concept in analyzing pandemic policy is externalities. Externalities are typically defined as third-party or spillover effects. Spillover effects may be positive or negative. Individuals taking action to prevent themselves from becoming ill often also indirectly lower the chances of others becoming ill. Many actions that lower the chances or severity of infection, such as getting vaccinated, repeatedly washing hands, restricting travel, or wearing uncomfortable face masks are also costly for the individual (Chen and Toxvaerd 2014; Laxminarayan and Malani 2011). Individuals may not have sufficient incentives to take these positive spillovers into account. On the flip side, individuals who engage in risky behaviors may infect others who are not involved in risky behaviors, imposing a negative spillover.

Externalities' impact on spreading disease prompts welfare economists who follow the standard approach to recommend various

[1] As will become clear below, we do not actually take on the standard normative criteria of welfare economics—that is, maximizing efficiency as defined by preferences and wealth. Rather, we focus on more general lessons from economics that could apply to any normative evaluation of policy effectiveness. While we use the language of externalities, this does not itself commit us to a Pareto or Kaldor-Hicks efficiency standard.

[2] Horwitz (2009) approaches a similar set of issues from a different angle, arguing that "ought implies can." That is, if a policy response is not ultimately epistemically workable, it should be ruled out as something that government ought to do. We instead grant a nuanced version of welfare economics the ought status it can claim (nuanced by incorporating the Coasean tradition) to argue that even a policy is in principle desirable, it might not be achievable. These are two ways to get to a set of similar conclusions about what *real-world* governments ought to do.

measures to internalize their effects through various policy measures. Negative spillovers should be discouraged, positive spillovers encouraged. Governments should use a mix of regulations and financial incentives—both penalties such as taxes and rewards such as subsidies—to eliminate negative externalities and realize positive externalities. For sufficiently important goods that are difficult to exclude free riders from using, even direct government provision may be appropriate.

Even at this level of generality, standard presentations of welfare economics move too fast in advocating interventions. In particular, they ignore the insights of Ronald Coase about how private individuals already respond to positive and negative externalities. Effective government responses to pandemics and other public health concerns require carefully considering the consequences of their responses. It also requires assessing what responses fare better in preventing disease spread as well as what is the appropriate level of governance to develop policy measures.[3] In what follows we offer a somewhat more humble but still aspirational view of the good that policy interventions might achieve.

A. Governments Should Acknowledge Bottom-Up Responses to Potential Market Failures

One of most basic insights of economics is that when an action's expected costs and benefits change, so does individual behavior. But oddly enough, economists often forget this when discussing externalities. They implicitly assume that individuals will not respond to externalities at all (Coase 1960). This assumption is unfounded.

It turns out that individuals do take steps to protect themselves when confronted with a deadly new virus. Gupta et al. (2021) find "a substantial portion of the response to the epidemic [COVID-19] was not induced by specific government policies" (p. 1). Similarly, Powell (2022) and Luther (2021) find that data on travel bookings, OpenTable reservations, and individual mobility as measured by Google confirm that social interactions decreased well before state governments issued stay-at-home orders.

[3] While it is vital to ask what health-related metric is most appropriate to gauge the harm of a pandemic or to compare the effectiveness of policy responses, we do not address this question in this paper. Our primary focus is to provide a framework for analysis rather than a definitive prescriptive formula.

Private action to internalize externalities is, as Coase (1960) points out, limited by transaction costs. Pandemics affect large populations, making potential externalities large. Large-scale efforts to prevent outbreaks and disease spread require widespread cooperation and coordination across groups with differing interests and with limited ability to enforce and monitor behavior. Consequently, transaction costs can be prohibitively high for private actors to effectively reduce disease spread without outside corrective efforts.

But while they are limited, private efforts should not be overlooked. Where a disease spreads and how many other parties are infected are important factors in internalizing an externality (Carson 2022). Leeson and Rouanet (2021) distinguish between on-site and cross-site externalities. On-site externalities constitute infecting others at a specified location.[4] Cross-site externalities include the secondary effects of infecting others as individuals first infected at the on-site location spread disease at other locations. The authors note that cross-site externalities can be more easily contained when these locations are privately owned since owners have a stronger incentive to maintain cleanliness and keep customers from becoming infected.

Several historical and contemporary examples support Leeson and Rouanet's (2021) insight. Carson (2016, 2020) argues that private interests helped reduce the spread of malaria within Texas and North Carolina from 1910 to 1920. Carson (2021) notes that the National Basketball Association implemented a "bubble system" to house professional athletes to finish their season and playoffs safely. Two of 322 professional basketball players were infected with COVID-19 during the approximately five-month period they were in the bubble system (Zillgitt 2020). Walmart and other large retailers also engaged in nationwide efforts to keep customers safe from infection by requiring customers to wear facemasks, establishing social distancing guidelines, and adjusting store hours to reduce congestion (Carson 2021). Each organization found it profitable to support worker safety and avoid disease spread—reducing the risk of on-site externalities. As a secondary consequence, off-site externalities are also likely reduced. These and other examples strongly indicate private agencies have a strong incentive to provide safe and

[4] In the authors' example, a person infected with COVID-19 rides the subway and infects other riders.

noncontaminated environments for their customers and employees (Sutter 2020).

Individuals respond not only to pandemics themselves, but also to government policy. Because of this, policies can have unintended consequences. To prevent students and younger demographics from contracting and spreading COVID-19, many states required schools and universities to shut down and provide instruction to students online. Rapidly closing schools and placing classes online made detecting cheating and other forms of academic dishonesty difficult to monitor. Consequently, cheating increased exponentially during the pandemic (Bilen and Matros 2021).[5]

Many states also required patients to delay or cancel elective surgeries to prevent hospitals from becoming overwhelmed. During the first three months of the pandemic, approximately twenty-eight million elective surgeries were postponed (Nodell 2020). Duclos et al. (2023) and Garcia et al. (2020) find that delaying these procedures harmed patients' overall health. Fear of contracting COVID-19 at physician's offices and hospitals also motivated patients not to receive treatment, leading to further health concerns and death (Li 2022; Zhang 2021).

In addition to the direct harm from undesirable and unintended consequences of pandemic policies, governments that enact them may lose credibility. In some cases, distrust in government recommendations and information can motivate hostility and disobedience (Latkin et al. 2021). For example, numerous stories of individuals hosting and attending "COVID parties" to contract COVID-19 emerged as the public became frustrated with governmental guidelines (Karimi and Lynch 2020; Guitierez 2022). Choi and Fox (2022) find distrust in public health institutions was the strongest predictor of vaccine hesitancy when COVID-19 vaccines became available.[6]

B. Governments Should Recognize Trade-Offs

Health is not the only good that individuals value. Although taking actions to avoiding becoming ill during a pandemic might become a higher priority, deciding on what actions to take (or not take) still

[5] Many were also unable to participate in online learning during the pandemic because they lacked reliable internet services or did not have a computer at home (Richards, Aspegren, and Mansfield 2021).

[6] The authors note consistent levels of trust in public health institutions previously, indicating that the distrust examined in their research was the result of how these institutions handled COVID-19.

reflects individual subjective costs and benefits (Carson 2021). But even someone that rejects the normative relevance of subjective preferences should acknowledge important trade-offs between health and other goods. Education, family, community, safety, nutrition, artistic and cultural enrichment, and even leisure and enjoyment are real goods. Different individuals—both within and across countries—will, both rightly and wrongly, have different risk tolerances for becoming ill depending on how they pursue those other goods (Luther 2020). Even if one monomaniacally insists that those other goods are only valuable because of their ultimate effect on health (mental and physical), this does not evade the issue. All that does is make health such a multidimensional good that we are still left with the problem of navigating trade-offs among its different components.

Trade-offs between health and other goods also differ among population groups. In the case of COVID-19, the elderly and those with comorbidities are far more vulnerable to severe infection and death (Yanez et al. 2020). Similarly, the risk of transmission from children to other children or adults is considerably lower than transmission rates for older age groups (Gudbjartsson et al. 2020; Ludvigsson et al. 2021). Children and young adults are also considerably less likely to experience a severe COVID-19 infection (Snape and Viner 2020).

There is no uniform trade-off for these differing groups. Boettke and Powell (2021) dig into this point. The costs to the elderly and infirm from contracting COVID are higher than those to the young and healthy. But, again echoing Coase (1960), they point out that externalities are reciprocal. Policies restricting mobility alleviate the risk of infection but impose costs in the form of forgone commerce and other forms of social interaction. Those latter costs fall disproportionately on the young, who are more likely to be of working age, to be dating, and the like. A prudent policy response would take into account these different costs.[7]

[7] We are not claiming that the lives of the elderly and vulnerable should be treated as less valuable than those of the young. In fact, economists who work on value-of-a-statistical-life measures recognize a complex set of trade-offs (Viscusi 2021). Rather, we claim that a prudent policy takes into consideration that different groups face different trade-offs between avoiding COVID and other worthwhile pursuits.

Fixating on health when developing pandemic policies can also hamper health itself. Limiting traveling, restricting social gatherings, and issuing stay-at-home measures can affect mental and physical health (Abel et al. 2021). Khubchandani et al. (2021) and Sher (2020) find steep increases in depression, anxiety, and other psychological distress following lockdowns issued across the US. The health care system uses goods produced in many sectors of the economy, so shutting down an economy to prevent the spread of disease will create bottlenecks in effective treatment.

Policy makers should carefully consider both the costs and benefits of policies. Trade-offs matter regardless of how we think different goods should be weighted. In the case of pandemics, this problem is necessarily complex, given individual heterogeneity and the dynamic nature of pandemics. The welfare economics approach to cost-benefit analysis does not evade this difficulty, especially as it ultimately relies on interpersonal comparisons of well-being (Higgs 1994).

C. Governments Should Address Spillovers at the Appropriate Level

Approaches to internalizing externalities vary partially because externalities vary in size. A key principle of public economics is that government jurisdictions should extend only as far as the externalities they address. While pandemics can be global, efforts to internalize spillover effects can occur at varying jurisdictional levels.

Lockdowns, mask mandates, limitations on public gatherings, and similar measures to limit disease spread in the US were often passed at the state level. States also varied considerably in the stringency of these measures (Miozzi and Powell 2023, 2024). More stringent pandemic responses at the state level may be appropriate for more densely populated states (especially in the northeastern US). However, less densely populated states experience negative spillovers at a smaller level, suggesting policy responses should to be tailored to the externality's scope. Yonk and Janaskie (2022) find statistically significant differences in death rates between rural and urban counties with varying population sizes. Miller (2021) similarly finds heterogeneous outbreak patterns across different regions of the US. Messner and Payson (2020) analyze COVID-19 outbreak patterns across the US and recommend that "measures should be implemented at the smallest population subdivision possible" (p. 15).

When external effects affect larger populations in more homogeneous ways, higher-level jurisdictions can play a role. Perhaps

the clearest example is developing a COVID-19 vaccine. A vaccine for a nationwide (and global) pandemic closely resembles a global public good (Meijer, Verschuuren, and Weggen, 2021; Hunter et al., 2022). Positive spillovers from vaccination suggest their provision could be underprovided on the market, justifying higher-level jurisdictional government provision.

III. What Government Can Do

The knowledge problem was formulated in response to the difficulties of central planning. Hayek (1945) stresses that central planners cannot utilize the fragmented and socially dispersed knowledge required to allocate goods and services as effectively as markets, which are bottom up and decentralized. None of us are as smart as all of us. Lavoie (1985), who coined the term *knowledge problem*, pointed out that this problem likewise also afflicts partial attempts at economic planning. It has since been extended to diverse policy areas such as foreign aid, disaster recovery, poverty alleviation, and public health crises (Lavoie 1985; Coyne 2007; Martin and Petersen 2019; Storr et al. 2021). Government should recognize trade-offs, but the knowledge problem implies that they will have a difficult time assessing what those trade-offs are.

Kirzner ([1979] 2018) makes an important point about one epistemic constraint that government regulation faces: When policy settles on a particular way of accomplishing goals as the legally allowed way, it stymies the future learning that would have taken place in the absence of the regulation. Policy makers cannot know what innovations and other solutions will not be discovered because they shut down the process of entrepreneurial experimentation.

To the extent that knowledge problems matter, welfare economics—even the more nuanced version of it that we discussed in the last section—might ask too much of real-world governments. This insight does not imply that centralized efforts have no role in effective pandemic policy. As indicated above, governments can serve an important role in combating pandemics when the scope of externalities is sufficiently high. Governments can also help finance and subsidize production of pandemic-related goods when markets might fail to provide them effectively. But it does paint a more circumscribed picture of government's role than standard welfare economics. In particular, the knowledge problem calls into question the ability of policy makers to efficiently allocate resources among competing ends. Where market prices are imperfect due to market

failures, policy makers themselves must engage in a great deal of guesswork to mitigate them.

A. Governments Can Increase Particular Outputs

Government policies that divert or dedicate resources to producing a good can motivate greater supply. Early in the pandemic, the federal government established Operation Warp Speed, a public-private partnership of drug producers and federal agencies to expedite the development, production, and distribution of COVID-19 vaccines. Government directly subsidized vaccine clinical trials and production by providing laboratory equipment and testing facilities, as well as connecting manufacturing partners (Government Accountability Office 2021; Escalante and Earle 2022). Operation Warp Speed also produced three hundred million doses of the first COVID-19 vaccine (Escalante and Earle 2022).

Government policy at its best can complement decentralized, bottom-up responses to knowledge problems (Coyne 2013). Individual governments cannot solve knowledge problems. The US government relied heavily on innovation from the private sector to develop vaccines, treatments, and other medical goods used to address the pandemic (March 2021, 2022). Further, as the knowledge problem suggests, the federal government inefficiently allocated vaccines and remdesivir to storage facilities, hospitals, and clinics because it lacked market prices to help guide resources (March 2020). Governmental efforts to expand hospital capacity were similarly unsuccessful. Rose (2020) finds that despite $660 million in funding from the US Army Corp of Engineers, most field hospitals never treated patients because "there wasn't enough planning to make sure these field hospitals could be put to use once they were finished" (p. 5).

Government promotion and restriction of certain goods during pandemics also face a knowledge problem in determining which goods or services are "essential" (Storr et al. 2021). As noted above, many goods that are complementary to policy makers' goals are produced in markets for non-health-care goods and services. At their most extensive, lockdown or stay-at-home orders affected approximately 94 percent of the US population (Secon 2020). Highly restrictive measures required the government to determine which businesses and employers were indispensable for pandemic conditions, allowing them to remain open. Storr et al. (2021) document the relatively arbitrary differences based on which businesses were considered essential by various states.

The knowledge problem afflicts any attempt by government to effectively navigate trade-offs. Boettke and Powell (2021) make this point with regard to the differential risk faced by different populations of catching COVID and the differential costs of avoiding social interactions. They point out that the simple dichotomy of high-risk, low-cost vs. low-risk, high-cost individuals obscures the vast and multidimensional heterogeneity among the population. Knowledge of these trade-offs—even if one denies that they contain a subjective element of risk tolerance—is dispersed throughout the population. The authors further point out that the standard welfare economics response to this sort of situation would be to tax social interaction rather than forbid it. Individuals could then take into account their local and tacit knowledge while being given some incentive to take transmission externalities into account. No governments pursued this policy.

Government funding for certain COVID-19 pandemic-related goods in the US demonstrated some successes. Efforts to distribute goods and determine which goods (and businesses producing them) were vital during the pandemic found numerous problems. These examples strongly suggest that government policy can play complementary roles in addressing pandemics but cannot effectively displace markets and other forms of bottom-up organization in allocating such goods.

B. Governments Can Observe Some Outcomes

While any data collection process is imperfect, governments produced a mountain of public health data during the pandemic. Atlas (2021) notes that academics, policy makers, governors, and regulators relied considerably on state and federal data to gauge the spread of disease and make policy recommendations. Government-collected data on infections and deaths also helped states and cities develop localized policy responses early in the pandemic (Messner and Payson 2022).

Governments cannot infer counterfactuals without policy variation. Counterfactuals are crucial to determine the causal effects of policy. If a city locks down and continues to see cases go up, does this mean that the lockdown failed to mitigate cases? Perhaps, but not necessarily. Cities that see increasing cases may be more likely to lock down. Economists call this problem endogeneity. It could be that cases would be rising even faster without the lockdown. Similarly, if a

city opens up and cases rise, is it due to increased interaction or a new, more virulent strain of the virus?

The great difficulty is that counterfactual outcomes can never be directly observed. Without the ability to travel the multiverse, we cannot know whether the policy change was the deciding factor. So, like supply and demand curves, counterfactuals must be inferred from existing data. Where do these data come from? They must come from other jurisdictions with different policies. If every jurisdiction has the same policies, observers cannot hold all else equal in making comparisons. But if policies do vary, counterfactuals can (with great difficulty) be inferred. If it turns out that cities with different policies experienced similar outcomes, then it is difficult to attribute the change in outcome to policy. More variation allows for more confident inferences.

Proponents of central government policy in response to pandemics should face up to this problem. We cannot simply assume that governments will know the best policies to pursue, especially with regard to a novel virus. Our argument is not that this manifestation of the knowledge problem decisively refutes action by central governments. Rather, it creates a presumption in favor of what social scientists call polycentric governance (Ostrom 2010). Systems of polycentric governance are those in which authority is dispersed. For these and other reasons, Paniagua and Rayamajhee (2021) and Haeffele, Lofthouse, and Forzani (2022) argue that polycentricity is especially important in a pandemic.

C. Governments Can Act on an Existing Scientific Consensus When One Exists

Tullock (2005, p. 5) refers to the scientific community as "perfect laissez-faire," as one in which scientific knowledge and discovery are constantly tested, rejected, accepted, and adopted in other areas of inquiry or industry according to feedback from other scientists. A consensus from the scientific community only occurs after multiple iterations of this process. Once established, governments can assist with adopting scientific discoveries into uses to benefit the general public.

COVID-19 vaccines provide the clearest example. Decades of prior immunology research largely supported the use of mRNA technology in quickly developing vaccines for novel viruses (Shalake et al., 2012). Consequently, Operation Warp Speed selectively supported drug developers using mRNA technology in their development process. The use of remdesivir to treat COVID-

19 provides a similar account. Before authorization, remdesivir became known as the "standard of care" for COVID-19 treatment from independently established clinical trials (March 2021; Lovelace 2020). After the then-experimental drug received emergency use authorization from the Food and Drug Administration (FDA), the US government purchased large amounts of remdesivir to treat patients and secure additional supplies from its producer (March 2021).

But government cannot anticipate how science will develop (Wagner 2021). Science itself is a rivalrous and polycentric process. Today's consensus may be tomorrow's superstition. Much like markets for goods and services, scientific inquiry evolves and redirects focus according to the social needs of changing environments (Boettke and Butos 2002). Consequently, current discoveries and applications of science require constant reexamination and modification.

Because the COVID-19 pandemic stemmed from a novel virus with no known preexisting immunity, scientists did not agree regarding how it was transmitted. In late 2019 and early 2020, medical researchers debated whether the virus spread primarily through aerosols or droplets (Wilson, Corbett, and Tovey 2020; Anderson et al. 2020; Rawlinson, Ciric, and Cloutman-Green 2020). After months of scrutiny and peer-reviewed research, epidemiologists largely agreed that COVID-19 is primarily transmitted through aerosols. However, rejecting the theory that COVID-19 mainly spread through droplets took years to be accepted by the World Health Organization, which advised many countries on pandemic policy (Lewis 2022).

Biological sciences are of course indispensable tools in mitigating the harms of a pandemic. But the possibility that an existing consensus might be wrong or change again weighs against a monocentric pandemic response. Gulker and Magness (2021) point out the abysmal track record of the Imperial College London model at predicting COVID-19 spread. This model underwrote a number of public policy prescriptions, especially non-pharmaceutical interventions such as mask mandates and lockdowns. Sometimes scientists simply get things wrong. The appropriate approach is not to abandon science but rather to support free scientific inquiry that can challenge existing approaches and to allow for policy variation that can at least offset the failures of particular predictive models.

IV. What Government Does

Public choice studies how individuals respond to political incentives. It begins from the wild assumption that people are people. The same individuals that produce and consume goods and services do not take on a new human nature when they step into the voting booth or assume public office. They still try to pursue their own diverse goals effectively and without sacrificing more than they have to. Individuals engage in exchange-like behavior in politics just as they do in markets. The difference is that the rules of the political game create distinct patterns of behavior from the rules of the market game.[8]

Because governments often obtain more resources and expand their scope of influence during crises, political exchanges become more frequent and lucrative during pandemics and other public health emergencies. Coyne, Duncan, and Hall (2021) note that governments are expected to distribute considerable resources during pandemics, increasing the scale and scope of political exchange quickly. Rather than assuming that these additional resources will be used to effectively serve public health and mitigate the negative consequences of the pandemic, we should ask what government actually will do.

A. Governments Engage in Moral Theater

A great deal of politics is driven by expressive behavior. Because individual voters do not decide the outcome of elections, they vote in the same way that sports fans cheer on their favorite teams: to express their values and to affirm their group loyalties (Brennan and Lomasky 1992; Martin and Swisher 2024). Politicians and other public officials thus curry favor with voters not by careful appeals to scientific evidence or cost-benefit analysis, but by appealing to their moral sentiments. These fundamentally emotional appeals take both positive and negative forms.

Public officials often provoke fear and a sense of urgency to garner public support and extend their influence during a crisis. As Higgs (2005) explains, "Over the ages, governments refined their appeals to popular fears, fostering an ideology that emphasizes the people's vulnerability to a variety of internal and external dangers

[8] It is possible that different institutional environments either select for or inculcate different sorts of motives. Politics may ennoble or power may corrupt. But absent a specific mechanism that explains why different motives win out in markets vs. politics, one should start from the assumption of motivational symmetry.

from which their governors . . . are represented to be their protectors" (p. 7). COVID-19 presented an external danger that politicians responded to by engaging in moral theater and using expressive rhetoric. Mandl and Reis (2022) analyze speeches given by US politicians during the pandemic and find governors used more "extreme" adjectives and stricter language to defend their actions when issuing guidance and implementing policy.

While we argue that much of politics is expressive moral theater, we do not mean that political actors are insincere. In some cases, they clearly are. Patkin (2020) and Panetta (2021) document examples of political figures holding parties, failing to wear face masks, and failing to follow measures they implemented. But this is not true of all policy makers. Public officials experience the same concerns and unease as their constituents during pandemics and other crises. We also do not contend that moral considerations should not be considered when developing pandemic policies. Rather, we emphasize that the use of moral theater and expressive actions taken during crises can result in adopting ineffective policy responses and waste scarce resources.

One example of moral theater resulting in ineffective pandemic policies is closing bars to reduce disease spread but not closing restaurants in many jurisdictions (Boettke and Powell 2021). This effectively compelled many bars to increase their food offerings in order to count as restaurants. It is not obvious how a bar serving more food than before benefits public health. Similarly, Redford and Dills (2021) find that many states considered alcohol retailers and recreational marijuana dispensaries non-essential businesses, requiring them to close. Why is shopping for recreational substances more or less dangerous than shopping for food? It is hard to avoid the conclusion that these bans went into effect for moralistic injunctions against intoxication and drug use rather than based on cost-benefit calculations.

Moral theater can also be at odds with scientific progress. When "The Science" becomes a political rallying cry, actual scientific progress is blocked (Kibbe and Waugh 2020). March (2022) argues that the health care industry's adaptation to pandemic conditions requires rapid discovery of treatment, testing, and other goods in a dynamic and uncertain environment. Political processes that distort scientific advancement hinder the discovery and use of new information and technology needed to address pandemics (Tullock 2005; March and Geloso 2020). Atlas (2021) notes the

COVID-19 task force was not amenable to changing federal testing guidelines from broad testing to targeted testing despite evidence that the latter strategy could help protect subpopulations more vulnerable to severe infections.[9] As Atlas recognizes, "the entire pandemic was political" (p. 96).

Even when well intentioned, framing pandemic policies under emotional and moral appeals can reduce public health officials' credibility. That the director of the National Institute of Allergy and Infectious Diseases, Dr. Anthony Fauci, reversed his stance on whether the public should wear facemasks to reduce disease spread provides an example. Early in the pandemic, Dr. Fauci wrote, "The typical mask you buy in the drug store is not really effective in keeping out virus, which is small enough to pass through material" (Roche 2021, p. 5). Two months later, he publicly recommended facemasks "for protecting each other" (Woodruff, Santhanam, and Thoet 2020, p. 1). During an interview in July 2020, Dr. Fauci acknowledged "that mixed message in the beginning, even though it was well meant to allow masks to be available for health workers, that was detrimental in getting the message across" (p. 3).

Another danger of moral theater is that expressive activity is typically tribalistic. We not only root for the home team, but also root against the other team. Attitudes toward COVID, how to respond to it, and the trustworthiness of public officials vary along predictably partisan lines. In March and April 2020, Democrats were more likely than Republicans to trust bureaucracies such as the World Health Organization or the Centers for Disase Control and Prevention and less likely than Republicans to distrust the politicians who were busy following those bureaucracies' advice (Kerr et al. 2021). Levin et al. (2023) report that conservative physicians were more likely to distrust a study showing the ineffectiveness of ivermectin when that treatment was truthfully identified. Moral theater afflicts not only laypeople but also experts.

B. Governments Prioritize the Seen Over the Unseen

Thinking in terms of opportunity cost and counterfactuals does not come naturally (Bastiat [1850] 1995; Hazlitt 1946). When we observe a good that has been produced, our first thought is rarely of the

[9] The COVID-19 task force was assembled in 2020 to "coordinate and oversee the [Trump] Administration's efforts to monitor, prevent, contain, and mitigate the spread of the virus [COVID-19]" (US Department of State, p. 1).

good that could have been produced instead. Would the world be better off with better health outcomes? It depends. What would we have to give up to achieve them? The moral theater of politics tries to focus our attention on realized gains and losses rather than what could have been (Clark and Lee 2013). Policy makers will tend to ignore hard-to-see costs and benefits.

Scientists distinguish between Type I errors (false positives) and Type II errors (false negatives). In the study of regulation, a Type I error is when government approves a product that should not be approved. A Type II error is when government fails to approve a product that should be. Policy makers face strong incentives to avoid Type I errors because negative effects visible to the public are more likely to result in backlash (Higgs 1994). This carries the logically necessary consequence of regulatory agencies being biased toward committing Type II errors. This bias toward Type II errors is widespread in the market for medical goods, which the FDA regulates (Higgs 1995; Tabarrok 2000; Isakov, Lo, and Montazerhodjat 2019; March 2021).

Tabarrok (2021) refers to the deaths from these errors made by the FDA as "the invisible graveyard" (p. 1). There are many tragic examples of the agency's conservative approach in approving medical goods resulting in patients dying while waiting for approval. Wardell (1978) estimates that approximately one hundred thousand individuals died from heart attacks while the FDA delayed approving beta blockers. March, Martin, and Redford (2016) note that FDA regulations designed for synthetic hormones delayed the use of human insulin to treat diabetics in the US.

The FDA also made sluggish use of emergency use authorizations—which allow medical goods to reach markets before they receive formal approval—during the early stages of the COVID-19 pandemic. March (2021) notes that the FDA actively prevented laboratories from independently testing patients for COVID-19 because their tests were not formally approved. Consequently, only about 1,200 tests were performed nationwide during the first six weeks of the pandemic (Patel 2020). By comparison, other countries developed and administered millions of tests over largely the same period. The FDA also established an additional advisory board to reevaluate COVID-19 vaccine safety after two vaccines completed preset standards set by Operation Warp Speed. March (2021) notes the advisory board delayed distributing vaccines for two weeks when an average of 2,200 US citizens were dying daily from infection.

Governments also enacted numerous trade and migration restrictions to prevent disease spread. The unseen effects of these restrictions are considerable. Devi (2020) notes that limiting migration during the pandemic severely limited physician access in Europe and Africa during outbreak periods. Trade restrictions also created extensive shortages of personal protective equipment across multiple countries, including the US. Yan et al. (2021) examine seventy-one countries and find trade restrictions from COVID-19 responses resulted in considerable price fluctuations (and higher food prices) for agricultural goods.

Overly restrictive policy responses to COVID-19 also extend to domestic responses. Hebert and Curry (2022) argue that governments are systematically prone to impose too severe lockdowns. Similar to government's incentive to avoid Type I errors, the authors observe, "too lenient" a lockdown risked additional lives—an observable negative. However, a "too strict" lockdown is perceived as "making people's lives slightly harder for a short period" (p. 267). The unseen consequence of overly stringent lockdowns is an unnecessary loss of economic activity and personal liberty.

C. Governments Respond to Special Interests

Economists use the term *special interests* to refer to groups that use resources to lobby governments for beneficial legislation, funding, or other favors. This process—called rent seeking—harms the interests of other groups in society by concentrating the benefits of government favors onto special interest groups while dispersing their cost onto the broader public.

Rent seeking is very common in the US health care and public health industry. In reviewing much of the public health literature, Leeson and Thompson (2021) find that major components of the US health care sector, including public health insurance provision, allocation of vaccines, and funding for medical research, operate publicly but are distributed according to private interests. Political exchanges between special interest groups and governments are vital in determining how governments act during public health crises. Coyne, Duncan, and Hall (2021) note that governments can allocate more favors and resources as the government expands in scope and size during public health emergencies.

The clearest example of special interests influencing pandemic policy in their favor is widespread school closures. By late March 2020, all school districts across the US shut down schools to avoid spreading COVID-19

(Zviedrite et al. 2021). After evidence that children rarely become ill or transmit COVID-19, the American Academy of Pediatrics recommended reopening schools in June 2020 (American Academy of Pediatrics 2020). However, prominent teachers' unions, including the federal American Federation of Teachers and local groups such as the Chicago Teachers Union, Berkley Teachers Union, and Arizona Education Association, lobbied strongly against reopening schools (Blanks 2022). As of March 2021, five states still had partial school closings (*Education Week* 2021). Teachers union members benefited by having schools remain closed while receiving total compensation and exemptions from federal testing requirements.[10] The costs of these closures were exceptionally high for low-income families (Agostinelli et al. 2022).

The fiscal policy changes in response to COVID-19 were also rife with concentrated benefits and dispersed costs (Vogel 2020). In late March 2020, the US government signed the Coronavirus Aid, Relief, and Economic Security Act (CARES Act), an approximately $2.2 trillion stimulus response to the economic downturn. Forty lobbyists with political connections to the Trump administration secured approximately $10 billion of this sum (Tanglis and Lincoln 2020). Vogel (2020) finds large chemical manufacturers with political connections were able to have their firms listed as essential businesses and receive funding from the CARES Act due to lobbying efforts. Cachanosky et al. (2021) note that the CARES Act also granted the Federal Reserve authority to lend to municipalities rather than bank entities. The authors also document six new credit lending facilities enacted to address economic contractions during the pandemic, each tasked with distributing millions or potentially billions in business loans. As Cachanosky et al. observe, "To the extent that these facilities are intended to allocate credit, it shifts the Fed's focus away from its primary objective of promoting monetary stability" (p. 1170). Rather, the focus redirected funds into avenues for additional political exchange.

Operation Warp Speed, the federal government's effort to quickly develop and distribute a COVID-19 vaccine, was also subject to special interests. Despite hundreds of global efforts to develop a vaccine, the US government only selected six companies to receive funding (approximately $10 billion in total), access to laboratory and other testing materials to assist with development, and accelerated

[10] Redford and Dills (2021) similarly find employees of state-owned alcohol retailers still received paychecks in some states even though stores had been ordered to close.

approval consideration (Denkyirah and March 2024). By late 2020, only two vaccines received approval—one developed by Pfizer and another by Johnson & Johnson. Both companies are among the largest lobbying firms in the pharmaceutical industry (OpenSecrets 2025). Although the effort did succeed in bringing novel vaccines to the market, as with many political exchanges, COVID-19 vaccine developers selected by the federal government to participate in Operation Warp Speed continued to receive federal subsidies and other special treatments even after the pandemic formally ended (Denkyirah and March 2024).

V. What Government Should Not Do

Up to this point, we have focused on lessons from political economy that any consequence-sensitive normative view should take seriously. In this section, we relax our neutral tone. There are two concerns that should weigh heavily in any serious evaluation of pandemic policy: economic growth and institutional robustness. Safeguarding public health is of course an important policy goal, but not the only goal that affects community well-being.

A. Governments Should Not Undermine the Institutional Foundations of Economic Growth

Economic growth just is more important for human well-being than economic efficiency. Economists love drawing diagrams with red triangles to hypothesize various ways in which the world is imperfect and could be made better. It is fun, and we are good at it. Sometimes we even identify real problems that are worth our attention. But, to paraphrase Deirdre McCloskey (2010), those red triangles are drops in a bucket compared to the firehouse of economic growth.[11] Growth, in turn, is driven primarily by increases in productivity. We can live with a lot of red triangles if it means that supply curves are racing out to the right.

Economists also love discussing trade-offs. We just did, several times. Do not expect us to stop. But there is another side of the story, one that we know from empirics rather than theory: In the long run the good variables move together.[12] GDP per capita is in many

[11] One exception to this appears to be immigration (Clemens 2011).

[12] It is not completely true that economists do not know this from theory. Israel Kirzner has long pointed out that entrepreneurial discoveries—which McCloskey (2010) argues drive productivity gains and thus growth—are in fact a "free lunch."

ways a nonsensical variable and certainly not a direct measure of human well-being. But it turns out that variables that people of good will care about—life expectancy, child mortality, literacy, education, political and civil rights, women's rights, vaccination, and access to good barbecue—all improve with higher GDP per capita.[13] As Cowen (2018) points out, economic growth also lessens the bite of philosophically difficult problems of aggregation: How do you weigh losses to one group against gains to another? If things are getting better in general, conflicts over distribution are likely to be less severe.

What causes growth? Lots of things, but one crucial component is economic freedom. Growth comes from increasing productivity. Increases in productivity come from innovations that lower the opportunity cost of acquiring goods and services. Innovations come from experimenting with new ways of doing things. Freedom gives entrepreneurs room to experiment, to try out their new ideas without asking permission. Prices, profits, and losses let us sort out the new ideas that work from the new ideas that do not. Secure property rights and the rule of law create incentives for those entrepreneurs to figure out ways to get rich that serve others rather than harming them. The literature examining the empirical relationships between economic freedom and economic growth and development is vast and speaks in a virtually unanimous voice (Hall and Lawson 2014; Grier and Grier 2021). Free societies are wealthy societies.

But there is a downside to liberty and prosperity. Trade-offs strike back. In the short run, free societies are more vulnerable to certain types of infectious disease. Werner Troesken (2015) makes this point most forcefully in *The Pox of Liberty: How the Constitution Left Americans Rich, Free, and Prone to Infection*. Troesken points out that while the United States has often performed well in some public health measures, such as the municipal provision of water, it eradicated smallpox much more slowly than other countries. He shows that there is U-shaped relationship between smallpox cases and GDP per capita in 1900: high in poor countries, lowest in middle income countries, and high in rich countries.

Geloso, Hyde, and Murtazashvili (2021) helpfully distinguish between diseases of poverty and diseases of commerce. Diseases of commerce are those that spread more quickly when individuals

[13] One exception, depending on how one feels about religion, is that richer societies tend to be less religious, the United States being a remarkable outlier.

frequently interact, such as COVID and smallpox. They argue that economic freedom reduces mortality for diseases of poverty but has no effect on it for diseases of commerce, presenting evidence in line with Troesken's findings. In this and other work Geloso and Murtazashvili (2020) argue that institutions are bundles: The very liberty that makes us rich also exposes us to novel infectious diseases. We cannot get one without the other.

B. Governments Should Not Undermine Institutional Robustness

But even here, there is a silver lining. In the long run, free societies will have more wealth in order to deal with other diseases, including the next disease of commerce. In a rich country, you are more likely to come into contact with a novel disease, but you are also more likely to have access to quality medical care. Rich countries also obviously lead the way in developing treatments and vaccinations for new diseases. Troesken (2015) refers to this as the "palliative" effects of liberty and property rights. Geloso, Hyde, and Murtazashvili (2021) point out that the ability to treat comorbidities such as heart disease also contributes to these palliative effects.

Pandemics also carry negative consequences beyond disease mortality itself. Their negative economic impacts put stress on workers, households, and businesses, especially those that require face-to-face interaction. Even without restrictive policies, pandemics come with economic hardship. But again, freer societies suffer less in this regard than do less free societies. Geloso and Pavlik (2021) find that freer societies recovered more quickly from the 1918 flu pandemic. Candela and Geloso (2021) find similar results for influenza outbreaks throughout the twentieth century.

Candela and Geloso (2021) also introduce the important consideration of institutional robustness into the discussion surrounding pandemics. Robustness refers to the ability of institutions to perform relatively well under pressure (Boettke and Leeson 2004; Leeson and Subrick 2006; Pennington 2010). Robust political economy evaluates institutions based not on their ability to achieve optimal outcomes under favorable conditions, but on their ability to avoid disastrous outcomes in unfavorable ones. A single center of authority may be able to outperform a bottom-up, polycentric system if the right personnel confront the right circumstances. But this sort of system is fragile in response to changing and complex problem situations, creating much greater scope for disastrous policies. By the standards of robustness, free societies perform better in response to pandemics.

Geloso and Murtazashvili (2020), following Troesken, mostly approach institutions as bundles from an ex ante perspective. Freer societies are less able to respond to novel infectious diseases. We do not disagree with this approach, and it has empirical support (McCannon and Hall 2021). However, we would caution against taking robust institutions as fixed. There is also the possibility that in order to more effectively respond to any given crisis—health related or otherwise—we undermine the quality of our underlying institutions.

Higgs (1987) offers the classic formulation of this worry. Governments expand the scale and scope of their authority during crises. Afterward, they relinquish some but not all of these new powers, creating a *ratchet effect*. Expansions of governmental scope during public health crises are well documented in US history before the COVID-19 pandemic. Goodman, Coyne, and Devereaux (2021) chronicle how, following infectious disease outbreaks, we observe government expansion of power, increased zoning ordinances, and implementation of compulsory vaccination. In raising this warning, we are not claiming that a substantial amount of liberty was lost from the response to COVID-19. Rather, we only wish to point out that liberty is often lost gradually and in small degrees. These losses should weigh as costs—perhaps substantial ones—when evaluating the overall effects of pandemic policy.

VI. Conclusion: Implications for Pandemic Policy

Economic theory suggests that government has a central role to play in dealing with pandemics. We do not dispute that theory. Rather, the force of our argument is that the relevance of that theory is often overstated. If governments could deploy health care resources with only a small amount of waste, identify the most effective policy interventions, and effectively adapt to changing scientific consensus, the case for state intervention would be strong. If governments did recognize trade-offs, acknowledge bottom-up responses to the disease itself and to policies, and address spillovers at the appropriate level, the case for state intervention would be virtually airtight.

But there is a wide gap between these arguments for what government ought to do and what it does. Governments engage in moral theater, systematically ignore the costs and unintended consequences of policy, and cater to special interest groups. In doing so, they may risk permanently damaging the institutions that

underwrite economic growth and social resilience in the face of crises.

We have acknowledged that some government policies saved lives and helped return the world to relative normalcy after COVID. Most notably, Operation Warp Speed helped expand the capacity to manufacture vaccines more rapidly than markets would have likely done. But even acknowledging this, the primary constraint on vaccine availability was regulatory. Moderna's vaccine took only days to develop. Widespread, opt-in trials could have begun in late spring 2020 for any individuals who would rather have risked the negative effects of the vaccine than those of the virus.

Some market-oriented scholars may be wont to deny any claim that government policy can improve market outcomes, which could give the impression that these scholars are dogmatic and immune to evidence. Part of our argument is that one need not take such a hard line against the benefits of government intervention to reach similar conclusions. Governments can and do enact beneficial policies. But this does not rule out the desirability of laissez-faire.

We are not here offering full-blown advocacy for a laissez-faire approach to pandemics. But we are arguing that such an approach should be on the table for serious discussion in both this and other policy areas. We also recognize that a laissez-faire approach is not politically feasible. But maybe we would be better off if it was. Government intervention into markets has theoretically and empirically sound justifications, perhaps most of all during a pandemic. But the yawning gap between the substance of those justifications and what governments actually do necessarily limits their relevance. Taking as a bundle the government's responses to COVID-19, did it make the overall situation better or worse? It is not beyond reason to argue the latter.

References

Abel, Kathryn M., Matthew J. Carr, Darren M. Ashcroft, Trudie Chalder, Carolyn A. Chew-Graham, Holly Hope, Navneet Kapur, et al. 2021. "Association of SARS-CoV-2 Infection With Psychological Distress, Psychotropic Prescribing, Fatigue, and Sleep Problems Among UK Primary Care Patients." *JAMA Network Open*, 4(11): e2134803.

Agostinelli, Francesco, Matthias Doepke, Giuseppe Sorrenti, and Fabrizio Zilibotti. 2022. "When the Great Equalizer Shuts Down: Schools, Peers, and Parents in Pandemic Times." *Journal of Public Economics*, 206: 104574.

American Academy of Pediatrics. 2020. *COVID-19 Guidance for Safe Schools and Promotion of In-Person Learning*. Itasca, IL: American Academy of Pediatrics.

Anderson, Elizabeth L., Paul Turnham, John R. Griffin, and Charles C. Clarke. 2020. "Consideration of the Aerosol Transmission for COVID-19 and Public Health." *Risk Analysis*, 40(5): 902–7.

Atlas, Scott W. 2021. *A Plague Upon Our House: My Fight at the Trump White House to Stop COVID from Destroying America*. New York: Bombardier Books.

Bastiat, Frédéric. (1850) 1995. *What Is Seen and What Is Not Seen*. Irvington-on-Hudson, NY: Foundation for Economic Education.

Bilen, Eren, and Alexander Matros. 2021. "Online Cheating Amid COVID-19." *Journal of Economic Behavior & Organization*, 182: 196–211.

Blanks, W. 2022. "Teachers' Unions Deserve Much of the Blame for Pandemic-Era Learning Loss." *National Review*, September.

Boettke, Peter J., and William Butos. 2002. "Kirznerian Entrepreneurship and the Economics of Science." *Journal des Économistes et des Études Humaines*, 12(1): 119–30.

Boettke, Peter J., and Peter T. Leeson. 2004. "Liberalism, Socialism, and Robust Political Economy." *Journal of Markets and Morality*, 7(1): 99–111.

Boettke, Peter J., and Benjamin Powell. 2021. "The Political Economy of the COVID-19 Pandemic." *Southern Economic Journal*, 87(4): 1090–1106.

Brennan, Geoffrey, and Loren E. Lomasky. 1992. *Democracy and Decision: The Pure Theory of Electoral Preference*. Cambridge, UK: Cambridge University Press.

Cachanosky, Nicolas, Bryan Cutsinger, Thomas L. Hogan, William J. Luther, and Alexander William Salter. 2021. "The Federal Reserve's Response to the COVID-19 Contraction: An Initial Appraisal." *Southern Economic Journal*, 87(4): 1152–74.

Candela, Rosolino A., and Vincent Geloso. 2021. "Economic Freedom, Pandemics, and Robust Political Economy." *Southern Economic Journal*, 87(4): 1250–66.

Carson, Byron. 2016. "Firm-Led Malaria Prevention in the United States, 1910–1920." *American Journal of Law & Medicine*, 42(2–3): 310–32.

Carson, Byron. 2021. "Automatons or Individuals?" *Independent Review*, 25(4): 551–68.

Carson, Byron. 2022. "Individuals and Externalities in Economic Epidemiology: A Tension and Synthesis." *Journal of Private Enterprise*, 37(3): 1–24.

Chen, Frederick, and Flavio Toxvaerd. 2014. "The Economics of Vaccination." *Journal of Theoretical Biology*, 363: 105–17.

Choi, Yongjin, and Ashley M. Fox. 2022. "Mistrust in Public Health Institutions Is a Stronger Predictor of Vaccine Hesitancy and Uptake Than Trust in Trump." *Social Science & Medicine*, 314: 115440.

Clark, J. R., and Dwight R. Lee. 2013. "Markets and Morality." *Cato Journal*, 31(1): 1–26.

Clemens, Michael A. 2011. "Economics and Emigration: Trillion-Dollar Bills on the Sidewalk?" *Journal of Economic Perspectives*, 25(3): 83–106.

Coase, Ronald H. 1960. "The Problem of Social Cost." *Journal of Law & Economics*, 3: 1–44.

Cowen, Tyler. 2018. *Stubborn Attachments: A Vision for a Society of Free, Prosperous, and Responsible Individuals*. New York: Stripe Press.

Coyne, Christopher J. 2007. *After War: The Political Economy of Exporting Democracy*. Stanford, CA: Stanford University Press.

Coyne, Christopher J. 2013. *Doing Bad by Doing Good: Why Humanitarian Action Fails*. Stanford, CA: Stanford University Press.

Coyne, Christopher J., Thomas K. Duncan, and Abigail R. Hall. 2021. "The Political Economy of State Responses to Infectious Disease." *Southern Economic Journal*, 87(4): 1119–37.

Denkyirah, Elisha K., and Raymond J. March. 2024. "Operation Warp Speed: An Emerging Ratchet?" *Independent Review*, 29(4): 603–18.

Devi, Sharmila. 2020. "Travel Restrictions Hampering COVID-19 Response." *Lancet*, 395(10233): 1331–1332.

Duclos, Antoine, Quentin Cordier, Stéphanie Polazzi, Cyrille Colin, Thomas Rimmelé, Jean-Christophe Lifante, Matthew J. Carty, et al. 2023. "Excess Mortality Among Non-COVID-19 Surgical Patients Attributable to the Exposure of French Intensive and Intermediate Care Units to the Pandemic." *Intensive Care Medicine*, 49: 313–23.

Education Week. 2021. "Map: Where Were Schools Required to Be Open for the 2020–21 School Year?" *Education Week*, July.

Escalante, Edwar E., and Peter C. Earle. 2022. "A Government Role Conducive to Liberty: Operation Warp Speed." In *Pandemics & Liberty*, 185–200. Great Barrington, MA: American Institute for Economic Research.

Garcia, Santiago, Mazen S. Albaghdadi, Perwaiz M. Meraj, Christian Schmidt, Ross Garberich, Farouc A. Jaffer, Simon Dixon, et al. 2020. "Reduction in ST-Segment Elevation Cardiac Catheterization Laboratory Activations in the United States during the COVID-19 Pandemic." *Journal of the American College of Cardiology*, 75(22): 2871–72.

Geloso, Vincent, and Ilia Murtazashvili. 2020. "Can Governments Deal with Pandemics?" GMU Working Paper in Economics No. 21–33.

Geloso, Vincent, and Jaime Bologna Pavlik. 2021. "Economic Freedom and the Economic Consequences of the 1918 Pandemic." *Contemporary Economic Policy*, 39(2): 255–63.

Geloso, Vincent, Kelly Hyde, and Ilia Murtazashvili. 2021. "Pandemics, Economic Freedom, and Institutional Trade-offs." *European Journal of Law and Economics*, 52: 1–25.

Goodman, Nathan, Christopher Coyne, and Abigail Devereaux. 2021. "Infectious Diseases and Government Growth." *Independent Review*, 25(4): 537–50.

Government Accountability Office. 2021. *Operation Warp Speed: Accelerated COVID-19 Vaccine Development Status and Efforts to Address Manufacturing Challenges*. Washington, DC: Government Accountability Office.

Grier, Kevin B., and Robin M. Grier. 2021. "The Washington Consensus Works: Causal Effects of Reform, 1970–2015." *Journal of Comparative Economics*, 49(1): 59–72.

Gudbjartsson, Daniel F., Agnar Helgason, Hakon Jonsson, Olafur T. Magnusson, Pall Melsted, Gudmundur L. Norddahl, Jona Saemundsdottir, et al. 2020. "Spread of SARS-CoV-2 in the Icelandic Population." *New England Journal of Medicine*, 382(24): 2302–15.

Gulker, Max, and Phil Magness. 2021. "The Other Knowledge Problem: Public Choice and the Marvels of Modern Medicine Shut Down the World." In *The Political Economy of Pandemics: Towards Uncharted Territory*.

Gupta, Sumedha, Thuy Nguyen, Shyam Raman, Byungkyu Lee, Felipe Lozano-Rojas, Ana Bento, Kosali Simon, and Coady Wing. 2021. "Tracking Public and Private Responses to the COVID-19 Epidemic: Evidence from State and Local Government Actions." *American Journal of Health Economics*, 7(4): 361–404.

Gutierrez, Lisa. 2022. "People Are Trying to Spread the Coronavirus with 'COVID Parties.' It's More Like Russian Roulette, Doctors Warn." *Anchorage Daily News*.

Haeffele, Stefanie, Jordan K. Lofthouse, and Agustin Forzani. 2022. "The Perils of Regulating COVID-19: Insights from Kirznerian Entrepreneurship and Ostromian Polycentricity." *Economics of Governance*, 23: 139–58.

Hall, Joshua C., and Robert A. Lawson. 2014. "Economic Freedom of the World: An Accounting of the Literature." *Contemporary Economic Policy*, 32(1): 1–19.

Hayek, Friedrich A. 1945. "The Use of Knowledge in Society." *American Economic Review*, 35(4): 519–30.

Hazlitt, Henry. 1946. *Economics in One Lesson*. New York: Harper & Brothers.

Hebert, D. J., and M. D. Curry. 2022. "Optimal Lockdowns." *Public Choice*, 193(3–4): 263–74.

Higgs, Robert. 1987. *Crisis and Leviathan: Critical Episodes in the Growth of American Government*. New York: Oxford University Press.

Higgs, Robert. 1994. "Banning a Risky Product Cannot Improve Any Consumer's Welfare (Properly Understood), with Applications to FDA Testing Requirements." *Review of Austrian Economics*, 7(2): 3–20.

Higgs, Robert. 1995. *Hazardous to Our Health?: FDA Regulation of Health Care Products*. Oakland, CA: Independent Institute.

Higgs, Robert. 2005. *Fear: The Foundation of Every Government's Power*. Oakland, CA: Independent Institute.

Horwitz, Steven. 2009. "Ought Implies Can." Foundation for Economic Education.

Hume, David. (1739) 2005. *A Treatise of Human Nature*. London: John Noon.

Hunter, David J., Salim S. Abdool Karim, Lindsey R. Baden, Jeremy J. Farrar, Mary Beth Hamel, Dan L. Longo, Stephen Morrissey, et al. 2022. "Addressing Vaccine Inequity—COVID-19 Vaccines as a Global Public Good." *New England Journal of Medicine*, 386(12): 1176–79.

Isakov, Leah, Andrew W. Lo, and Vahid Montazerhodjat. 2019. "Is the FDA Too Conservative or Too Aggressive?: A Bayesian Decision Analysis of Clinical Trial Design." *Journal of Econometrics*, 211(1): 117–36.

Karimi, Faith, and Jamiel Lynch. 2020. "Young People Are Throwing Coronavirus Parties with a Payout When One Gets Infected, Official Says." CNN.

Kerr, John, Costas Panagopoulos, and Sander van der Linden. 2021. "Political Polarization on COVID-19 Pandemic Response in the United States." *Personality and Individual Differences*, 179: 110892.

Khubchandani, Jagdish, Sushil Sharma, James H. Price, Michael J. Wiblishauser, Manoj Sharma, and Fern J. Webb. 2021. "COVID-19 Vaccination Hesitancy in the United States: A Rapid National Assessment." *Journal of Community Health*, 46(2): 270–77.

Kibbe, Matt, and David Waugh. 2020. "Pandemic Socialism: Hayek's Critique of Scientism and the Fatal Conceit of Government Lockdowns." In *Pandemics & Liberty*, 85–104. Great Barrington, MA: American Institute for Economic Research.

Kirzner, Israel. (1979) 2018. "The Perils of Regulation." In *Reflections on Ethics, Freedom, Welfare Economics, Policy, and the Legacy of Austrian Economics*, ed. Peter Boettke and Fred Sautet. Indianapolis, IN: Liberty Fund.

Latkin, Carl A., Lauren Dayton, Grace Yi, Arianna Konstantopoulos, and Basmattee Boodram. 2021. "Trust in a COVID-19 Vaccine in the US: A Social-Ecological Perspective." *Social Science & Medicine*, 270: 113684.

Lavoie, Don. 1985. *National Economic Planning: What Is Left?* Cambridge, MA: Ballinger Publishing Company.

Laxminarayan, Ramanan, and Anup Malani. 2011. "Economics of Infectious Diseases." In *The Oxford Handbook of Health Economics*, ed. Sherry Glied and Peter C. Smith, 385–425. Oxford: Oxford University Press.

Leeson, Peter T., and Louis Rouanet. 2021. "Externality and COVID-19." *Southern Economic Journal*, 87(4): 1107–118.

Leeson, Peter T., and J. Robert Subrick. 2006. "Robust Political Economy." *Review of Austrian Economics*, 19: 107–11.

Leeson, Peter T., and Henry A. Thompson. 2021. "Public Choice and Public Health." *Public Choice*, 187: 113–29.

Levin, Jonathan M., Lucas A. Bukowski, Jeffrey A. Minson, and Jeremy M. Kahn. 2023. "The Political Polarization of COVID-19 Treatments Among Physicians and Laypeople in the United States." *Proceedings of the National Academy of Sciences*, 120(7): e2216179120.

Lewis, Dyani. 2022. "Why the WHO Took Two Years to Say COVID Is Airborne." *Nature*, 604(7904): 26–31.

Li, Ruobing. 2022. "Fear of COVID-19: What Causes Fear and How Individuals Cope with It." *Health Communication*, 37(13): 1563–72.

Lovelace, Berkeley. 2020. "Dr. Anthony Fauci Says Gilead's Remdesivir Will Set a New 'Standard of Care' for Coronavirus Treatment." CNBC.

Ludvigsson, Jonas F., Lars Engerström, Charlotta Nordenhäll, and Emma Larsson. 2021. "Open Schools, COVID-19, and Child and Teacher Morbidity in Sweden." *New England Journal of Medicine*, 384(7): 669–71.

Luther, William J. 2020. "Cross-Country Differences in Personal Protective Equipment Use." *Journal of Private Enterprise*, 35(4): 21–27.

Luther, William J. 2021. "Behavioral and Policy Responses to COVID-19: Evidence from Google Mobility Data on State-Level Stay-at-Home Orders." *Journal of Private Enterprise*, 36(3): 67–89.

Mandl, Benjamin J., and Ben Y. Reis. 2022. "The Language of Crisis: Spatiotemporal Effects of COVID-19 Pandemic Dynamics on Health Crisis Communications by Political Leaders." *NPJ Digital Medicine*, 5(1): 1.

March, Raymond J. 2020. "Economic Miscalculation and the COVID-19 Pandemic." Oakland, CA: Independent Institute.

March, Raymond J. 2021. "The FDA and the COVID-19: A Political Economy Perspective." *Southern Economic Journal*, 87(4): 1210–28.

March, Raymond J. 2022. "Desperate Times Call for Deregulation." In *Pandemics & Liberty*, 237–60. Great Barrington, MA: American Institute for Economic Research.

March, Raymond J., and Vincent Geloso. 2020. "Gordon Tullock Meets Phineas Gage: The Political Economy of Lobotomies in the United States." *Research Policy*, 49(1): 103852.

March, Raymond J., Adam G. Martin, and Audrey Redford. 2016. "The Substance of Entrepreneurship and the Entrepreneurship of Substances." *Journal of Entrepreneurship and Public Policy*, 5(2): 201–20.

Martin, Adam G., and Matias Petersen. 2019. "Poverty Alleviation as an Economic Problem." *Cambridge Journal of Economics*, 43: 205–21.

Martin, Adam G., and Adam Swisher. 2024. "Voting Like a Human." *Public Choice*, 202: 509–28.

McCannon, Bryan C., and Joshua C. Hall. 2021. "Stay-at-Home Orders Were Issued Earlier in Economically Unfree States." *Southern Economic Journal*, 87(4): 1138–151.

McCloskey, Deirdre Nansen. 2010. *Bourgeois Dignity*. Chicago: University of Chicago Press.

Meijer, M., M. Verschuuren, and E. Weggen. 2021. "COVID-19 Vaccines a Global Public Good? Moving Past the Rhetoric and Making Work of Sharing Intellectual Property Rights, Know-How, and Technology." *European Journal of Public Health*, 31(5): 925–26.

Messner, Wolfgang, and Sarah E. Payson. 2020. "Variation in COVID-19 Outbreaks at U.S. State and County Levels." medRxiv.

Messner, Wolfgang, and Sarah E. Payson. 2022. "Effects of National Culture on the Extent of Panic Buying During the COVID-19 Outbreak." *Journal of International Consumer Marketing*, 34(3): 235–54.

Miller, Stephen C. 2021. "COVID-19 Case Growth vs. Outcomes: Comparing Regions in the United States." *Journal of Private Enterprise*, 35(4): 29–41.

Miozzi, Vincent, and Benjamin Powell. 2023. "U.S. State-Level Economic Freedom During the COVID-19 Pandemic." Free Market Institute Research Paper No. 4347196.

Miozzi, Vincent, and Benjamin Powell. 2024. "The Evolution of US State Economic Freedom during the Pandemic's Second Year." *Journal of Private Enterprise*, 39(2): 9–29.

Nodell, Bobbi. 2020. "Study: Pandemic Halts, Delays 28 Million Elective Surgeries." University of Washington Newsroom.

Ostrom, Elinor. 2010. "Beyond Markets and States: Polycentric Governance of Complex Economic Systems." *American Economic Review*, 100(3): 641–72.

Panetta, Grace. 2021. "14 Prominent Democrats Stand Accused of Hypocrisy for Ignoring COVID-19 Restrictions They're Urging Their Constituents to Obey." *Business Insider*.

Paniagua, Pablo, and Veeshan Rayamajhee. 2021. "The Ostroms and the Contestable Nature of Goods: Beyond Taxonomies and Toward Institutional Polycentricity." *Journal of Institutional Economics*, 17(1): 71–89.

Patel, Neel V. 2020. "Why the CDC Botched Its Coronavirus Testing." *MIT Technology Review*.

Patkin, Abby. 2020. "Fact Check: Politicians on Both Sides of the Aisle Have Flouted COVID-19 Guidelines." *USA Today*.

Pennington, Mark. 2010. *Robust Political Economy*. Cheltenham, UK: Edward Elgar.

Powell, Benjamin. 2022. "Government Failure vs. the Market Process During the COVID-19 Pandemic." In *Pandemics & Liberty*, 1–18. Great Barrington, MA: American Institute for Economic Research.

Rawlinson, S., L. Ciric, and E. Cloutman-Green. 2020. "COVID-19 Pandemic—Let's Not Forget Surfaces." *Journal of Hospital Infection*, 105(4): 790–91.

Redford, Audrey, and Angela K. Dills. 2021. "The Political Economy of Drug and Alcohol Regulation During the COVID-19 Pandemic." *Southern Economic Journal*, 87(4): 1175–1209.

Richards, Erin, Elinor Aspegren, and Erin Mansfield. 2021. "A Year into the Pandemic, Thousands of Students Still Can't Get Reliable WiFi for School. The Digital Divide Remains Worse than Ever." *USA Today*.

Roche, Darragh. 2021. "Fauci Said Masks 'Not Really Effective in Keeping Out Virus,' Email Reveals." *Newsweek*.

Rose, Joel. 2020. "U.S. Field Hospitals Stand Down, Most Without Treating Any COVID-19 Patients." NPR.

Schlake, Thomas, Andreas Thess, Mariola Fotin-Mleczek, and Karl-Josef Kallen. 2012. "Developing mRNA-Vaccine Technologies." *RNA Biology*, 9(11): 1319–30.

Secon, Holly. 2020. "An Interactive Map of the US Cities and States Still Under Lockdown and Those That Are Reopening." *Business Insider*.

Sher, Leo. 2020. "The Impact of the COVID-19 Pandemic on Suicide Rates." *QJM: An International Journal of Medicine*, 113(10): 707–12.

Snape, M. D., and R. M. Viner. 2020. "COVID-19 in Children and Young People." *Science*, 370(6514): 286–88.

Storr, Virgil Henry, Stefanie Haeffele, Jordan K. Lofthouse, and Laura E. Grube. 2021. "Essential or Not? Knowledge Problems and COVID-19 Stay-at-Home Orders." *Southern Economic Journal*, 87(4): 1229–1249.

Sutter, Dan. 2020. "Private Protection Agencies and Infectious Disease." *Journal of Private Enterprise*, 37(1): 887–109.

Tabarrok, Alex. 2000. "Assessing the FDA via the Anomaly of Off-Label Drug Prescribing." *Independent Review*, 5(1): 25–53.

Tabarrok, Alex. 2021. "The Invisible Graveyard Is Invisible No More." *Marginal Revolution*.

Tanglis, Mike, and Taylor Lincoln. 2020. "Covid Lobbying Palooza." *Public Citizen*, July 6.

Troesken, Werner. 2015. *The Pox of Liberty*. Chicago: University of Chicago Press.

Tullock, Gordon. 2005. *The Rent-Seeking Society: The Selected Works of Gordon Tullock*. Vol. 5. Indianapolis, IN: Liberty Fund.

US Department of State. 2020. Coronavirus Disease 2019 (COVID-19). Archived: https://web.archive.org/web/20200308072333/https://www.state.gov/coronavirus/.

Viscusi, W. Kip. 2021. "Economic Lessons for COVID-19 Pandemic Policies." *Southern Economic Journal*, 87(4): 1064–1089.

Vogel, K. P. 2020. "The Race for Virus Money Is On. Lobbyists Are Standing By." *New York Times*, March 28.

Wagner, Richard E. 2021. "Economics, COVID-19, and the Entangled Political Economy of Public Health." *Independent Review*, 25(4): 489–501.

Wardell, W. M. 1978. "The Drug Lag Revisited: Comparisons by Therapeutic Area of Patterns of Drugs Marketed in the U.S. and Great Britain from 1972 Through 1976." *Clinical Pharmacology and Therapeutics*, 24: 499–524.

Wilson, N., S. Corbett, and E. Tovey. 2020. "Airborne Transmission of COVID-19." *BMJ*, 370: m3206.

Woodruff, Judy, Laura Santhanam, and Alison Thoet. 2020. "What Dr. Fauci Wants You to Know About Face Masks and Staying Home as Virus Spreads." *PBS NewsHour*.

Yan, W., Y. Cai, F. Lin, and D. T. Ambaw. 2021. "The Impacts of Trade Restrictions on World Agricultural Price Volatility During the COVID-19 Pandemic." *China & World Economy*, 29(6): 139–58.

Yanez, N. David, Noel S. Weiss, Jacques-André Romand, and Miriam M. Treggiari. 2020. "COVID-19 Mortality Risk for Older Men and Women." *BMC Public Health*, 20: 1742.

Yonk, Ryan M., and Amelia Janaskie. 2022. "One Size Fits All? Evaluating the Appropriateness of Monocentric Policies in COVID-19 Response." In *Pandemics & Liberty*, 201–36. Great Barrington, MA: American Institute for Economic Research.

Zhang, Jonathan. 2021. "Hospital Avoidance and Unintended Deaths during the COVID-19 Pandemic." *American Journal of Health Economics*, 7(4): 405–26.

Zillgitt, Jeff. 2020. "NBA Says Only Two Players Tested Positive for COVID-19 During Orlando Bubble Quarantine Period." *USA Today*.

Zviedrite, Nicole, Jeffrey D. Hodis, Ferdous Jahan, Hongjiang Gao, and Amra Uzicanin. 2021. "COVID-19–Associated School Closures and Related Efforts to Sustain Education and Subsidized Meal Programs, United States, February 18–June 30, 2020." *PLOS One*, 16(9): e0248925.