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Lethal Incompetence: Leaders, Organizations, and the U.S. Response to COVID-19

<https://doi.org/10.1515/for-2021-0010>

Abstract: The study of voter competence has made significant contributions to our understanding of politics, but at this point there are diminishing returns to the endeavor. Voter competence is unlikely to improve dramatically enough to make much of a difference to our politics. By contrast, the competence of officials can and does vary substantially over short periods of time. To understand variations in government performance, therefore, we would do better to focus on the abilities and performance of officials, not ordinary citizens. We elaborate on this argument, emphasizing the “incompetence multiplier”: the way that the properties of hierarchies can amplify the incompetence of those in powerful positions. We illustrate our argument with an extended discussion of the U.S. response to the COVID-19 pandemic.

Keywords: behavioral organization theory, bureaucracy, COVID-19, incompetence, Trump administration

Some time ago we wrote an essay on “Lethal Incompetence: Voters, Officials, and Systems” (Bendor and Bullock 2008). Our argument was as follows:

The study of voter competence has made significant contributions to our understanding of politics, but at this point there are diminishing returns to the endeavor. There is little reason, in theory or in practice, to expect voter competence to improve dramatically enough to make much of a difference, but there is reason to think that officials’ competence can vary substantially enough to make large differences. To understand variations in government performance, therefore, we would do better to focus on the abilities and performance of officials, not ordinary citizens (p. 1).

We had no idea then that Donald Trump would be elected in 2016. But he was, and his performance in office made it all too clear that competence matters. Indeed, his conduct during the COVID-19 crisis provided a vivid example of the lethality of

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government officials who are both important and incompetent. We therefore think that it is a good time to review and extend our argument.

We begin by briefly restating the original argument: why we think the discipline has spent too much time on the incompetence of voters and too little on that of key officials. We then expand on the incompetence of officials by using ideas from behavioral organization theory, political psychology, and organizational economics to shed light on the performance of democratic institutions. We close by linking these ideas to an assessment of the Trump administration.

1 Our 2008 Argument

Our 2008 essay's argument about competence—a person's underlying skill or ability at handling a given class of problems—is summarized by the following propositions. Then as now we were focusing on the American political system, but we believe that the propositions hold for most democracies.

First, the underlying competence of American voters, measured by how much they know about politics and how well they think about what they know, has not changed much in the last 50 years. Neither has their performance, as measured by how often they make mistakes. In addition, their average competence and performance will probably change little in the foreseeable future (Bendor and Bullock 2008, 3–6; Kinder and Kalmoe 2017, esp. 40–41).

Second, the system's performance is typically only very modestly responsive to modest across-the-board changes in voter competence. This claim follows from applications of Condorcet Jury Theorems to large-scale elections (Bendor and Bullock 2008, 6–13).

Third, the competence of elected and appointed officials can vary substantially in short time spans, e.g. between administrations.

Fourth, the system's performance is typically quite responsive to modest changes in the competence of key officials.

We will now expand on the third and fourth propositions by examining the causal structure that links the competence of individual officials, in their given positions, to the competence of the organizations in which they work.

2 Incompetent Officials and Systems

We state our argument via a set of propositions. These are divided into three categories: structural properties, individual-level claims, and specific features of the personnel system of the federal government.

2.1 Structural Properties

Claim 1: hierarchies. (a) Vertically all public agencies are hierarchies and (b) the higher decision-makers are in a hierarchy, the more causally important is their degree of competence.

This claim has an obvious corollary: most important of all is the competence of an organization's top decision makers. Incompetence at that level is especially dangerous.

An incompetent top decision maker may have the authority to appoint other people to important positions, and part of his incompetence may involve bad judgement about other people's abilities. We called this an *incompetence multiplier* in our 2008 paper.

Claim 2: distributed knowledge. (a) Horizontally all public agencies have an internal division of labor, (b) officials' knowledge and skills are largely restricted to their own departments, hence (c) effective organizations must *routinely access distributed knowledge*.

Given the strong empirical regularity that it takes at least 10 years to become an expert in most informationally intensive domains (Ericsson 2018) and given that modern governments have hundreds of specialized domains (e.g. aeronautical engineering, cryptography, epidemiology, helicopter pilot), it follows that every official is an amateur in most domains.¹ Hence competence at the level of individual officials requires matching of skill sets to positions and organizational competence requires tapping and aggregating these individuals' specialized competencies.

2.2 Individual-Level Properties

Claim 3: Dunning-Kruger. People who know little about a given domain often don't realize how little they know; their self-calibration may be quite poor. This point was made memorably by Kruger and Dunning (1999).

The Dunning-Kruger effect probably extends to people who are incompetent in a more domain-general way.² Somebody who is incompetent in most aspects of a

¹ This property holds for everybody in a large complex society; it is not peculiar to government.

² The pragmatic meaning of "incompetent in a domain-general way" probably has an important contextual aspect: it may pertain to most activities of a specific organization, not necessarily to most of life in general. E.g., someone who knows little about medicine or surgery would probably be deemed generally incompetent in a hospital; they may know a great deal about art or chess or criminology.

particular organization may not realize how little he understands what the organization does or why members of the organization do what they do.³ Lacking this meta-knowledge, he is likely to be overconfident.

Claim 4: power and overconfidence. Powerful people are more likely than ordinary citizens to be overconfident.⁴ Their overconfidence involves an overestimate of their underlying abilities.

Together, Claims 3 and 4 imply a warning: incompetent political leaders tend to be overconfident about their own abilities and do not realize how unqualified they are for the tasks they face. This motivated reasoning does wonders for their self-esteem; the rest of us pay the price for their poor self-assessments.

2.3 Properties of the Federal Personnel System

Claim 5: formal hiring procedures. American public agencies have formal hiring procedures that reduce the probability of selecting incompetent people—or more specifically, putting people in positions for which they're unqualified—and for removing incompetent people who have gotten through their personnel filters.

Needless to say, these procedures aren't error-free. But that's an irrelevant standard of evaluation. The relevant question is not whether an alternative is perfect but whether, given the constraints, it is the best of the feasible set (Bendor 2020; Sen 2006; Sniderman and Bullock 2004) or at least better than known alternatives (Lindblom 1959). Would we be better off without those procedures? A powerful empirical regularity—the tendency of modern organizations all over the world to stipulate formal qualification-criteria for positions which involve codified knowledge (engineering, medicine, statistics, economics, law, and so on)—suggests that the answer is no, we would not.

Claim 6: exemption of top officials from formal hiring procedures. These formal personnel procedures cover few appointed officials and no elected ones.

³ James Q. Wilson wrote *Bureaucracy: What Government Agencies Do and Why They Do It* (1989) to provide this basic knowledge. Appointed heads of agencies and their superiors would do well to read it.

⁴ There are two causes of this pattern. The first is forward-looking: exhibiting confidence, even when one is not competent (i.e. overconfidence), appears to be a strategy for enhancing status (Anderson et al. 2012). The second is backward-looking: although success, e.g. attaining high status, depends on luck as well as ability (inter alia, see Frank 2016; James 1994), hindsight bias, which underestimates the role of chance, and self-esteem motives, which given success focus on ability, together generate overconfidence.

Although most federal appointees must be approved by the Senate, approval of sub-Cabinet positions is typically pro forma (Tong 2009, 2); even for these positions, approval depends mainly on informal norms rather than on formally articulated criteria. (The Constitution does not require that the Senate explain approval or rejection.) Legislators and presidents must satisfy a few legal criteria regarding age and citizenship but no meritocratic ones. Moreover, we confidently forecast that no meritocratic criteria will be imposed on elected officials for the foreseeable future. Adoption of such criteria would require a constitutional amendment. It would be infeasible and arguably undesirable (though a case could be made for a short test on the Constitution).

Claims 1 and 6 are in tension with each other. On the one hand, because the hierarchy of the executive branch magnifies the importance of the Presidency (Claim 1), it's clearly more important to accurately estimate the competence of a presidential candidate than to ascertain whether someone is qualified to work as a cryptographer in an intelligence agency. But there are no formal personnel procedures that probe the competence of presidential candidates (Claim 6). And although being an effective political leader is more of a craft than a profession it requires real skills, in e.g. coalition-formation, conflict-resolution, and managing a complex bureaucracy.⁵ Hence issues of competence can arise regarding craft-based positions in government.

But limiting the role of incompetence in government is not only a matter of procedure and inference. Interests and how they play out over time also matter.

Claim 7: no credible commitment to constrain incompetent officials. Political parties cannot credibly commit to constraining, let alone removing, incompetent elected officials of their party.⁶

Prior to an election, political parties may have an incentive to assure voters that they will root out corruption and enforce meritocracy at all levels if they gain or retain power. The winning party, however, may find it difficult or undesirable to remove corrupt co-partisans or to constrain incompetent ones. Consequently, the promises they made before the election are not credible: should a relevant occasion arise they would rather not fulfill their commitment.⁷

⁵ Uncodified knowledge and skills can be very complex: e.g. to be culturally competent requires being able to speak and understand the native language, which in pre-literate societies is necessarily an uncodified set of skills.

⁶ We sometimes complain about how hard it is to fire incompetent bureaucrats. Firing incompetent politicians is even harder.

⁷ Economists sometimes call this the time-inconsistency problem: a decision maker's preferences in the present may be inconsistent with the preferences they'll hold in the future.

All types of government, including democracies, have vulnerabilities. Claims 1–7 together imply that the competence of the chief executive is a key vulnerability in democratic governments, perhaps especially so in presidential systems.⁸ We now examine how this latent systemic vulnerability became manifest in the Trump administration.

3 Competence, Governance, and the Trump Administration

Claim 1 suggests that because hierarchy magnifies the impact of top officials' actions, whether these decision makers are competent is of vital importance. The top officials in the American executive branch, e.g. cabinet secretaries, are appointed by the president. One of Claim 1's implications is that because accurately estimating other people's capacities, or organizing a multi-person process that can do so, is a key skill of top executives, *incompetence can breed more incompetence*: an inept president may pick unqualified key subordinates at the start of his term. Moreover, such a president may not realize how badly he is doing (Claims 3 and 4).

In a hierarchy it all begins, by design, at the top. Hence we begin with the president.

In 2016, Donald Trump became the first person to win the U.S. presidency without previously holding elected office or serving in the military. The hope and expectation of many was that his experience in business would compensate for his inexperience in other domains. From the start, it didn't work out that way. Consider just one way in which leaders can compensate for their own lack of experience: they can seek advisers who are themselves experienced. But at the start of his presidency, Trump nominated and appointed extraordinarily unqualified people to some of the highest-ranking positions in the executive branch:

- He nominated Rex Tillerson as Secretary of State. Tillerson was the CEO of ExxonMobil, a multinational oil company. He had no direct experience with foreign policy or diplomacy.
- He appointed a campaign operative, Steve Bannon, to the most important committee of the National Security Council. Although Bannon had served in the US Navy, his experience in national security analysis was very modest.

⁸ We do not mean to imply that authoritarian systems avoid this vulnerability. They don't. Indeed, for several institutional reasons—the lack of checks and balances, the lack of the vetting function provided by real elections—they are more vulnerable.

- He appointed Rudy Giuliani—a man who lacks a basic understanding of the Internet—as his cybersecurity advisor (Lee 2019).
- He nominated Ben Carson, a neurosurgeon with no experience in housing or urban development, as Secretary of Housing and Urban Development.
- One of his first decisions was to select Jared Kushner as a senior White House advisor, despite Kushner’s complete lack of experience in government.

The president also demonstrated disdain for expertise in other ways. He dismissed career diplomats on Inauguration Day, even though their successors would not be appointed for months (Davis 2017; O’Connell 2018). Until the day that he issued an executive order that barred entry into the U.S. of people from seven predominantly Muslim countries—on grounds of national security—he did not mention any details of the plan to his own (relatively qualified) secretary of homeland security (Paletta and Viswanatha 2017). After Vladimir Putin denied that Russia had interfered with the 2016 U.S. election, the president offered a stronger endorsement of Putin’s claim than of the reports released by the CIA, the NSA, the FBI, and the Office of the Director of National Intelligence, all of which found that Russia had, in fact, interfered with the election (Ward 2017).

These actions and statements relate directly to Claim 6: formal personnel procedures do not cover many of the most powerful officials. It is unlikely, for example, that Rex Tillerson would have qualified for a lower-ranking position in the Department of State. These actions and statements are also related to Claim 2: a competent system must have massively distributed knowledge, which in turn implies that a high proportion of people in the system must be knowledgeable. In the light of either claim, the president’s nominations and appointments seem a recipe for systematic—and systemic—incompetence.

One might object that the examples given above simply indicate that loyalty or shared policy preferences are more important than expertise.⁹ The appointment of Kushner demonstrates the importance of loyalty to the president: he can reasonably expect that his son-in-law will have his back. And so far as policy preferences are concerned, consider the nomination of Kathy Kraninger to be head of the Consumer Financial Protection Bureau. By one standard, Kraninger seemed completely unsuited to her office: she had never worked in consumer affairs, in financial services, or as a financial regulator. She also favored a weaker CFPB.¹⁰ But the president, who does not have the power to abolish the CFPB, may have wanted to render it

⁹ See Bendor, Glazer, and Hammond (2001) for a review.

¹⁰ As the head of the CFPB, Kraninger publicly declared that the Bureau had too much independent authority (Higgins 2019).

impotent. And in that case, his appointment of Kraninger may have been effective. A director who had different preferences or relevant experience would have been less likely to reduce the efficacy of the CFPB. Thus the general objection is that appointments like these are evidence of presidential competence, rather than incompetence, if they are likely to bring about policy outcomes that the president desires. After all, competence refers to the choice of means, not ends; it is misleading to call a president incompetent because his aims differ from ours.

For this reason, it is instructive to look to outcomes about which most people, including the President, are likely to share the same view. For example, most people and most presidents—regardless of political affiliation—want to avoid a pandemic and the ensuing economic catastrophe. Such events are likely to hurt an incumbent’s re-election prospects. It is therefore informative to consider the United States’ response to COVID-19. Of course, the experience of catastrophe is no proof of incompetent leadership: some things are beyond leaders’ control. To investigate the role of incompetence in any catastrophe, we should investigate the ways that leaders anticipate and respond—or don’t anticipate, and don’t respond—to events.¹¹

4 Inexperience, Overconfidence, and Poor Performance: The Federal Response to COVID-19

The history of the federal response to COVID-19 is a cavalcade of unforced errors at the highest level. As early as January 2020, public-health specialists and U.S. intelligence agencies warned that COVID-19 would come to the U.S. and that strong, even drastic measures needed to be taken. None were. One consequence is that the United States now ranks sixth among all 37 OECD countries in COVID-related deaths per capita; although it has only 4% of the world’s population, it accounts for 21% of COVID-related deaths (Worldometer 2021).¹² As a complete summary of the federal response is beyond the scope of this article, we focus instead on the aspects of the response that are most relevant to our argument: inexperience of top officials,

¹¹ Investigation of leaders’ performance is not always necessary if we are to draw justified conclusions about their incompetence. An extreme lack of formal training and relevant experience may, by themselves, warrant a conclusion of incompetence.

¹² The U.S. is also eighth in the world in COVID-related deaths per capita among countries that have a population greater than 100,000. Of course, vagaries and inconsistencies in reporting make precise measurement of per-capita death rates impossible. But reporting is relatively uniform (though still not uniform) across OECD countries.

overconfidence of those officials, and specific aspects of poor performance that strongly suggest incompetence.

4.1 Inexperience

As noted earlier, relevant experience tends to create procedural knowledge: knowledge of how to get things done. Inexperienced personnel, lacking this crucial learning-by-doing, can be at a loss when a hard problem hits them.

The people at the highest levels of the Trump administration cannot be faulted for lacking much experience with pandemic preparedness. But it may well be proper to fault them for appointing, to critical positions, others who lacked that experience. Following Claim 2, such choices deprive the system of vital distributed knowledge. For example, Robert Redfield, appointed in 2018 to head the Centers for Disease Control and Prevention, was a prominent AIDS researcher who had never run a government agency. Suddenly, he was heading an agency that had 12,000 employees and a budget of more than seven billion dollars (Kaplan 2018). The CDC's failure began with a faulty test for COVID-19, but it was compounded enormously by administrative failure. The CDC resisted calls from state officials and medical providers to broaden testing. It failed to coordinate with outside companies to ensure that needed test-kit supplies would be available. And even as its own tests proved unusable—and as the need for increased testing became dire—it refused to adopt the WHO test that was widely used in other countries, or even to disseminate simple instructions that would have made its own flawed tests usable (if somewhat less reliable).¹³ All these failures were made more likely because the CDC's director lacked any significant administrative experience.

The CDC was not unique in these respects. Stephen Hahn, appointed to lead the FDA in 2019, is an oncologist and successful hospital executive (and a Republican donor), but until his appointment he lacked policy experience and had never worked in government. The entire White House was similarly deficient because the president's National Security Advisor, John Bolton, had dissolved the White House's office of global health security, which had been designed to coordinate reactions to pandemics (Diamond 2020; see also Klein 2020). Part of the system's memory and expertise was thus excised. And while 30 of the president's high-level aides attended a long briefing on the threat of future pandemics just before the president's

¹³ The CDC's refusal to adopt the widely used WHO test was relevant because the FDA forbade commercial laboratories from developing their own tests (Kaplan 2020). It permitted noncommercial labs to develop their own tests, but as we describe below, even these labs were forbidden from deploying the tests that they developed.

inauguration—it was a legally required transition exercise conducted with the outgoing administration—some of those aides were inattentive and dismissive of the briefing. Worse still, two-thirds of those who attended had left the administration by the start of 2020 (Toosi, Lippman, and Diamond 2020). The administration’s extraordinary turnover helps to account for its lack of experience and, hence, large gaps in relevant distributed knowledge.

4.2 Overconfidence

Claim 3 suggests that personnel who are seriously deficient in declarative or procedural knowledge may not realize how little they know. Their self-calibration may also be wanting, thereby compounding primary ignorance with the secondary problem of overconfidence.

This problem was evident in the Trump administration. For example, Bolton’s decision to shut down the White House’s global preparedness office seems likely to have reflected overconfidence: specifically, it suggested unwarranted confidence that a pandemic was not a serious threat. Overconfidence may also explain the decision, in 2018, to not call for renewed funding of the CDC’s cooperation with public-health departments in China and in other countries (See McKay 2018: funded by a short-term appropriation, the CDC had been offering technical assistance to the public-health departments of dozens of other governments. The purpose was to prevent the outbreak of infectious diseases). And overconfidence may explain the White House’s decision, in 2019, to slash funding for the Strategic National Stockpile of medical goods: while the Department of Health and Human Services asked for 1.5 billion dollars to maintain and extend the stockpile, the White House sought funding for less than half that amount. That is, it sought funding far below previous levels. The decision backfired when the stockpile was found to contain only a small fraction of the face masks, ventilators, drugs, and other materials that were needed in March of 2020.

But the clearest case of overconfidence may be the president’s. His public statements that the pandemic would do little harm in America were not just false: they were also unsupported by any strong evidence. To be sure, he explained those claims by referring to his obligation to be a “cheerleader” for America, leaving open the possibility that he wasn’t as confident as he appeared.¹⁴ But his private

¹⁴ See also Trump’s contention that “In a way, by doing all this testing we make ourselves look bad” (Baker 2020). Trump meant that more testing leads to more positive test results, and that a country’s “numbers” therefore go up as it tests more. His contention reflects an agency problem—Trump’s interests didn’t align with those of citizens—not just incompetence.

behavior does not admit as easily to alternative interpretations. In January and February of 2020, for example, the president was warned about the coronavirus threat in more than a dozen briefings delivered to him by the Office of the Director of National Intelligence. But the president often does not read his briefings and sometimes has little patience even for oral summaries (Miller and Nakashima 2020; see also Burns 2020). On January 29th, the president's trade advisor, Peter Navarro, circulated a memo about the catastrophic risks of the virus. The president's response was to criticize Navarro for putting his concerns in writing. On January 30th, the Secretary of Health and Human Services, Alex Azar, warned the president that the virus could become a pandemic. The president replied that he should stop panicking (Lipton et al. 2020).

And on February 24th, the White House coronavirus task force decided to urge the president to declare a nationwide shutdown. They were to brief him on the 26th. But before they could, a member of the task force issued a blunt public warning about the risks that the country was facing. Trump was furious, the meeting was canceled, and the head of the task force, Alex Azar, was replaced (Shear et al. 2020). The president then waited more than two weeks before declaring a national emergency, and only at that point did the federal government issue a clear message about the importance of social distancing. In the interim, the virus spread unchecked.

4.3 Performance

The bottom line, of course, is performance. Competence is underlying capacity; performance is observable behavior. The two are causally related: high competence produces better performance on average. But because luck also matters—the above causal relation pertains to *average* performance—incompetent leaders will sometimes perform well, much as subpar athletes will sometimes play well. Performance is therefore an imperfect indicator of competence. But given the causal link between the two, a long string of errors, especially when the incentives to perform well are enormous, is informative: it indicates underlying incompetence. The federal response to COVID-19 is just such a string of errors.

We have already noted many of them. The dissolution of the White House's global health preparedness office; the slashing of the budget for the Strategic National Stockpile; the dismissal of dire warnings; the CDC's resistance to calls to expand testing and its failure to coordinate with corporations to ensure that outside testing would be possible. But these may not be the worst failures. The record of the Food and Drug Administration has been singular:

- In January 2020, after the CDC developed its own test, the FDA took a week and a half to approve it for use, thereby delaying testing at a critical period (Madrigal and Meyer 2020).¹⁵
- In February 2020, the FDA refused to share samples from confirmed coronavirus cases with labs that were developing tests. And it demanded, from those labs, test results from more specimens than there were confirmed cases in the United States. Labs that could not meet this impossible condition—that is, all labs—were barred from deploying the tests that they were developing (Madrigal and Meyer 2020).
- On March 21st, after the failure to test widely had become a prominent national issue, the FDA issued a new regulation expressly designed to make testing more difficult. Specifically, it barred the testing of samples that were collected at home. The result was that corporations and private labs immediately shut down their growing testing efforts (Etherington 2020).¹⁶
- Weeks after the dearth of medical face masks became a clear problem, the FDA loosened regulations to allow the import of specific types of masks that had been designed to the standards of other countries. But masks of these types were not available for import in anything like the necessary quantities. And the FDA failed to lift its prohibition on the import of KN95 masks, which *were* available. The KN95 standard is the Chinese equivalent of the U.S. N95 standard, and testing indicated that the N95 and KN95 masks made by one leading manufacturer are indeed equivalent (3M 2020). Moreover, the CDC itself certified, on February 29, that K95 masks could be “expected to provide protection” to medical workers. Still, the FDA refused to allow the importation of these masks (Bensinger 2020).
- In December 2020 and January 2021, the United States broke its own record for COVID-caused deaths per day—broke it 10 times. By the end of this period, well over 20,000 Americans were dying from COVID-19 each week (Worldometer 2021). Vaccine shortages in parts of the country had become critical (Hill and Peltz 2021; Stolberg and LaFraniere 2021). In December 2020, the UK counterpart to the FDA licensed the use of a vaccine that had been created by Oxford University and pharmaceutical firm AstraZeneca. The EU licensed it in January; the WHO and Canada in February (Austen 2021; Ellyatt 2021; World Health Organization 2021). The Oxford-AstraZeneca (OA) vaccine is far less expensive

¹⁵ The test was faulty, but its limitations could not be discovered until the FDA gave its approval.

¹⁶ Perhaps the rationale was that samples collected at home are less reliable than those collected by trained nurses. But at the end of March, trained nurses had other business. And it was well established that false negatives (such as those that might result from faulty sample collection) were not remotely a first-order problem (Romer 2020).

and much easier to administer than the first vaccines approved by the US.¹⁷ Before it was approved in the UK, it had undergone large-scale clinical trials in both the UK and Brazil, as well as a smaller trial in South Africa (Voysey et al. 2021). And in January, it was administered to millions of UK residents. But throughout late 2020 and early 2021, an AstraZeneca-licensed factory in Baltimore, which had produced and stockpiled tens of millions of vaccine doses, was unable to release those doses: the FDA refused to take emergency measures to approve the vaccine (Cohn 2021). By the start of March 2021, the FDA still had not licensed its use in the United States.

- AstraZeneca made mistakes in the conduct and reporting of its clinical trials (Robbins et al. 2020; Stolberg and LaFraniere 2021), and those mistakes were offered as justification of the FDA’s delay. The relevant question is: given that the vaccine had been approved by scientists throughout the world, and that its widespread use across the globe proved it both safe and effective, was it reasonable to wait for *American* scientists to weigh in, thereby delaying the vaccine’s rollout by months? As of this writing, it seems likely that “vaccine nationalism” at the FDA—the refusal to heed international consensus and overwhelming outside-the-U.S. evidence of the vaccine’s safety—cost thousands of U.S. lives.

Inexperience and overconfidence may be pardoned when a system performs well. But in the United States, they went hand in hand with poor performance. The FDA’s failure to appreciate the gravity of the pandemic, both when it began and more than a year later, seems to have costs tens of thousands of lives, if not more. And as we have already explained, its record was complemented by those of other agencies. In the U.S. government, poor performance was endemic, and the consequences were lethal.

4.4 Silver Linings: Evidence of Exceptional Competence

Despite the federal government’s many missteps, it would be foolish to contend that there has been *no* evidence of competence in its handling of the pandemic.

¹⁷ The AstraZeneca vaccine does not need to be frozen. By contrast, both of the first two vaccines approved by the FDA were supposed to be frozen until shortly before they are administered; one of these vaccines, developed by Pfizer, must be stored and shipped at -70°C (Months after its introduction, studies suggested that it was sufficient to freeze the Pfizer vaccine at normal freezer temperatures). In addition, these vaccines must be thawed in a refrigerator and administered within 6 h of thawing. These requirements made the first two vaccines exceptionally laborious to administer (Simmons-Duffin 2020; Wernau 2021).

There has been. We now take up two cases that others have advanced as evidence of exceptional competence: the performance of Anthony Fauci, who served as President Trump's chief medical adviser; and the success of Operation Warp Speed at facilitating the testing and release of vaccines in less than nine months.

4.4.1 Fauci

Fauci's reputation as a bright spot in the Trump administration's handling of COVID-19 is due to a combination of public candor and early awareness of the magnitude of the threat. He was among the first officials to acknowledge in public that the COVID-related death toll in the U.S. might number in the hundreds of thousands (Perrigo 2020). He was also blunt, in congressional testimony, about the U.S. failure to test Americans for COVID in a timely way (Stockman 2020). He was instrumental in convincing the FDA to ease regulations that prohibited hospitals and non-CDC labs from testing people for COVID-19 (Shear et al. 2020). And he was outspoken about the importance of social isolation as a means to reduce the spread of COVID. He made this point in private as well as in public: in March of 2020, when Trump was eager to ease the just-instituted social-isolation measures, Fauci argued with him that it would be a mistake to do so, and Trump took his advice (Perrigo 2020).¹⁸

Of course even highly competent officials err. Hence it is not hard to find serious mistakes in Fauci's record. In March 2020, he received his largest audience—during an interview on *60 Minutes*—and he used the opportunity to tell the American public that “There's no reason to be walking around with a mask” (He later maintained that he had been referring only to medical-grade masks, which were then in short supply in hospitals; but this point was left unspoken during the interview. Within a month of the interview, the CDC advised Americans to wear cloth masks.) He has been a steadfast opponent of human challenge trials, which could have sped clinical trials by months, saving thousands of lives in the U.S. alone (Mebiyani 2020).¹⁹ He

18 Notwithstanding Fauci's many instances of candor, he has—by his own admission—not always been candid in his public statements about what would be required for the United States to reach herd immunity (McNeil 2020). And in general, both his candor and the earliness of his awareness of the threat are disputed (e.g. Adler-Bell 2021). But even if we grant these criticisms, it remains true that Fauci was more candid and quicker to recognize the threat than most other administration officials.

19 Human challenge trials (HCTs) are those in which healthy, low-risk volunteers—some of whom have been vaccinated—are exposed to low doses of the virus and then monitored for disease symptoms (Eyal, Lipsitch, and Smith 2020). The volunteers are guaranteed high-quality medical care should they develop symptoms. The mortality risk of the procedure is extremely low—many magnitudes of order lower than the certain number of deaths due to the pandemic. HCTs enjoy overwhelming cross-national public support (Broockman et al. 2021), and the UK has already begun to conduct HCTs for COVID-19 vaccines (Callaway 2020).

supported the FDA's foot-dragging on vaccine approval (Brown and Griffin 2020); when the UK licensed the use of the Pfizer vaccine in early December of 2020, he suggested, without any evidence, that the UK's faster licensing was due to sloppiness on its part (Forgey 2020) (He later apologized.) And he suggested that the AstraZeneca vaccine shouldn't be used because it is less effective than other vaccines, apparently failing to appreciate that the lesser efficacy of the AstraZeneca vaccine was far less important than the production and release of additional vaccine doses (Tabarrok 2020). Even so, Fauci's overall performance was relatively impressive, indicating a high level of underlying expertise.

4.4.2 Operation Warp Speed

Operation Warp Speed was a Trump-administration initiative to have 300 million vaccine doses produced and distributed by the end of 2020. The initiative was conceived in March, when no vaccines had been produced. The timeline was very ambitious: under ordinary circumstances, it takes years for vaccines to be produced, tested, and licensed by the FDA.²⁰

A critical component of Operation Warp Speed was the funding of multiple companies that were deemed to have promising vaccine candidates. Billions were spent to expedite research and development of these candidates, even though some of these candidates had low probabilities of success—and given the urgency of the situation, investing in even the less-promising candidates was a wise decision. Billions more were spent to make advance purchases of vaccine doses, thereby ensuring the pharmaceutical companies that they would have a market for their products. (Given the competition among these companies, it was not otherwise clear that there would be a large market for any particular company's vaccine.)²¹

Operation Warp Speed has been justly credited for its success in speeding the development and production of vaccines. Vaccines are often an unremunerative product; they take time to develop, and in some cases, herd immunity is achieved before the vaccine can be produced, leaving pharmaceutical companies with large investments in a product that is no longer needed. The contrast to western Europe (excluding the UK) is stark: vaccine doses were distributed much earlier in the U.S.;

²⁰ That said, claims that Operation Warp Speed led to the mass production of a vaccine in “record time” are overstated. Consider, for example, the outbreak of a new strain of influenza in the spring of 1957. No vaccine existed when the strain was first noticed, but by the fall of that year, 40 million vaccine doses had been produced in the United States alone (Offit 2007).

²¹ In light of the urgency of the pandemic, the government dispensed with the usual bidding process; it instead signed no-bid contracts for the production of the vaccines (Baker and Koons 2020). Even so, the total budget for Operation Warp Speed was only \$18 billion—a paltry sum relative to the multi-trillion-dollar economic cost of the pandemic (Tozzi, Griffin, and Stein 2020).

by contrast, EU infighting prevented EU nations from planning to procure an adequate number of vaccines (Becker et al. 2020).

Operation Warp Speed was the best part of the Trump administration's response to COVID-19. But its success should not be overstated. It fell far short of its goal; by the end of 2020, only three million doses had been administered—1% of the original goal (Rummler 2020). Distribution of vaccines was extremely slow, as the Trump administration had decided to defer all details of distribution to the states, which themselves proved incompetent to manage distribution. As a result, daily deaths due to COVID-19 reached all-time highs in early 2021 (Findell, Hopkins, and Frosch 2021).

More tellingly, perhaps, the regulatory burden was still substantial, making the approval process take far longer than it could have, and thus costing many lives. For example, one vaccine was designed in two days in January 2020, but it would not be approved by the FDA until December of that year (Wallace-Wells 2020). In the interim, it was required to pass through lengthy clinical trials. The FDA should not have dispensed with clinical trials, but the required time could have been cut by months without compromising safety, partly by the use of human-challenge trials (as noted above), and partly by integrating tests of safety and efficacy (Krammer 2020; Liu and Pledger 2005).

In any operation as large as the federal government's response to COVID-19, it would be unreasonable to expect a test score of zero. Some people and some organizations will perform well even in the worst systems. And that was so during the pandemic. Even after we account for the shortcomings of Fauci's performance and of Operation Warp Speed, it seems likely that they have saved thousands of lives.

Still, for two reasons, it would be misleading to emphasize these silver linings. First, these parts of the federal government have been exceptional: for all of the reasons mentioned above, the general record of the Trump administration's handling of COVID-19 was poor, reflecting a widely distributed incompetence, not competence. Second, it is probably not a coincidence that Fauci is a career official with years of experience in dealing with epidemics and that much of Operation Warp Speed was carried out by organizations specialized for the job: the pharmaceutical and biotechnology firms that actually developed and produced the vaccines. The successes of both Fauci and Operation Warp Speed illustrate the importance of Claim 2(c): the administration performed better when it accessed distributed knowledge.

5 Conclusions

The performance of all governments, even democratic ones, is significantly affected by the competence of the system's chief executive. (This is especially true of authoritarian leaders, whose greater power magnifies the lethality of incompetence.) And unlike the average competence of millions of voters, the competence of the occupant of a single office can vary dramatically from one election to the next.

Assume for purposes of discussion that Obama's underlying competence was average for U.S. presidents.²² If that is approximately right, then on one day in January 2017 the competence of the country's most powerful elected official plummeted from the middle of the distribution to the bottom. Moreover, the incompetence of the man who took office on that day was swiftly multiplied as he appointed many other unqualified people to top positions. And as the pandemic has made clear, the impact on the system's performance has been profound.

The lesson for the allocation of our discipline's time and effort is also clear. As we argued in 2008, if we are interested in *systemic* performance—especially in explaining variations over time—we would do well to spend less time re-examining the incompetence of voters and more time scrutinizing that of leaders and other top officials.

References

- 3M. 2020. *Comparison of FFP2, KN95, and N95 and Other Filtering Facepiece Respirator Classes*. Also available at http://bit.ly/3M_faceMaskEquivalence.
- Adler-Bell, S. 2021. *Doctor Do-Little: The Case Against Anthony Fauci*. *The Drift*, January 24, 2021. Also available at <https://www.thedrftmag.com/the-case-against-fauci/>.
- Anderson, C., S. Brion, D. A. Moore, and J. A. Kennedy. 2012. "A Status-Enhancement Account of Overconfidence." *Journal of Personality and Social Psychology* 103 (4): 718.
- Austen, I. 2021. *Canada Authorizes the AstraZeneca Vaccine*. February 26, 2021. Also available at <https://www.nytimes.com/2021/02/26/world/canada-astrazeneca-vaccine.html>.
- Baker, P. 2020. Trump Moving Past Outbreak Despite Alarms. *New York Times*, May 7, 2020, sec. A.
- Baker, S., and C. Koons. 2020. *Inside Operation Warp Speed's \$18 Billion Sprint for a Vaccine*. *Bloomberg Businessweek*, October 29, 2020. Also available at <https://www.bloomberg.com>.

²² Because assessments of a president's *performance* are naturally affected by evaluators' preferences over policies and parties, we expect most Democratic political scientists to rate Obama as above average and most Republican political scientists to rate him as below average. Because assessments of underlying competence depend less on the assessors' policy preferences, however, we expect less variance on this question. Hence using a benchmark estimate of average competence seems fairly safe in this case.

- com/news/features/2020-10-29/inside-operation-warp-speed-s-18-billion-sprint-for-a-vaccine.
- Becker, M., V. Hackenbroch, K. Martin, C. Schult, and T. Schulz. 2020. *Germany and Europe Could Fall Short on Vaccine Supplies*. *Spiegel International*, December 18, 2020. Also available at <https://www.spiegel.de/international/europe/the-planning-disaster-germany-and-europe-could-fall-short-on-vaccine-supplies-a-3db4702d-ae23-4e85-85b7-20145a898abd>.
- Bendor, J. 2020. "No Computation Without Representation: Standard-Based versus Comparative Evaluation and Choice." Working paper, Stanford: Stanford University Graduate School of Business.
- Bendor, J., and J. G. Bullock. 2008. "Lethal Incompetence: Voters, Officials, and Systems." *Critical Review* 20 (1–2): 1–24.
- Bendor, J., A. Glazer, and T. H. Hammond. 2001. "Theories of Delegation." *Annual Review of Political Science* 4: 235–69.
- Bensinger, K. 2020. *Coronavirus Cases Have Surged, But the US is Refusing to Take the World's Most Available Masks*. *BuzzFeed News*, March 29, 2020. Also available at <https://www.buzzfeednews.com/article/kenbensinger/coronavirus-ken95-masks-us-wont-import-china>.
- Broockman, D., J. Kalla, A. Guerrero, M. Budolfson, N. Eyal, N. P. Jewell, M. Magalhaes, and J. S. Sekhon. 2021. "Broad Cross-National Public Support for Accelerated COVID-19 Vaccine Trial Designs." *Vaccine* 39 (2): 309–16.
- Brown, K. V., and R. Griffin. 2020. *Trump Pushes an Unproven Coronavirus Drug, and Patients Stock Up*. *Bloomberg News*, March 21, 2020. Also available at <https://www.bloomberg.com/news/articles/2020-03-21/trump-pushes-malaria-drug-for-covid-19-but-evidence-is-lacking>.
- Burns, K. 2020. *Trump's Daily Intelligence Brief Reportedly Warned of the Coronavirus as Far Back as January*. *Vox*, April 28, 2020. Also available at <https://www.vox.com/policy-and-politics/2020/4/28/21239663/coronavirus-presidential-daily-intelligence-briefing>.
- Callaway, E. 2020. "Dozens to Be Deliberately Infected with Coronavirus in UK 'Human Challenge' Trials." *Nature* 586: 651–52.
- Cohn, M. 2021. *A Plant in East Baltimore is Making Millions of Doses of Coronavirus Vaccines. But They Still Have to Be Approved*. January 29, 2021. Also available at <https://www.baltimoresun.com/coronavirus/bs-pr-hs-making-more-vaccine-20210129-5dmn7hxb5dm3hyuiohxb7iibe-story.html>.
- Davis, J. H. 2017. In Break With Precedent, Obama Ambassadors are Denied Extensions. *New York Times*, January 5, 2017, sec. A.
- Diamond, D. 2020. *Inside America's 2-Decade Failure to Prepare for Coronavirus*. *Politico*, April 11, 2020. Also available at <https://www.politico.com/news/magazine/2020/04/11/america-two-decade-failure-prepare-coronavirus-179574>.
- Ellyatt, H. 2021. *AstraZeneca-Oxford Covid Vaccine Approved for Use by European Regulator*. *CNBC*, January 29, 2021. Also available at <https://www.cnn.com/2021/01/29/astrazeneca-oxford-vaccine-approved-for-use-by-european-regulator.html>.
- Ericsson, K. A. 2018. "The Differential Influence of Experience, Practice, and Deliberate Practice on the Development of Superior Individual Performance of Experts." In *Cambridge Handbook of Expertise and Expert Development*. 2nd ed., edited by K. Ericsson, R. Hoffman, A. Kozbelt, and A. Williams, 745–69. New York: Cambridge University Press.
- Etherington, D. 2020. *Updated FDA COVID-19 Testing Guidelines Specifically Disallow at-Home Sample Collection*. *TechCrunch*, March 23, 2020. Also available at <https://techcrunch.com/>

- 2020/03/23/updated-fda-covid-19-testing-guidelines-specifically-disallows-at-home-sample-collection.
- Eyal, N., M. Lipsitch, and P. G. Smith. 2020. "Human Challenge Studies to Accelerate Coronavirus Vaccine Licensure." *The Journal of Infectious Diseases* 221 (11): 1752–56.
- Findell, E., J. S. Hopkins, and D. Frosch. 2021. *Covid-19 Vaccines are Getting Stuck at the Last Step*. *Wall Street Journal*, January 17, 2021. Also available at <https://www.wsj.com/amp/articles/covid-19-vaccines-are-getting-stuck-at-the-last-step-11610892001>.
- Forgey, Q. 2020. *Fauci: U.K. 'Really Rushed through that Approval' of Pfizer Vaccine*. *Politico*, December 3, 2020. Also available at <https://www.politico.com/news/2020/12/03/fauci-uk-pfizer-vaccine-rush-442588>.
- Frank, R. H. 2016. *Success and Luck: Good Fortune and the Myth of Meritocracy*. Princeton: Princeton University Press.
- Higgins, T. 2019. *The Head of the CFPB Now Believes that the Financial Regulator is Unconstitutionally Structured*. *CNBC*, September 17, 2019. Also available at <https://www.cnbc.com/2019/09/17/cfpb-head-tells-supreme-court-agency-is-unconstitutional.html>.
- Hill, M., and J. Peltz. 2021. *States Report Vaccine Shortages and Cancel Appointments*. Associated Press. Also available at <https://apnews.com/article/coronavirus-vaccine-update-f1b8967b6a077d89d21134f4eac069f6>.
- James, M. 1994. *A Primer on Decision Making: How Decisions Happen*. New York: The Free Press.
- Kaplan, S. 2018. AIDS Researcher, a Longtime Government Adviser, is Named to Lead the C.D.C. *New York Times*, March 21, 2018, sec. A.
- Kaplan, S. 2020. C.D.C. Labs were Contaminated, Delaying National Rollout of Testing, Officials Say. *New York Times*, April 19, 2020, sec. A.
- Kinder, D. R., and N. Kalmoe. 2017. *Neither Liberal nor Conservative: Ideological Innocence in the American Public*. Chicago: University of Chicago Press.
- Klein, E. 2020. *The President's Job is to Manage Risk. But Trump is the Risk*. *Vox*, May 18, 2020. Also available at <https://www.vox.com/2020/5/18/21251370/donald-trump-risk-coronavirus-2020-reelection-nuclear-china>.
- Krammer, F. 2020. "Pandemic Vaccines: How are We Going to be Better Prepared Next Time?" *Med* 1 (1): 28–32.
- Kruger, J., and D. Dunning. 1999. "Unskilled and Unaware of it: How Difficulties in Recognizing One's Own Incompetence Lead to Inflated Self-Assessments." *Journal of Personality and Social Psychology* 77 (6): 1121–34.
- Lee, T. B. 2019. *After 10 Failed Logins, Giuliani Had Apple Store Wipe His iPhone: Report*. *Ars Technica*, October 31, 2019. Also available at <https://arstechnica.com/tech-policy/2019/10/giuliani-had-apple-store-reset-iphone-after-forgotten-passcode-report/>.
- Lindblom, C. E. 1959. "The Science of 'Muddling Through'." *Public Administration Review* 19 (2): 79–88.
- Lipton, E., D. E. Sanger, M. Haberman, M. D. Shear, M. Mazzetti, and J. E. Barnes. 2020. Despite Timely Alerts, Trump was Slow to Act, April 12, 2020, sec. A.
- Liu, Q., and G. W. Pledger. 2005. "Phase 2 and 3 Combination Designs to Accelerate Drug Development." *Journal of the American Statistical Association* 100 (470): 493–502.
- Madrigal, A. C., and R. Meyer. 2020. *How the Coronavirus Became an American Catastrophe*. *The Atlantic*, March 21, 2020. Also available at <https://www.theatlantic.com/health/archive/2020/03/how-many-americans-are-sick-lost-february/608521/>.

- McKay, B. 2018. *CDC to Scale Back Work in Dozens of Foreign Countries Amid Funding Worries*. *Wall Street Journal*, January 19, 2018. Also available at <https://www.wsj.com/articles/cdc-to-scale-back-work-in-dozens-of-foreign-countries-amid-funding-worries-1516398717>.
- McNeil, D. G. 2020. How Much Herd Immunity is Enough? *New York Times*, December 24, 2020.
- Mebiyani, R. 2020. *Fauci Says Human Challenge Trials Not Ethically Justified, Experts Disagree*. *Economic Times*, July 31, 2020. Also available at <https://health.economictimes.indiatimes.com/news/diagnostics/fauci-says-human-challenge-trials-not-ethically-justified-experts-disagree/77284682>.
- Miller, G., and E. Nakashima. 2020. *President's Intelligence Briefing Book Repeatedly Cited Virus Threat*. *Washington Post*, April 27, 2020. Also available at https://www.washingtonpost.com/national-security/presidents-intelligence-briefing-book-repeatedly-cited-virus-threat/2020/04/27/ca66949a-8885-11ea-ac8a-fe9b8088e101_story.html.
- O'Connell, A. J. 2018. *After One Year in Office, Trump's Behind on Staffing But Making Steady Progress*. Brookings Institution. Also available at <https://www.brookings.edu/research/after-one-year-in-office-trumps-behind-on-staffing-but-making-steady-progress/>.
- Offit, P. A. 2007. *Vaccinated: One Man's Quest to Defeat the World's Deadliest Diseases*. New York: Harper Collins.
- Paletta, D., and A. Viswanatha. 2017. *Homeland Security Chief and White House Clash*. *Wall Street Journal*, January 30, 2017. Also available at <https://www.wsj.com/articles/homeland-security-chief-and-white-house-clash-1485823301>.
- Perrigo, B. 2020. *President Trump's Advisors 'Argued Strongly' Against Easing Coronavirus Measures Too Early, Anthony Fauci Says*. *Time*, March 30, 2020. Also available at <https://time.com/5812439/trump-coronavirus-measures-fauci/>.
- Robbins, R., S. LaFraniere, N. Weiland, D. D. Kirkpatrick, and B. Mueller. 2020. Blunders Eroded U.S. Confidence in Early Vaccine Front-Runner. *New York Times*, December 8, 2020.
- Romer, P. 2020. *Even a Bad Test Can Help Guide the Decision to Isolate: Covid Simulations Part 3*. March 26, 2020. Also available at <https://paulromer.net/covid-sim-part3/>.
- Rummler, O. 2020. *U.S. Set to End 2020 with Just Over 3 Million Vaccine Doses Administered*. *Axios*, December 31, 2020. Also available at <https://www.axios.com/coronavirus-vaccines-administered-2020-9ec0cebf-58cd-4294-8b1e-9334c76363c8.html>.
- Sen, A. 2006. "What do We Want from a Theory of Justice?" *Journal of Philosophy* 103 (5): 215–38.
- Shear, M. D., A. Goodnough, S. Kaplan, S. Fink, K. Thomas, and N. Weiland. 2020. Testing Blunders Cost Vital Month in U.S. Virus Fight. *New York Times*, March 28, 2020, sec. A.
- Simmons-Duffin, S. 2020. *Why Does Pfizer's COVID-19 Vaccine Need to be Kept Colder Than Antarctica?* November 17, 2020. Also available at <https://www.npr.org/sections/health-shots/2020/11/17/935563377/why-does-pfizers-covid-19-vaccine-need-to-be-kept-colder-than-antarctica>.
- Sniderman, P. M., and J. G. Bullock. 2004. "A Consistency Theory of Public Opinion and Political Choice: The Hypothesis of Menu Dependence." In *Studies in Public Opinion: Attitudes, Nonattitudes, Measurement Error, and Change*, edited by W. E. Saris, and P. M. Sniderman, 337–57. Princeton: Princeton University Press.
- Stockman, F. 2020. Sick People Across the U.S. Say They are Being Denied the Coronavirus Test. *New York Times*, March 12, 2020.
- Stolberg, S. G., and S. LaFraniere. 2021. Warning of Shortages, Researchers Look to Stretch Vaccine Supply. *New York Times*, January 5, 2021.

- Tabarrok, A. 2020. The Tremendous Success of Operation Warp Speed. *Marginal Revolution* (blog). December 21, 2020. Also available at <https://marginalrevolution.com/marginalrevolution/2020/12/the-tremendous-success-of-operation-warp-speed.html>.
- Tong, L. H. 2009. *Senate Confirmation Process: A Brief Overview*. Congressional Research Service Report 7-5700. Also available at <https://fas.org/sgp/crs/misc/RS20986.pdf>.
- Toosi, N., D. Lippman, and D. Diamond. 2020. *Before Trump's Inauguration, a Warning: 'The Worst Influenza Pandemic Since 1918'*. *Politico*, March 16, 2020. Also available at <https://www.politico.com/news/2020/03/16/trump-inauguration-warning-scenario-pandemic-132797>.
- Tozzi, J., R. Griffin, and S. Stein. 2020. *Trump Administration Dips into Protective Gear, CDC Funds to Fund Vaccine Push*. *Bloomberg News*, September 3, 2020. Also available at <https://www.bloomberg.com/news/articles/2020-09-23/how-much-is-the-trump-administration-spending-on-a-vaccine>.
- Voysey, M., S. A. C. Clemens, S. A. Madhi, L. Y. Weckx, P. M. Folegatti, P. K. Aley, B. Angus, et al. 2021. "Safety and Efficacy of the ChAdOx1 NCoV-19 Vaccine (AZD1222) against SARS-CoV-2: An Interim Analysis of Four Randomised Controlled Trials in Brazil, South Africa, and the UK." *The Lancet* 397 (10269): 99–111.
- Wallace-Wells, D. 2020. *We Had the Vaccine the Whole Time*. *New York*, December 7, 2020. Also available at <https://nymag.com/intelligencer/2020/12/moderna-covid-19-vaccine-design.html>.
- Ward, A. 2017. *Trump Chooses Putin's Word over the US Intelligence Community's — Again*. *Vox*, November 11, 2017. Also available at <https://www.vox.com/2017/11/11/16636906/trump-russia-putin-intelligence>.
- Wernau, J. 2021. *Why Administering Covid-19 Vaccines is so Hard*. *Wall Street Journal*, February 14, 2021. Also available at <https://www.wsj.com/amp/articles/why-administering-covid-19-shots-is-so-hard-11613322773>.
- Wilson, J. Q. 1989. *Bureaucracy: What Government Agencies Do and Why They Do It*. New York: Basic Books.
- World Health Organization 2021. *WHO Lists Two Additional COVID-19 Vaccines for Emergency Use and COVAX Roll-Out*. February 15, 2021. Also available at <https://www.who.int/news/item/15-02-2021-who-lists-two-additional-covid-19-vaccines-for-emergency-use-and-covax-roll-out>.
- Worldometer 2021. *Reported Cases and Deaths by Country, Territory, or Conveyance*. February 12, 2021. Also available at <https://perma.cc/P3AC-9ACU>.