

How Chicago Economics Helped End a Pandemic

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Covid-19 has disrupted much of human life, but Operation Warp Speed has drastically mitigated the costs of the virus. The \$10 billion federal program launched in April 2020 encouraged and accelerated the development and mass manufacturing of COVID-19 vaccines, streamlined Federal approval for vaccines and their manufacture, and provided Federal funds for private vaccine research and advance-purchase orders. COVID-19 vaccines are currently being administered to the general public at least six months earlier than expected. Vaccinating the population against COVID-19 six months earlier was worth about \$1.8 trillion to the U.S. alone in terms of lives saved and accelerating the return to normal schooling, work, socializing, etc. (Mulligan and Philipson 2020).

Operation Warp Speed is a historic milestone for economic research on medical innovation that occurred over decades on the University of Chicago campus. Chicago's research results, traditions, and emphasis were brought to the federal government in 2017 by several of its faculty and alumni. In the three years before COVID-19 came to the United States, that economic team showed the President of the United States how federal policy reforms were delivering real value to consumers by encouraging innovation in healthcare industries. Also before the pandemic, the team prepared and published a blueprint for vaccine innovation during a pandemic that would become the intellectual foundation for Operation Warp Speed. This document tells the story of the program's University of Chicago origins. The document traces the economics of the program back to underlying UChicago economic principles on regulation generally and health economics specifically, following the contents of a [recent video conversation](#) I had with University of Chicago colleagues Kevin M. Murphy, Tomas J. Philipson, and Robert H. Topel.

UChicago on Regulatory Barriers in Healthcare

Operation Warp Speed, especially its economic elements, emerges from a large body of UChicago research centered around the unintended consequences of health regulation. Many economic frameworks developed in the Chicago price theory tradition allow for both quantitative work and application across various industries. An early piece by Milton Friedman and George J. Stigler, *Roofs or Ceilings?* found that housing regulation exacerbated housing problems rather than making them better (Friedman and Stigler 1946). Stigler would dedicate much of his career to developing the economics of regulation, including the famous “regulatory capture theory.” As Stigler put it in his 1971 paper, “as a rule, regulation is acquired by the industry and is designed and operated primarily for its benefit ... regulatory policy will often be so fashioned as to retard the rate of growth of new firms” (Stigler 1971).

A famous 1973 paper by Chicago’s Sam Peltzman applied the entry-barrier theory specifically to the regulation of drugs, vaccines, and medical devices. He observed that the U.S. Food and Drug Administration’s (FDA) approval procedures amounted to industry entry barriers, concluding that “consumer losses from purchases of ineffective drugs or hastily-marketed unsafe drugs appear to have been trivial compared to their gains from innovation” (Peltzman 1973). Peltzman’s approach was appreciated throughout the profession,¹ including a book from M.I.T. Professor Peter Temin also concluding that FDA delays were too long (Temin 1980). More recently, Tomas Philipson and Chicago alumnus Eric Sun concluded that FDA pre-market regulation and post-market tort liability acted as a double tax on product development (Philipson and Sun 2008). With Eric Sun and other coauthors, Philipson conducted cost-benefit analyses of the tradeoff between speed and safety, concluding in 2008 that FDA was putting too much weight on safety. This work influenced FDA deregulation efforts during the Bush Administration,

¹ See the 2001 survey by Klein and Tabarrok.

although that administration continued to be frustrated by the fact that FDA “steadily disregarded many of the [] provisions” of laws intended to get FDA to move faster (Gottlieb 2010).

Regulate or Deregulate?

Philipson joined the Trump Administration in 2017 and Mulligan in 2018, both in its White House Council of Economic Advisers (of which Philipson would ultimately become Acting Chair). These issues arose immediately in connection with President Trump’s campaign promise to lower prescription drug prices. He appointed FDA Commissioner Scott Gottlieb, who had been critical of FDA delays. Trump’s economic team, which included Chicago economists Anna Wong, Don Kenkel, Eric Sun, Kevin Corinth, Paula Worthington, Rich Burkhauser and Troy Durie, predicted that deregulation would reduce drug prices because reduced FDA barriers would result in more new drugs and more manufacturers of existing drugs to compete for consumer dollars. On the other side was Health and Human Services (HHS) Secretary Alex M. Azar II, who proposed a “drug pricing blueprint” that would add regulations on everything from television advertisements to business-to-business price controls. Although deregulation was a pervasive theme in his administration, the President was no ideologue but rather just looking for results.

In a 2018 report that was little noticed at the time (Council of Economic Advisers 2018), CEA laid out and updated Peltzman’s case that FDA regulations are entry barriers that reduce entry and raise prices. It showed that Gottlieb’s deregulation was in fact increasing entry of generic drugs and predicted that lower prices would follow. The CEA received their first sense of progress on January 10, 2019, with the confidential advance release of the Consumer Price Index (CPI) report for December 2018. It showed that 2018 was the first calendar year since 1972 that retail prescription drug prices actually fell even though consumer prices generally were increasing. The CEA composed a message to be posted on the President’s Twitter account the next day. But this message had to be approved by HHS, which was loathe to release something so contrary to its perceived “need for regulatory action” in the face of purported “prices of

existing drugs [that] have been rising in the United States much more rapidly than warranted by inflation or costs” (United States, Department of Health and Human Services). Mulligan convinced the President’s communication team that the CPI is reliable and is telling us something important. The President would brag about the result in everything from impromptu press briefings to his State of the Union address. Although none of us knew what 2020 would bring, the President was also getting valuable experience at, and witnessing results from, removing barriers to medical innovation, especially at the FDA.

The Value of Medical Innovation during a Pandemic

UChicago’s Tomas J. Philipson and Richard A. Posner founded the field of economic epidemiology, which emphasized that the costs of a contagious disease are not limited to the health losses of those who contract the disease because many others upend their lives in order to stay healthy (Posner and Philipson 1993). In 2006, Kevin M. Murphy and Robert Topel’s “Value of Health and Longevity” assessed the valuation of improvements in health expenditures and their policy implications (Murphy and Topel 2006). This study calculated the value of innovations that occurred in the past, the potential value that can occur in the future from reducing the incidence, and the mortality of various diseases. They even looked at the value of innovation to reduce mortality from contagious respiratory diseases, of which COVID-19 proved to be an example. Gary Becker, Tomas Philipson, and Rodrigo Soares estimated the health component of economic growth associated with the value of health improvements (Becker, Philipson and Soares 2015). Part of Becker’s UChicago course on human capital looked at the value of preventing a worldwide pandemic (Jaffe, Minton, Mulligan and Murphy 2019).

Chicago’s emphasis on medical innovation profoundly influenced the White House economic team. Judging from the 74 Economic Reports of the President (ERPs) published since the Truman Administration, no economic team gave so much attention to medical innovation. The 2018 ERP had a full chapter about the health sector, half of which was about "Improving People’s Health through More Access to Medical

Innovations" and "Encouraging Innovation, and Making It Affordable." The 2019 ERP (p. 18) cites FDA deregulation as one of the highlights of the year and devotes twelve pages to how FDA reforms increased competition and reduced prescription drug prices. The same report also looks at the possible negative innovation effects of a proposed Federal ban on for-profit healthcare.

The 2020 ERP updated the status of the FDA reforms in its chapter about deregulation, its chapter about healthcare, and its chapter about competition policy. It also cited the new Right to Try law and relaxed regulatory barriers to treating chronic kidney disease (Council of Economic Advisers 2020).

In order to continue to add to the formidable intellectual capital stock of Chicago economics, Tomas J. Philipson and Casey B. Mulligan have developed a new initiative supporting economic research on healthcare markets and medical innovation. The initiative takes the unique approach of addressing issues specific to health care through a broader economic lens, applying insights from industrial organization, macroeconomics, finance, labor economics, and other fields. Some of the key focus areas investigated so far are FDA hedges, financial health engineering to support medical research, the effects of reference pricing on market entry, and innovation incentives and disincentives in NIH funding. In April of 2020, Mulligan published a report on the excess burden of COVID-19 and the value of medical innovation that assesses the total cost of COVID-19 in the U.S. (Mulligan 2020). Later, Mulligan and Philipson estimated that Project WARP Speed was worth \$1.8 trillion due to getting COVID-19 vaccines at least six months before anybody expected. The initiative is currently planning a conference in the Spring of 2021 around the many issues of technological change in healthcare, including the measurements and determinants of these innovations.

Although COVID-19 would not arrive in the U.S. for two more years, Trump's CEA was also being asked by the National Security Council's biodefense team to look at the economics of vaccine innovation during pandemics. This was an opportune time to bring the Chicago tradition on regulation together with its results on epidemiology and the value of medical innovation. In a report published in September 2019,

CEA concluded that “...improving the speed of vaccine production is more important for decreasing the number of infections than improving vaccine efficacy” and emphasized the need for large-scale manufacturing and the possible advantages of public-private partnerships” (Council of Economic Advisers 2019).

Presidential Human Capital

The CEA vaccine report prompted a President’s Executive Order, also before the current pandemic, noting that “viruses emerge from animals ... that can spread efficiently and have sustained transmission among humans.” President Trump concluded that “vaccination is the most effective defense....” As two of Trump’s former senior staff members put it “when COVID-19 emerged, the White House was ready and expeditiously applied the report's deregulatory and fiscal lessons to streamline FDA approval for vaccines and their parallel manufacturing on a large scale” (Grogan and Philipson 2020).

Mulligan and Philipson were in the Oval Office with the President and his economic team in February 2020 (when COVID-19 cases just were beginning to spread in the U.S., and before Operation Warp Speed). His staff continued to worry that the FDA would not be interested in removing any more approval barriers. But the President was confident, telling them that “I’ve done it before and will do it again ... bring the FDA management in here.” He and his administration not only knew why approval barriers needed to be removed but knew from prior experience how to do it. By the end of that calendar year, two vaccines were approved, produced, and beginning to be delivered to the American population.

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