

The Long Shadow of the Pandemic: 2024 and Beyond

Even when the world returns to 'normal,' the legacy of Covid-19 will transform everything from wages and health care to political attitudes and global supply chains.

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Last March, as Covid-19 lockdowns were coming into force in Europe, seismologist Thomas Lecocq of the Royal Observatory of Belgium noticed that the Earth was suddenly stiller. Every day, as humans operate our factories, drive our cars, even simply walk on our sidewalks, we rattle the planet. Incredibly, these rattles can be detected as if they were infinitesimal earthquakes. And they had stopped.

Other signs also pointed to a changing world. Last spring, many videos went viral of wild animals moving into our cities. Herds of wild goats, crocodiles, leopards and even elephants wandered streets now devoid of traffic. And as manufacturing ceased, satellites high above our planet looked down and detected the disappearance of pollution.



In March, wild mountain goats explored a Welsh town mostly emptied of people by the Covid-19 lockdown. Photo: Christopher Furlong/Getty Images

While the rest of the natural world reasserted itself, however, we humans continued to suffer. We reshaped our way of life to slow the spread of the virus. But our interventions have only been able to mitigate, not stop, the pandemic. Once the SARS-CoV-2 virus had established itself in our species, after emerging in China in November 2019, the outcome was inevitable: It would spread across the whole planet—and linger among us forever.

Many hope and expect that a vaccine will save us. But a vaccine won't give us an early exit. With all the disparate vaccine trials under way, we will eventually invent several vaccines, of varying effectiveness—just not in time to make a major difference in the primary course of the pandemic. After all, invention of a vaccine is just the first step. The pharmaceutical must then be

manufactured, distributed and—most important—accepted by substantial numbers of people world-wide. But vaccine uptake may not be rapid or widespread, especially if its safety is in doubt.

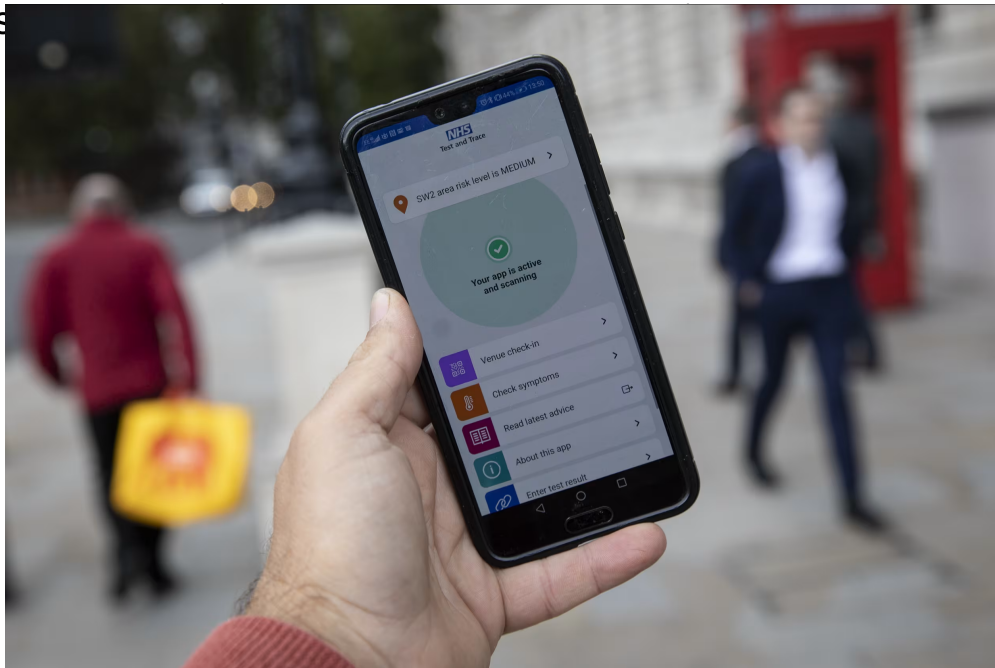
A vaccine will probably not be widely deployed before the U.S. achieves herd immunity—a level of infection in a population, roughly 40% for SARS-CoV-2, that limits the further epidemic potential of a pathogen. We are likely to reach that point by 2022 no matter what we do. To be clear, however, vaccines would still be enormously valuable to protect uninfected people even then.

Either way, with a good vaccine or without one, Americans will live in an acutely changed world until 2022—wearing masks, avoiding crowded places and limiting travel, at least if they wish to avoid getting or spreading the virus. This is the *immediate* pandemic period.

For some time after we reach either herd immunity or have a widely distributed vaccine, people will still be recovering from the overall clinical, psychological, social and economic shock of the pandemic and the adjustments it required, likely through 2024. This lingering response, typical of past serious epidemics, will demarcate the *intermediate* period. Then, gradually, things will return to “normal,” albeit in a world with some persistent changes. Around 2024, the *post-pandemic* period will begin.

Many personal attitudes and practices, at home and at work, have had to change as the first wave of the pandemic struck us. The deadly virus on the loose, the isolation and the slowed economy all worked together to foster more self-reliance—from home cooking to home haircuts to home repairs. People also took more personal responsibility for their own medical care and for decisions about whether to seek professional treatment, given the risks of going to a health care facility.

Millions of people sheltered and worked from home, adjusting the rhythm of their lives accordingly and the allocation of space, too. Millions of others were at home because they lost their jobs. And the pandemic greatly amplified the challenges of those without homes. Yet despite the fact that intimacy increased, as people focused on staying at home among those they knew, in other ways intimacy decreased, thanks to the widespread deployment of technologies of surveillance—from remote monitoring of



Contact tracing apps and other surveillance technologies have been widely deployed during the pandemic. Photo: Simon Dawson/Bloomberg News

Many changes in ways of doing business that have been implemented in response to the acute shock of the pandemic are likely to endure into the intermediate and post-pandemic periods. Practices long advocated by

experts to facilitate the provision of medical care over the internet were suddenly not just permissible but actively encouraged. A large fraction of medical care moved online, to free up doctors' time and reduce congestion in health care facilities. Obstetricians provided routine visits for normal pregnancies over the phone. Dermatologists diagnosed simple skin problems by having patients show them video. Psychotherapists moved online, with varying results. A doctor colleague told me that, with respect to telemedicine, "more was accomplished in two weeks than in five years."

The virus increased demand for certain goods and services—medical care, testing equipment, hand sanitizer, drugs and vaccines, ventilators, PPE and tombstones. Many companies responded in the initial period by shifting production. Liquor distilleries began making hand sanitizer, and sportswear manufacturers began making masks. Working with GE and 3M, [Ford Motor Company](#) used repurposed car parts, such as fans and batteries, to make simplified ventilators.



After the pandemic hit, Ford's Rawsonville plant in Ypsilanti Township, Mich., was temporarily converted into a ventilator factory. Photo: Carlos Osorio/Associated Press

Other industries couldn't adjust so readily. The devastation of businesses that rely on public gatherings will persist through the intermediate period of the pandemic. By the end of last March alone, 3% of restaurants went out of business outright, and 11% feared that they would not make it through April. Even once they reopened late last spring, restaurants in most places were only able to operate at 50% or less of capacity. About 15 million people were employed in restaurants as waiters, cooks and so on, and half of them saw their jobs disappear. Similar losses have struck the hotel industry. And the entertainment industry. And the conference industry. And the car rental industry. And the airline industry.

The ripple effects throughout the economy have been enormous, and we

have seen only the beginning. Over the intermediate term, cities will be duller, as many small retail firms go out of business, leaving only large, well-capitalized chains to fill the urban landscape. As people continue to shift to working from home, employers will realize that they need less office space, which means fewer custodians, building managers, rental agents and so on. For some people, the reality of having to obey stay-at-home orders for a family of four in a two-bedroom city apartment might not be something they want to repeat, spurring them to look for housing in less urban areas and thus shifting demand in the enormous real-estate industry.

The pandemic has already caused one of the largest global recessions in history. If high numbers of deaths resume this winter, which is likely, and if people have to continue physical distancing practices, the overall economic impact of the Covid-19 pandemic could resemble the Great Depression. As long as the virus poses a material threat to life, many people won't be willing to completely resume normal activities or to engage in many pre-pandemic purchasing behaviors. This reduced demand will unavoidably keep the U.S. in recession into the intermediate period.



A clothing store in Manhattan is one of many urban businesses forced to close by the pandemic. Photo: Noam Galai/Getty Images

While distilleries have switched back to making liquor and Ford has gone back to making cars, other structural changes in our economy could be long-lasting. Global supply chains could shrink, and in some cases we might see the full repatriation of manufacturing in certain industries, for instance in pharmaceuticals or high-tech machinery. Before the pandemic, the emphasis was on “just-in-time” production, with parts being delivered just when they were needed in the manufacturing process. In the post-pandemic period, the emphasis could shift to some extent to “just-in-case” supply chains, emphasizing proximity and certainty of delivery.

Working conditions will also change. Before the pandemic, less than half of

shift-workers in the U.S. had access to paid sick leave, so most workers would still go to work when they were ill. But the dynamics of a contagious disease made it abundantly clear why this is a bad idea, so many companies, from Apple to pizza delivery businesses, provided paid sick leave to hourly workers for the first time in their history. Such policies are likely to endure after the virus subsides, either because companies see the wisdom of it, lawmakers enforce it or workers demand it.

The shift to working from home will also linger. Some companies have already eliminated in-office work, and others will follow. N. Chandrasekaran, the CEO of India's Tata conglomerate, forecasts that most of the 450,000 employees of [Tata Consulting Services](#), one of the world's largest management consulting companies, will continue to work from home after the pandemic. "The digital disruption is so significant that most of us cannot imagine the degree," Mr. Chandrasekaran said. "The pandemic has accelerated digital trends that will stick after it has gone."

The intermediate-term backlash against globalization and urban living seems unlikely to persist past 2024, since the economic benefits of those long-term trends are so compelling. But there will be other lingering aftereffects of the virus and our responses to it. If history is a guide, it seems likely that consumption will come back with a vengeance. Periods of plague-driven austerity have often been followed by periods of liberal spending.

Agnolo di Tura, a shoemaker and tax collector who chronicled the Black Death in 1348, noted: "And then, when the pestilence abated, all who survived gave themselves over to pleasures: monks, priests, nuns, and laymen and women all enjoyed themselves, and none worried about spending and gambling. And everyone thought himself rich because he had escaped and regained the world, and no one knew how to allow himself to do nothing."

If the Roaring Twenties following the 1918 pandemic are a guide, the increased religiosity and abstemiousness of the immediate and intermediate periods could give way to increased expressions of risk-taking, intemperance and joie de vivre in the post-pandemic period. People will relentlessly seek opportunities for social mixing on a larger scale at sporting events, concerts and political rallies.

It can be difficult to disentangle the various factors that have had an adverse economic impact during the pandemic. Viruses can sicken and kill people and compromise the economy directly. At the same time, the precautions that people take, such as not spending their money or avoiding social interactions, can have adverse economic impacts of their own, completely apart from the virus.

A careful recent analysis of the 1918 flu pandemic in the U.S. concluded that it was the pandemic itself that depressed the economy, not the public health interventions. Moreover, cities that implemented stricter interventions earlier in the course of the pandemic saw their economies bounce back more rapidly once it was over. Reacting 10 days earlier with respect to the arrival of the pandemic, for example, increased manufacturing employment by 5% once the recovery began.

Covid-19 may very well drive up wages in the U.S. The pandemic has revealed the country's dependence on essential low-wage workers, and laws that better enshrine worker protections in the post-pandemic period are likely. Possible areas of improvement are paid sick and family leave, more flexible work schedules and perhaps child-care subsidies. This is especially likely if there is sustained political activism beyond the initial burst of sympathy for grocery store clerks, delivery drivers and nursing home staff.



Americans have come to appreciate their reliance on essential low-wage workers like grocery cashiers. Photo: Joe Raedle/Getty Images

The pandemic struck at a time when income inequality in the U.S. was already at a century-long high, in ways that many Americans increasingly see as unsustainable. People may come to better appreciate the essential but unglamorous workers that keep their lives running and may be more sympathetic to wage demands.

Finally, there will be long-term health effects of the virus. For large numbers of American children in underprivileged circumstances, the effects may linger for years. Quite a few may have experienced the pandemic as a traumatic childhood event—especially if their parents lost their jobs or their lives—and the memory of it will linger. The pandemic may amplify already

worrying mental health trends for young people, such as behavioral problems and rising suicide rates.



School and other parts of everyday life have been abruptly transformed. Photo: Amanda Andrade-Rhoades/The Washington Post/Getty Images

Evidence is already mounting that as many as 5% of people who get serious Covid-19 will have meaningful long-term disabilities of various intensities, including pulmonary fibrosis, renal insufficiency and cardiac or neurological effects. Only the passage of time can reveal the full extent of these problems.

Unfortunately, in response to the public's desire for simplicity and certainty in the face of a complex public health emergency, President Trump and other politicians and public figures have been guilty of lies and false reassurances.

From the outset, they have promulgated information that was plainly scientifically untrue. Asymptomatic transmission *is* possible. Masks *do* reduce transmission. Covid-19 *is* much more serious than the flu.

One impact of the Covid-19 pandemic may be that society will begin to take scientists and scientific information more seriously. In medieval times, the manifest inability of rulers, priests, doctors and others in positions of power to control the plague led to a wholesale loss of faith in corresponding political, religious and medical institutions, and a strong desire for new sources of authority.

It is possible that the inability of our political institutions to fight the virus will have similar implications. The public's expectation of effective state action will likely rise in the immediate and intermediate periods, if deaths continue or accelerate. And if the response continues to be incompetent, confidence in existing political institutions will fall. The many failures of American government at every level in confronting the pandemic, especially when compared with other countries, may result in a shift in political preferences aimed at undoing the existing order.

The worse the pandemic gets, the more people will expect from themselves, from others and from the state. As history plainly shows, after such widespread devastation, people often feel not only a renewed sense of purpose but a renewed sense of possibility.

This essay is adapted from Dr. Christakis's new book, "Apollo's Arrow: The Profound and Enduring Impact of Coronavirus on the Way We Live," which will be published on Oct. 27 by Little, Brown. He directs the Human Nature Lab at Yale University, where he is the Sterling Professor of Social and Natural Science.