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THE ECONOMICS OF A PANDEMIC

Christian Scherrmann
U.S. Economist

IN A NUTSHELL

_ For now, social distancing presumably is the only option to stop the pandemic.
_ The economic consequences will most certainly be dramatic but it is the price we have to pay.
_ Protect the economy: fiscal spending seems to be the new monetary policy.

A quick look at the dictionary definition of the word *pandemic* reveals what the world is confronting: "a disease that spreads over a whole country or the whole world." Until quite recently, this would have reminded us of our high-school biology or history classes. Or maybe a Hollywood movie, where the plot seemed a touch implausible.

Instead the coronavirus disease, COVID-19, has now literally arrived in front of our doorsteps. Everywhere in the world, social-distancing measures are being implemented, manufacturers have suspended production and governments are preparing for further spikes in the number of new infections in the coming weeks and months. The situation remains highly fluid at the time of writing, March 20. It is very challenging to come up with any sort of estimates on how hard the U.S. economy will be hit. But that only makes a framework of how to think about COVID-19 all the more valuable. The starting point must be an understanding of the nature of the shock the world economy is facing.

A SHORT PRIMER ON EPIDEMICS – YOU BETTER KNOW YOUR ENEMY

A very insightful paper starts with the remarks that "Governments will not be able to minimize both deaths from coronavirus disease and the economic impact of viral spread."[1] How to win the fight against a highly infectious disease, that potentially can take a terminal course and for which no effective medical remedy exists yet? As it turns out, the only effective way, is to implement drastic measures to limit public activity and reduce interpersonal contact to a bare minimum.

The reasons for this have to do with what we have already learned so far about COVID-19. To know your enemy, it is important to understand the key metrics which characterize an epidemic. When it comes to viruses, one key measure is the reproduction number (R0-value). The R0-value describes how many individuals are likely to be infected from a single carrier, if no counter measures, like a vaccine or social distancing, are taken into account. If R0 is larger than one, the virus spreads, if it is lower, the spreading goes down and the epidemic stops (though it can potentially re-emerge later in a second, third, or even fourth wave, or turn into a recurring seasonal ailment).

For instance, the seasonal flu has a R0-value somewhere between one and three. On that measure, it is relatively close to the COVID-19 virus, which appears to have an R0-value of around 2.5 (based on what we know so far). One way to estimate what share of any given population might fall ill is to simply plug this number into a standard formula used by epidemiologists: 1-1/(R0 of 2.5) = 60%. This gives you a rough idea of how the virus might spread, if no effective counter measures are taken.

[1] https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30567-5/fulltext

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The reasoning behind the formula is straightforward: the more people get infected (and eventually get immune or die) the fewer new potential carriers are left that can be infected. The R0 value declines as the epidemic progresses and eventually drops below 1. In terms of R0, the new virus does not look all that different from the more contagious versions of the seasonal flu we have long learned to live with.

The available data for COVID-19 suggests its serial interval – the time it takes to pass it from one person to another – to be between 4.4 to 7.5 days in contrast to influenza where it was estimated to be only one to two days.[2] So far so good, the virus spreads slower than influenza. But there is an important difference: the time until an individual shows symptoms. The so called "incubation period" for influenza is relatively short: red noses, sneezing and fever usually show up after just one or two days of getting infected. It is in that regard that COVID-19 seems to be radically different from the flue. The latest estimates suggest it takes about 5-6 days until the typical symptoms of the new corona virus start to appear – if they appear at all. And this is the real danger of COVID-19: unlike the flu, it can potentially spread undetected. When it finally is detected in a new country or regions, clusters of new cases have already formed that are too large to contain via any means other than the most draconian sets of measures, such as lockdowns of whole regions.

COVID-19's ability to initially spread undetected also explains the fast increase of cases in the so called "initiation phase," as the Centers for Disease Control and Prevention describes the early stage of the epidemic. While the fatality rate for infected people is still relatively low compared to other deadly diseases, at 0.3% – 1% (influenza: 0.1%), this still suggests that up to 2 million U.S. citizens could lose their life, if the virus is simply left to its own devices. If strict social-distancing measures and lockdowns are done vehemently enough, the maximum potential infection rate of 60% may never be reached. But there are still several unanswered questions that could have serious implications. Are there long-term effects after a serious infection? Will a person who has recovered remain immune from getting infected again, and if so, for how long? Can people get sick again after a few months or years? Might we see further waves in populations where new infections appear to have peaked? Is the R0 value dropping below one in the summer as it is the case with influenza? All these factors could worsen the situation and potentially prolong the duration of the crisis – and therefore the economic impact. Conversely, quick medical progress, in particular in terms of effective treatments, could deprive COVID-19 of some of its menace.

THE ECONOMICS OF SOCIAL DISTANCING – KNOW THE CONSEQUENCES

In the very short term the economic consequences of social distancing are, believe it or not, quite positive. It is about the health-care system and after all the most valuable good in the world: each individual's life and well-being. Currently it is estimated that about 14% of all infected individuals show severe symptoms and about 6% will get critically ill.[1] For the United States this would imply that without proactive containment measures, millions of people would need medical attention and potentially may require intensive care. Needless to say that such a huge number of cases would quickly overwhelm the capacity of the U.S. health care system. Social distancing has the potential to alleviate this challenge. First we can expect far fewer cases (in China "only" 80.000 people got infected, out of a total population of around 1.4 billion people).[3] And second, social distancing may slow the spread of new cases, so that the number of critical cases can be stretched out to a daily/weekly size that the health-care system may handle. "Flatten the curve," as they say.

The next question is how this will impact economic activity. The short answer is quite obvious: massively. In this situation the economy faces both, a demand and a supply-side shock. On the demand side, the consumer is confronted with a potential loss of income as he stays at home. While workplaces, schools and universities are shut down. Also, the risk of facing significant costs for medical treatment are a potential threat. Recent statistics indicate that while 73% of all workers in the private sector have access to paid-sick leave and around 70% have access to some sort of medical benefits, these ratios drop significantly for lower income groups.[4] The less well-off will be hit hardest and as we know from our last publication of the U.S. Economic Outlook, low income workers account for around 40% of all employees. Here fiscal measures must step in by supporting the people directly. Recent plans of the Trump administration to cover for testing and treatment of COVID-19 reflect the necessary minimum of what must be done. Fur-

[2] https://academic.oup.com/aje/article/180/9/865/2739204
[3] https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports
[4] U.S. Bureau of Labor Statistics, National Compensation Survey

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ther measures to support households and businesses with direct payments and tax deferrals are also needed in times of maximum distress.

For the supply side the situation is not much better. The main engine of corporate America, the service sector, is especially vulnerable in this situation. While the manufacturing sector has already showed signs of contraction before the virus outbreak, most Americans work in services and the nature of the business implies that missed opportunities do not come back easily – you just have dinner once a day at most, for instance. Businesses across all sectors face rising bankruptcy risks as customers cancel orders, employees do not show up for work or simply because financial conditions deteriorate to an extent which makes securing funding to cover fixed costs impossible. Here fiscal measures can be the right medicine as well. Tax deferrals of various sorts, guaranteed bridge financing and subsidized business loans are just some examples how the government could help to mitigate at least some of the negative effects.

To achieve all this, the financial system must be protected – we all remember the effects that a disrupted financial system can have on the real economy from experiencing the financial crisis in 2008. This is where monetary policy steps in. The U.S. Federal Reserve (Fed) has already delivered. After announcing the record sum of 1.5 trillion U.S. Dollars (USD) in short-term funding, the interest rate target range was lowered to 0.00% to 0.25% and in order to "… restore smooth market functioning …" bond holdings will be increased by at least 700 billion.

In terms of forward guidance, the Fed signaled its willingness to further utilize their full set of tools and that rates will remain low for the foreseeable future – at least until there are signs of a normalization. They could do more, Powell said, implying that the size of purchases could increase further. On a question about the pace of buying, Powell answered that they have no monthly schedule as they intend to "…buy at a strong rate…" – rates that they think will restore key markets to normal functioning.[5] Negative interest rates are still judged not to be appropriate and enhancing the buying universe to other securities is not possible because of legal limitations, Powell said. A bit later the Fed announced to re-establish the so called Commercial Paper Funding Facility which will provide a liquidity backstop of commercial-paper issuers. For this, the Treasury will provide 10 billion USD of credit protection to the Federal Reserve Bank of New York. The last time this vehicle was used was at the height of the Great Financial Crisis in 2008 to early 2010.

In other words, the Fed is willing to do whatever it can. Whether this will also equate to "whatever it takes" will partly depend on the virus itself and partly on the accompanying fiscal-policy response. As of now it seems that the planned, or already announced, fiscal and monetary measures are a comprehensive starting point to fight this crisis. Whether they prove effective remains to be seen. At best, it should partially compensate for the negative shock from the coronavirus. Much will depend on how the epidemic progresses. That, in turn, depends partly on the discipline of the broader public to follow the guidance of the health authorities, potentially for a prolonged period of time. Current estimates of the impact vary widely given the broad range of assumptions which must be made. Like the virus itself, the corona recession, however, has certainly arrived on U.S. shores already. It is too early to say when exactly it will end, though, we hope to have better news in our next economic outlook.

GLOSSARY

The financial crisis refers to the period of market turmoil that started in 2007 and worsened sharply in 2008 with the collapse of Lehman Brothers.

Fiscal policy describes government spending policies that influence macroeconomic conditions. Through fiscal policy, the government attempts to improve unemployment rates, control inflation, stabilize business cycles and influence interest rates in an effort to control the economy.

Liquidity refers to the degree to which an asset or security can be bought or sold in the market without affecting the asset's price and to the ability to convert an asset to cash quickly.

Monetary policy focuses on controlling the supply of money with the ulterior motive of price stability, reducing unemployment, boosting growth, etc. (depending on the central bank's mandate).

A recession is, technically, when an economy contracts for two successive quarters but is often used in a looser way to indicate declining output.

The U.S. dollar (USD) is the official currency of the United States and its overseas territories.

The U.S. Federal Reserve, often referred to as "the Fed", is the central bank of the United States.

[5] https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20200315.pdf

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