The Costs and Consequences of the Coronavirus Pandemic: Three Lessons

by Patrick L. Anderson
Anderson Economic Group LLC

The covid19 pandemic of 2020, while still underway, has already produced critical lessons that can be used during this and future crises. This presentation will illustrate, using research that was published contemporaneously with events affecting the entire world, three critical lessons.

Lesson 1: Empirical models of the epidemic worked well—often very well—in states with substantial data. Computer simulation models often failed miserably.
The early months of 2020 featured a deluge of computer-generated graphics from computer simulation models of human behavior, often associated with the admonition "flatten the curve." We show how predictions arising from multiple such models were spectacularly incorrect in magnitude and direction. We observe further that that many were presented without clear explanation, sometimes lacked basic information including units and time periods, and produced visualizations suggesting that hugely exaggerated the actual data.

We also show that a standard statistical model of an epidemic, using a structure first published in 1927, could model the course of the epidemic in most states with 90% or better goodness-of-fit by the end of April. We illustrate this with published analyses for Michigan, Ohio, California, New York, Florida, Virginia; as well as Italy and Korea. We identify one particularly successful empirical method.

Lesson 2: The economic cost of stay-at-home orders were predictably catastrophic.
We highlight how the "corona depression" loss of employment and income was tellingly noted in March—at the time of the issuance of many "stay at home" orders. We observe how, in the immediate aftermath of state-ordered closures, unemployment rose to Depression-era levels.

We provide an initial comparison of unemployment in states with the severity and extent of their restrictions, noting a weak correlation and incomplete data. However, we postulate that it was reasonable for public and private organizations to take aggressive action early in the year, including the travel bans announced in January and February, the cancellations of events and gatherings in February and March; and the emergency declarations and temporary restrictions imposed in many states in late March. We assess the available evidence for the efficacy of extending state orders past the middle of May.

Lesson 3: We have two significant challenges with empirical models: early detection, and the modeling of a "second wave."
As good as the empirical models have proven in this pandemic, there are two clear weak spots:
First, in February and March, the available data and models made it nearly impossible to predict the course of the epidemic within a reasonable range for most US states. Second, as we enter the second half of the year, we are making policy decisions based on "second wave" projections with very little empirical basis.
To address the second weakness, we propose the use of a novel "two wave" empirical model, which has shown great promise in modeling the epidemic in states such as California, Michigan, and New York that seem to be exhibiting a second wave.

We conclude by noting that real data, and empirical methods, have proven to be reliable indicators of consequence in this crisis. We also note the enduring value of common-sense analysis, particularly regarding the consequence of blunt-force policies such as shut-down orders.