Title

COVID19 and The Macroeconomic Effects of Costly Disasters

Authors

Sydney C. Ludvigson, Department of Economics, NYU, 19 W.4th St, 6th Floor, New York, NY 10012. (sydney.ludvigson@nyu.edu)

Sai Ma, Federal Reserve Board of Governors, C Ave & 20th Street NW, Washington, DC 20551. (sai.ma@frb.gov)

Serena Ng, Department of Economics, 420 West 118th St., New York, NY 10027. (serena.ng@columbia.edu)

Abstract

The outbreak of covid19 has significantly disrupted the economy. This note attempts to quantify the macroeconomic impact of costly and deadly disasters in recent US history, and to translate these estimates into an analysis of the likely impact of covid19. A costly disaster series is constructed over the sample 1980:1-2019:12 and the dynamic impact of a one standard deviation shock on economic activity and on uncertainty is studied using a VAR. But unlike past natural disasters that are local and come and go quickly, covid19 is a global, multi-period shock, making standard impulse response analysis inappropriate. Our baseline calibration represents covid19 as a 3-month, 60 standard deviation shock. Even in this conservative case, the shock is forecast to lead to a cumulative loss in industrial production of 12.75% and in service sector employment of nearly 17% or 24 million jobs over a period of ten months, with increases in macro uncertainty that last five months. Extending a disaster by each additional month beyond the base case will add 6% to the cumulative losses in service sector employment.

Data description

Our analysis is based on monthly data on disasters affecting the U.S. over the last forty years taken from two sources. The first is NOAA which identifies 258 costly natural events ranging from wildfires, hurricanes, flooding, to earthquakes, droughts, tornadoes, freezes, and winter storms spanning the period 1980:1-2019:12 for T=480 data points, of which 198 months have non-zero cost values. The second source of data is the Insurance Information Institute (III), which reports the ten costliest catastrophes in the US reported in 2018 dollars.

JEL Code: C51, E32, Q54

Keywords: COVID19; Disasters; Macroeconomy; VAR

Paper URL Link

https://drive.google.com/file/d/1_UaKzGeNRe521JIDJK8r00Z4yM319M4/view