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More aware societies suffered less from Covid-19



By Alejandro Buesa, Javier J. Pérez and Daniel Santabárbara[1]
Banco de España

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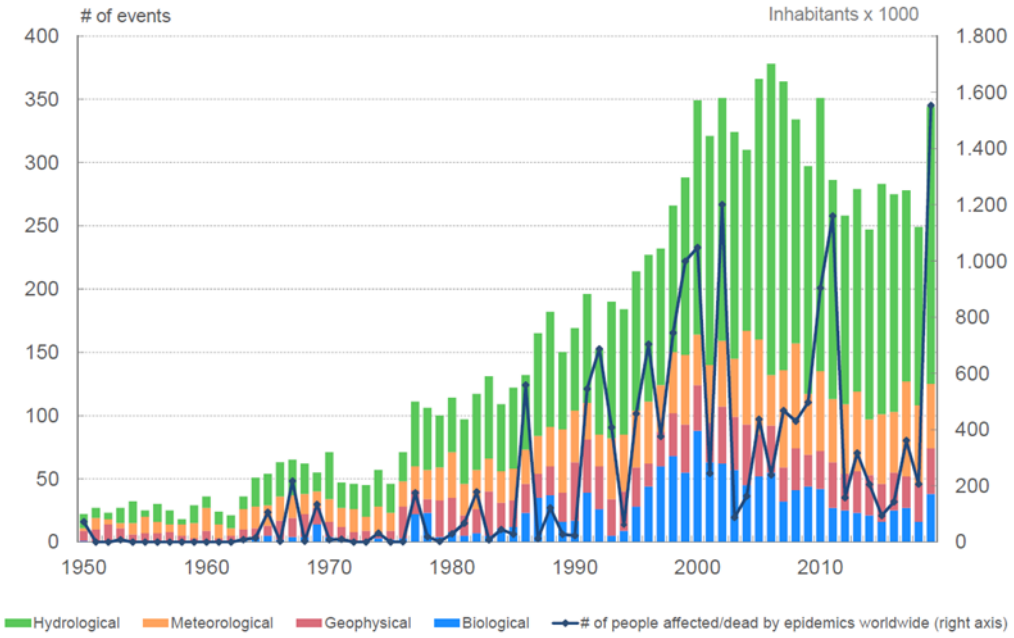
Awareness about the occurrence of viral infectious (or other) tail risks can influence their socioeconomic inter-temporal impacts. We proxy the level of societal experience (awareness) in the face of the COVID-19 outbreak by past exposure of a country to epidemics and other catastrophic events. With data for 2020, we show that more aware societies suffered a less intense impact of the COVID-19 disease.

[1] The opinions in this Policy Brief are solely the authors' and do not necessarily represent those of Banco de España or the Eurosystem. This piece is based on Buesa et al. (2021).

The pandemic outburst was not a complete surprise

Before the worldwide outburst of Covid-19 at the beginning of 2020, some societies were more aware of the possibility of occurrence of such an event, for at least two reasons: First, a big part of the scientific community had been warning for nearly one decade about the likely appearance of "disease X" (see Daszah, 2020; de Bolle, 2021). On the other hand, some societies may have more experience with this sort of events, insofar as they had been more affected than others in the past by infectious diseases (e.g. SARS in 2002 or Ebola in 2014) and/or other extreme natural events. Such phenomena have become more frequent over the most recent decades (**Figure 1**): societies that have experienced them in a not-so-distant past may be more prepared to identify a new episode in an early fashion. A reference literature highlights the importance of individual experiences in shaping individuals' behavior and beliefs. For example, in economics, Malmendier and Nagel (2011) show that personal experiences of economic fluctuations determine individuals' willingness to take (financial) risk. In turn, the epidemiological literature shows that individual awareness is a relevant factor to account for the spreading of an epidemic (see e.g. Wang et al., 2020).

Figure 1. Worldwide biological and other natural, extreme events per year, 1950-2019



Source: Buesa et al. (2021) based on EM-DAT database: https://www.emdat.be/.

The link between disaster incidence and prior awareness

In a new study (Buesa, Pérez and Santabárbara, 2021), we proxy the level of societal experience (awareness) in the face of the COVID-19 outbreak by past exposure of a country to viral outbreaks, and other catastrophic events, in order to test to what extent more aware societies suffered a less intense impact of the disease spread. To do so, we estimate spatial econometric models linking indicators of awareness and pandemic incidence (both human and economic) using a cross-section of around 150 countries across the world. We regress an indicator of the incidence of the pandemic on an indicator of awareness and a number of control variables, including a spatial lag. Accounting for the proximity among countries is key, given that the health situations of closer geographies are likely to be more connected.

To identify the events, we resort to the EM-DAT database, constructed by the Center for Research on the Epidemiology of Disasters, with extensive coverage of both natural and technological events. Concentrating on events that occurred in the period 2000-2019. Information from EM-DAT is merged with population statistics to construct a set of country-specific indicators: the number of epidemic episodes affecting more than 100 people, a subset of the latter for outbreaks linked to respiratory diseases (e.g. MERS and SARS), and the number of natural disasters affecting more than 0.1% of the country's population. For human incidence of Covid-19, we compute the number of deaths per million inhabitants for each country at different reference dates. Regarding economic incidence, we focus on economic losses in 2020.

Our specifications also include a number of control variables such as the share of urban population, average temperature, household size, gross national income and dummies for continents, large countries and emerging economies. Additionally, we control for the effect of policy decisions using the Oxford COVID-19 Government Response Tracker from Hale et al. (2020). *Ex ante*, it is unclear whether more aware countries would be more prone to implementing policies in the spirit of those captured by the index, or they resorted to other alternatives such as intensive testing and contact tracing. The correlation between our awareness indicators and the stringency index is statistically not significantly different from zero in most cases. Anyhow, for our benchmark analysis, we include the residuals of the regression of awareness indicators on the stringency index as an additional control in the human incidence regressions.

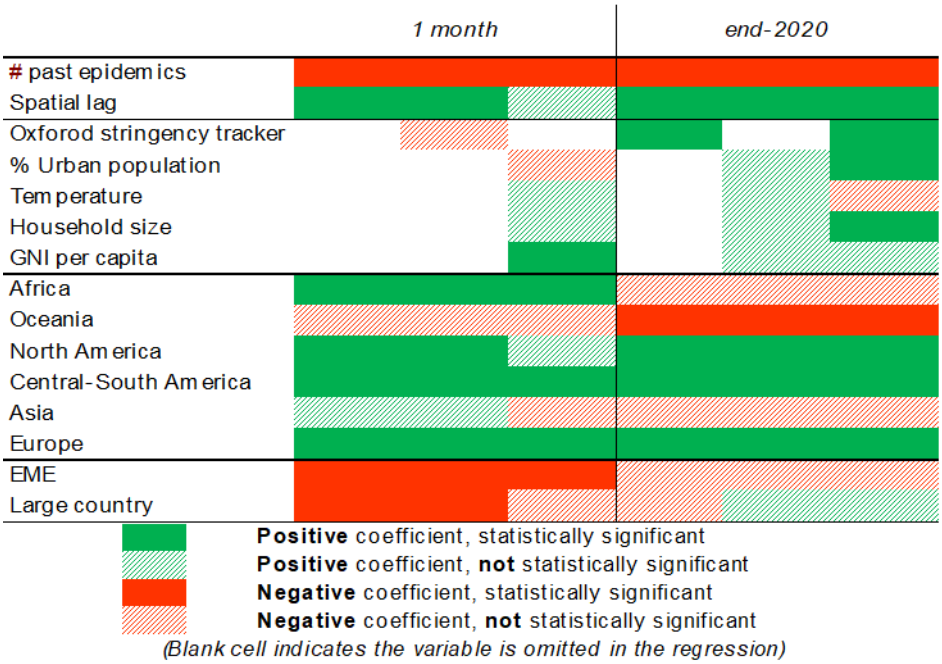
Awareness reduces the Covid-19 toll in human terms

Our main results for human incidence are displayed in **Table 1**. First and foremost, we find a strong and robust negative association between the number of past epidemics and human incidence. The result holds for all the empirical specifications shown, and is robust to the inclusion of a number of control variables. Second, the statistical significance of the spatial lag indicates that proximity to countries affected by the pandemic has some bearing on cases, as expected. Third, countries more affected by Covid-19 put in place more stringent containment measures. Fourth, countries in America and Europe were more severely affected by the disease in statistically significantly terms than the average, while those in Oceania displayed a significantly lower incidence. Finally, even though, on impact, emerging market economies and large countries suffered less, this differential effect vanished as the pandemic developed. The aforementioned key findings are robust to the use of alternative measures of awareness.

We also provide results on economic incidence. This is a more demanding exercise, as a number of confounding factors may be at work, most notably economic and containment policies adopted since the outburst of the pandemic, and the heterogeneous economic structure of countries. Results in the most basic regressions for the initial impact and the overall output loss in 2020 display a positive and statistically significant coefficient, that is, robust to the inclusion of the NPI stringency index. Nevertheless, the inclusion of additional, plausible, control variables dissipates this finding, which is evidence of lack of robustness. In addition, when looking at alternative awareness indicators we do not find significant correlations.

Table 1. Results of human incidence regressions

Dependent variable: COVID-19 deaths per million, period after death 10



(Blank cell indicates the variable is omitted in the regression)

Policy implications

The evidence on a less intense human impact of the COVID-19 (and less so economic impact) in more aware societies may provide lessons for policy-makers beyond the current pandemic. If past experience is of value, the current pandemic should make societies more resilient against upcoming viral shocks in the future, calling for greater preparedness of health systems. In addition, with extensive international travel and trade, prevention exceeds the national frontiers, which highlights the key role of multilateral coordination on disease prevention, including through international bodies such as the WHO.

References

Buesa, A., J.J. Pérez and D. Santabárbara (2021), "Awareness of pandemics and the impact of COVID-19," *Economics Letters* 204(C): 109892.

de Bolle, M. (2021), "Novel viral variants: Why the world should prepare for chronic pandemics", RealTime Economic Issues Watch. 22 Feb. Peterson Institute for International Economics.

Daszah, P. (2020), "We knew disease X was coming. It's here now", The New York Times, 27 February.

Hale, T., N. Angrist, E. Cameron-Blake, L. Hallas, B. Kira, S. Majumdar, A. Petherick, T. Phillips, H. Tatlow, S. Webster (2020), "Oxford COVID-19 Government Response Tracker", Blavatnik School of Government, University of Oxford.

Malmendier, U. and S. Nagel (2011), "Depression Babies: Do Macroeconomic Experiences Affect Risk Taking?", *Quarterly Journal of Economics* 126: 373–416.

Wang, R., X. Chen, L. Qing, W. Wang, and Q. Liu (2020), "Self-Awareness-Based Resource Allocation Strategy for Containment of Epidemic Spreading", *Complexity* 2020: 1-12.

About the authors

Alejandro Buesa *is a Senior Economist in the International Economics Division at the Bank of Spain. Previously, he worked as a Research Analyst at the European Central Bank (DG Macroprudential Policy and Financial Stability) after holding several junior positions in CEPII, CEPREMAP and BBVA Research. Currently awaiting his PhD defence at the Complutense University of Madrid, he graduated with a Master of Research from the European University Institute and a MSc in Macroeconometrics and Finance from ICEX-CECO.*

Javier J. Pérez *is Director of the International Economics and Euro Area Department of the Bank of Spain, and member of the International Relations Committee of the Eurosystem. Before joining the Bank of Spain in 2008, he worked at other institutions, including the European Central Bank, the University Pablo de Olavide of Seville (Spain), the Research foundation centrA (within the Spanish regional public administration), and the University Complutense of Madrid. He holds a Ph.D. in Economics (with distinction) from this latter University. Javier has also been member of the Monetary Policy Committee of the Eurosystem, and of its substructure dealing with public finances, the Working Group on Public Finance. He contributes regularly to policy and academic conferences and publications (see: http://bit.ly/JavierJPerez).*

Daniel Santabárbara *is Head of the Advanced and Systemic Economies Unit at the Bank of Spain. In the public sector, he also worked at the Spanish Fiscal Council (AIReF) and the European Central Bank. In the private sector, he worked as a Consultant in the fields of environment, competition policy and intellectual property. He was also adjunct Professor at the Complutense University of Madrid. He holds a Master in Economics and Finance from CEMFI.*

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SUERF Secretariat
c/o OeNB
Otto-Wagner-Platz 3
A-1090 Vienna, Austria
Phone: +43-1-40420-7206
www.suerf.org • suerf@oenb.at