
PRESS INFO

A model to study the effect of lockdown policies on the incidence of COVID-19 infections

In December 2019, the COVID-19 outbreak was registered in Wuhan, China. The World Health Organization declared it a 'Public Health Emergency of International Concern' on 30 January 2020 and escalated it to a pandemic on 11 March 2020. In an attempt to save human lives and shield health systems from being overwhelmed, a number of lockdown policies were implemented around the world. While crucial for public health, these measures contributed to an unprecedented economic shock whose consequences are expected to be long-lasting.

Against this backdrop, it is critical to understand which policies have proven thus far to be the most effective in containing the virus, and to describe the channels through which these effects operate. In this article¹, two researchers from the Luxembourg Institute of Socio-Economic Research (LISER) and a researcher from the Institute of Labor Economics (IZA) evaluate the effects of lockdown policies over 135 countries on the daily incidence of COVID-19, as well as on various population mobility patterns. Eight interventions are considered, which vary in their timing and intensity². The policies in focus are international travel controls, public transport closures, cancellation of public events, restrictions on private gatherings, school and workplace closures, stay-at-home requirements, and internal mobility restrictions (across cities and regions). The authors' approach, which is based on a multiple-event framework, provides an evaluation of the dynamic effects of these eight policies. By exploiting the variation in the intensity and timing of policies across countries, the authors are able to estimate the net effect of each policy, while taking into account the presence of concurrent policies.

The main result of the analysis is that cancelling public events, imposing restrictions on private gatherings, and closing schools have the quantitatively most pronounced

effects in reducing the incidence of COVID-19. They are followed by workplace closure and stay-at-home requirements, whose effects are not as prominent. Instead, no effects are found for international travel controls, public transport closures, and restrictions on movements across cities and regions. Interestingly, estimating the effect of each policy while ignoring the contemporaneous influence of other policies would have led to the erroneous conclusion that they are all effective in reducing new infections.

The second part of the analysis links lockdown policies to mobility patterns in order to shed light on the mechanisms through which they help flatten the curve. Lockdown policies tend to decrease the amount of time spent outside home, which leads to a reduction in the number of infections through various channels. For instance, cancelling public events, and to a lesser extent restricting private gatherings, reduce exposure to numerous and dense locations where contact tracing is difficult. Such events, which have a large epidemiological range within and across countries, are thus the most important to restrict. Workplace closures have a lower impact on lowering new infections, most probably because of the lower numerosity, density, and traceability in these environments. That travel controls had no impact on the evolution of the virus, although imposed relatively early in many countries, is likely explained by their lack of stringency, which allowed the virus to exploit the smallest breach and spread across borders, rendering them immaterial for the ensuing domestic epidemics.

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¹ Askitas, N, Tatsiramos, K & Verheyden, B (2020) [Lockdown strategies, mobility patterns and COVID-19](#). In: C Wyplosz (ed.), *Covid Economics - Vetted and Real-Time Papers*, Covid Economics, no. 23, The Centre for Economic Policy Research (CEPR), pp. 263-302.

² For example, a restriction which is only recommended and applied in specific areas has a lower intensity than a mandatory restriction covering the entire country.