Policy Effectiveness on the Global COVID-19 Pandemic and Unemployment Outcomes: A Large Mixed Frequency Spatial Approach

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Abstract

We propose a mixed frequency spatial VAR (MF-SVAR) modeling framework to measure the effectiveness of policies conditional on the spillover and diffusion effects of the global pandemic and unemployment interactions. We study the effects of two aspects of policy effectiveness, namely policy start date and policy timeliness, from a spatio-temporal aspect. The spatial panel data contain weekly new case growth rates and monthly unemployment rate changes for 68 countries across 6 continents at mixed frequencies from January 2020 to August 2021. We find that government policies have a significant impact on the growth of new cases, but marginal on the change in unemployment rates. For policy effectiveness, the start date of the policy is critical. In terms of both immediate impact on the near term and the total impact over the following four weeks, the 4^{th} week of a month as the start date is most effective in reducing the growth of new cases. At the same time, 2^{nd} week and 3^{rd} week are counterproductive for a one-time policy as start dates. In addition, our estimates suggest that the spillover and diffusion effects are much stronger during a global pandemic, both for new case growth and changes in unemployment, than the temporal effect for a country. We also find that new case growth has an effect on changes in unemployment, but not vice versa. The counterfactual experiments provide further evidence of policy effectiveness in various scenarios and also reveal the main risk-vulnerable countries and the main risk-spillover countries. This is a joint work with Xiaoyi Han, Yanli Zhu and Ying Chen.