

Quantifying the Impact of the Tokyo Olympics on COVID-19 Cases Using Synthetic Control Methods*

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Abstract

This paper uses a synthetic control method (SCM) and a Ridge Augmented SCM to estimate the impact of holding the Tokyo Olympic games on the number of newly confirmed COVID-19 cases in Tokyo (Japan). Our analysis with these methods enables us to estimate the causal impact of the Tokyo Olympics on COVID-19 cases by constructing counterfactual COVID-19 cases for Tokyo (Japan) as the optimal weighted average of COVID-19 cases of OECD countries that are not affected by holding the Olympics through a data-driven approach. Based on reliable estimates obtained from different analytical settings, we find that, compared to the counterfactuals, holding the Tokyo Olympics significantly increased the daily average number of COVID-19 cases by 105 to 132 cases in Tokyo (47 to 65 cases in Japan as a whole) per million people. This result suggests that the Olympics were held at the expense of spreading COVID-19 infection in Tokyo (Japan).

JEL classification codes: C23, I18, I12, H10, O57

Keywords: COVID-19, Tokyo Olympics, Public health, Synthetic control method, Causal inference, Counterfactual

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