

Seminario Aleatorio

Sesión 359

Now- and Backcasting Initial Claims with High-Dimensional Daily Internet Search-Volume Data

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Abstract

We generate a sequence of now- and backcasts of weekly unemployment insurance initial claims (UI) based on a rich trove of daily Google Trends (GT) search-volume data for terms related to unemployment. To harness the information in a high-dimensional set of daily GT terms, we estimate predictive models using machine-learning techniques in a mixed-frequency framework. The sequence of now- and backcasts are made ten days to one day before the release of the UI figure on Thursday of each week. In a simulated out-of-sample exercise, now- and backcasts of weekly UI that incorporate the information in the daily GT terms substantially outperform those based on an autoregressive benchmark model, especially since the advent of the COVID-19 crisis. The improvements in predictive accuracy relative to the autoregressive benchmark generally increase as the now- and backcasts include additional daily GT data, with reductions in root mean squared error of up to approximately 50%. Variable-importance measures reveal that the GT terms become more relevant for predicting UI during the crisis, while partial-dependence plots indicate that linear specifications are largely adequate for capturing the predictive information in the GT terms. We are in the process of creating a website that will provide updated, real-time now- and backcasts of UI on a daily basis.

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Link: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3690832

JEL classifications: C45, C53, C55, E24, E27, J65

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