

Sectoral Nowcasting Model for GDP Forecast and Evolution Methodology of it by Genetic Algorithm Methods

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Abstract

In this study, a sectoral nowcasting model for the Turkish Economy is proposed using dynamic factor analysis. In addition to quarterly sectoral GDP data, higher frequency sector-specific labor, production, survey, and financial data is used in order to obtain improved and timely nowcast of sectoral growth rates as well as GDP growth. A novel genetic algorithm type methodology is used in order to determine the specification of the dynamic factor model (DFM) and which data sets to include to model to get better nowcasts. Moreover, genetic algorithm methodology is also used to evaluate whether to include new candidate data series in DFM and choose model specifications accordingly. In this sense the methodology allows the dynamic factor model to improve and evolve over time. Pseudo-out-of-sample performance of DFM is evaluated and it is shown that DFM beats the naive autoregressive type nowcast by a good margin. In addition, a factor naming structure employed in the dynamic factor model can be used to identify the sector-specific financial cycles. Our results show that sector-specific financial cycles have different wavelengths and different sector's financial cycles can appear in different phases during the same time period.

Keywords: Nowcasting, Turkey, GDP forecasts, Dynamic Factor Model, Genetic algorithm

JEL Codes: C38, C53, C61