Nowcasting during the Pandemic: Lessons from Argentina

by

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Objective: Nowcast Argentina’s quarterly GDP growth ($y_t$) from 2020Q1 to 2021Q2.

$$y_t = \sum_{i=1}^{p} \beta_i f_t^Q + \sum_{i=1}^{p} \gamma_i y_{t-1-i} + \epsilon_t$$

$$f_t^Q = 13(f_t^m + f_{t-1}^m + f_{t-2}^m)$$

$f_t^m$ is extracted using the Kalman filter with 6 different schemes along a particular quarter from $N = 112$ monthly indicators, observed from 2016m1 to 2019m12.

Compare forecasts based estimates of the parameters obtained with pre-pandemic data with updated estimates obtained using the most recent information: Re-estimating or not is indifferent.

New high-frequency data sources: energy consumption (improves) and Google mobility (does not improve)
Remarkable performance. However.....
1. Severe and unexpected downturns are difficult to capture (and forecast or even nowcast)

2. Re-estimation of DFM's with most recent information: Effect of outliers and structural breaks
Unexpected downturns cannot be forecasted using past data

OECD (2021), Quarterly GDP (Accessed on 6th November 2021)
Implement measures of growth vulnerability:

**Growth at Risk (GAR).** 5% quantile of growth distribution as a function of underlying factors. Adrian, Boyarchenko and Giannone (2019)

**Growth in Stress (GiS).** Different scenarios for the factors underlying growth are considered with stress being defined as very unlikely scenarios. González-Rivera, Rodríguez and Ruiz (2020)
Effect of outliers when estimating parameters and extracting factors


**Volatility factors:** Trucios, Hotta and Pereira (2019)

**DFMs:** Baragona and Battaglia (2007) propose a procedure to detect outliers in large systems of variables generated by DFMss.

Kristensen (2014) analyse the effects on the determination of the number of factors and propose using a LAD estimator of the factors.

Alonso, Galeano and Peña (2020) propose cleaning the series of outliers previous to factor extraction.

**Factor-augmented regressions:** Massaci and Kapetanios (2021) show the effects of structural breaks.
Using new high-frequency data sources

What about non-stationarity?
References


