Forecasting under extreme uncertainty

SUERF webinar

Economic forecasting during and after corona

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Topics

- Immediate challenges to nowcasting and forecasting due to the corona crisis
  Real-time economic indicators
  Role of sectoral analysis
  Linking firms' financial analysis, banking sector analysis and conjunctural analysis and forecasting

- Long term effects of corona crises
  - *Implications for estimates of potential output and for inflation forecasting*

The role of real time economic indicators

- Turning to non-standard and high-frequency data became necessary to assess economic developments in quasi-real time
  - Traditional monthly indicators were not able to react quickly enough to the changing economic situation due to publication lags
  - Weekly trackers of economic activity (e.g. Federal Reserve Bank of New York)
- Increasing use of less common data sources such as electricity consumption, payments card data, traffic data, unemployment benefit data, temporary lay-offs, surveys, epidemiological data
- Combination of traditional and less common indicators

Example I: MIDAS model with financial market data

- Mixed Data Sampling models allow data of different frequencies to enter a model, i.e., we can forecast quarterly GDP using monthly, weekly or daily data.
  - MIDAS models thus allow a variety of indicators, also high frequency ones, to be included into one forecasting model.
- We used a regression model with a MIDAS lag polynomial structure to forecast Finnish quarterly GDP growth using (a principal component of) daily financial market data.

- Financial market data turned out to be useful for nowcasting the turning point in Finnish GDP growth

  - The MIDAS model could identify a downturn in GDP already in early March, while other nowcasting models did not recognize a downturn until April.

- Financial market data was, however, unable to account for the severity and persistence of the economic downturn, compared to other nowcasting models.

Example II: BVAR with real-time data

- Use two sets of variables to predict industrial production
  1. Traditional indicators (Stock price index, interest rate spreads, PMI, confidence indicators)
  2. Real-time indicators (Electricity usage, truck traffic)
- Traditional indicators predict the current and future dynamics

- Real-time indicators predict the current dynamics only

- Enhanced the precision by setting priors on how the industrial production reacts to different types of indicators

Role of sectoral analysis

- Containment measures hit different sectors very asymmetrically
- Not a typical business cycle shock, so cannot trust usual business cycle moments (and therefore models) when making the short term macroforecasts

- More disaggregated and timely information needed
  - Frequently updated specialized surveys
  - Firm and household level data

- How strong is the cash position of the firms? How long can they last without or almost without cash revenues? What are their direct financing needs?

Example from a specialized survey to firms

- Survey of some 1,600 SMEs by state-owned investment company
- Firms evaluated their changes in turnover and responses to decline in turnover (adjusting their costs eg. labour costs, other costs) due to Covid19
- This was combined with financial statements of firms (2018) to assess liquidity situation of the firms to evaluate risk of bankruptcy under different lock-down scenarios

Linking firms' financial analysis, banking sector analysis and conjunctural analysis

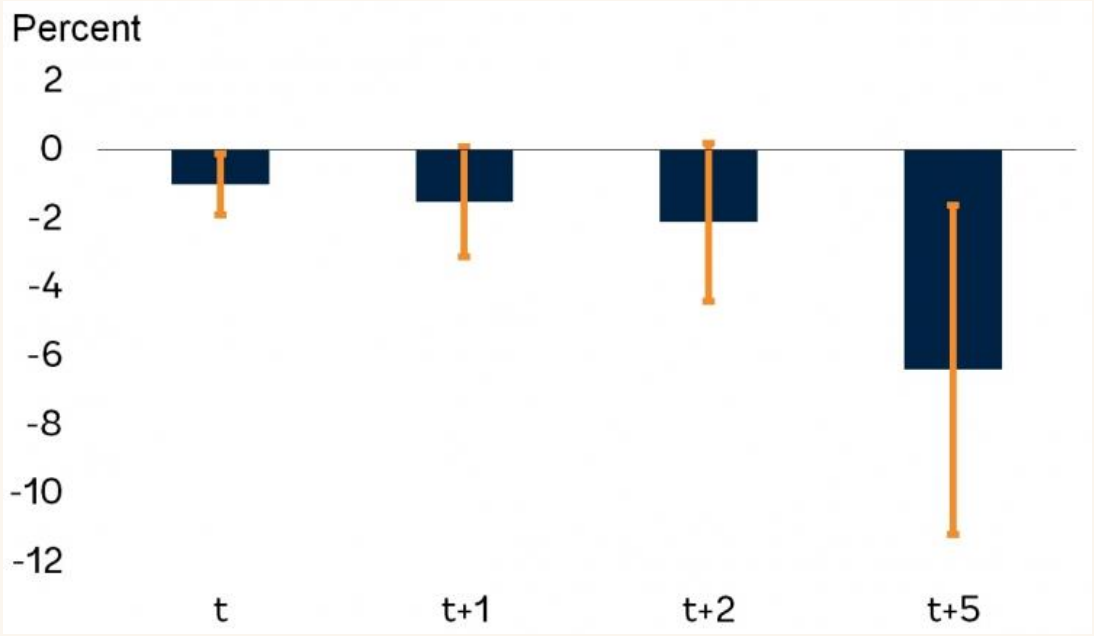
- At the BoF and FSA we did put an extra effort to get more frequent information on banks NFC lending activities related to corona crises
  - *It became a valuable source of information on firm's financing needs as well as on the impact of different support measures*

- We also used empirical macro models to predict loan losses conditional on different macroeconomic scenarios
  - Challenge there continues to be that corona shock is very unusual

Long term growth effects of corona crises (?)

- Large shocks often lead to lower capital investment and capital stock
  - Financial frictions & borrowing constraints & precautionary savings
  - The re-evaluation of tail risks (scarring effect)
- Shortfall in demand → hysteresis in productivity & loss in potential output growth
  - Profits ↓ R&D ↓ technology adoption↓ → productivity growth ↓

Cumulative labor productivity response after epidemics:



Source: World bank.

What about inflation?

Positive

- Firm exit → fewer competition → increased price pressures
- Pent-up demand in the aftermaths of the pandemic + temporarily reduced supply
- Supply chain disruptions
- Deglobalisation

Negative

- Magnitude, depth and protracted nature of the crisis
- Persistent shifts in consumption behaviour
- Risk of inflation expectations becoming anchored at a lower level
- Bankruptcies + short-time work + unemployment → weakened aggregate demand
- Uncertainty: precautionary savings as insurance; delay of big ticket items
- Lower external cost pressures due to reduced global demand

General lessons

- When economic swings are unusually large, high frequency and more disaggregated data as well as surveys and direct contacts to stakeholders are needed to nowcast the economic situation

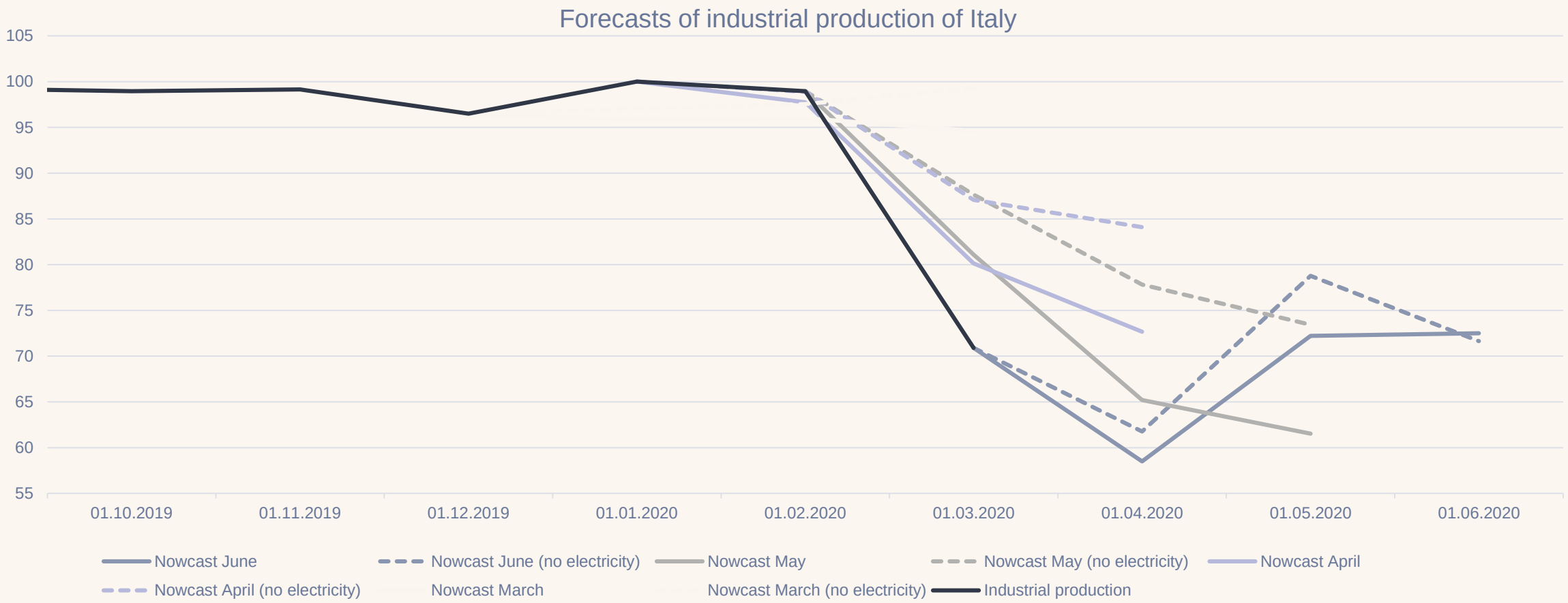
- But it is too early to judge whether these new approaches improve our forecasting ability also in the short to medium term

- Covid19 will leave permanent mark to the economy
  - *Consumption habits, technologies and production sets are changing*

Thank you!

Additional slides

How much help of forecasting with electricity consumption?



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