Forecasting performance of economic sentiment indicators

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Forecast comparison

• Short-term state of business cycle, national accounts published with delay
  – Indicators timely available, minor revision
• Forecasting performance explored in out-of-sample exercise
• Suitability to predict contemporaneous year-on-year growth rate of target variable
  – Private consumption, investment, industrial production
• Mean absolute and root mean squared forecast error
• Tests of equal predictability and encompassing tests
Corresponding frequencies

• Frequencies of indicators and targets do not match in many cases
  – Indicator monthly, target at quarterly frequency

• Bridge equations
  – Quarterly averages of monthly indicators
  – Missing months predicted by time series models
  – Coincident with respect to actual evolution
  – Lead of 1.5 months over national accounts

• Mixed data sampling (MIDAS) equations
  – Target variable directly predicted by indicator: three forecasts if data are quarterly/monthly
Combining information

• Combination of forecasts can improve the accuracy compared to individual predictions
  – Start with individual questions in each survey, proceed with composite indicators

• Different aggregation methods
  – Bridge and MIDAS equations
  – Simple averages, principal components, correlation-and forecast-weighted averages

• Pre-selection of questions according to model confidence set
  – Select only questions with best performance so far
Set of indicators

• Obtained as aggregated balances or diffusion indicators
  – Individual questions vs composite indicators
• EU indicators available for individual sectors
  – Consumers, industry, investment, retail trade, construction, and services
  – Indicator for overall activity is weighted average of individual surveys
• Composite PMIs (Markit Economics) for manufacturing, trade, services, construction
PMI indicators

• Survey information of purchasing managers in more than 400 companies per country
  – Composite index comprises series such as output, new orders, stock levels, prices, etc.
  – Manufacturing (services) data available for 30 (13) countries, lower coverage for construction and trade

• PMIs reported as diffusion indicators
  – Percentage of respondents reported better conditions plus half of the percentage with no change
  – PMI varies between 0 and 100, levels of 50 signal no change over the previous month
Forecasting consumption

• Consumer confidence does not outperform AR benchmark
  – Expected change in financial and general economic situation outperforms benchmark
  – Different optimal questions for countries
  – MIDAS forecasts improve, if later months become available

• Increasing performance of composites, if pre-selection of individual questions is involved
  – Gain in forecasting accuracy is about 15 percent
Forecasting investment

• No specific indicator for investment growth
  – Overall, industrial and construction confidence, PMIs for industry and construction

• Overall economic confidence can outperform AR benchmark
  – Gains in forecasting accuracy about 15 percent
  – PMIs outperform the benchmark, but economic sentiment only for first month in a quarter

• Composite indicators perform better than individual questions
Forecasting GDP growth

• Confidence indicators for particular sectors
  – Overall, consumption, industrial, construction, services, retail trade
  – PMIs refer to composite, manufacturing, and the services sector

• Economic sentiment outperforms competitors
  – Including combined survey indicators
  – AR improved by 30 percent if survey data of the last month are available
  – PMI better in case of early information

• Similar result as in the investment forecast
Forecasting IP growth

• Confidence indicators for particular sectors
  – Overall indicator, industrial and individual questions in the industry survey
  – PMIs refer to composite and the manufacturing sector

• Composite indicators perform better than AR, EU indicators and PMIs
  - Questions pre-selected by data-driven criteria
  - Production expectations especially suited
Conclusions

• Economic sentiment performs quite well in forecasting investment and GDP growth
  – PMIs better for the first month within a quarter
  – Individual PMI components not available

• Self-constructed measures better for private consumption and industrial production
  – Pre-selection of questions by data driven criteria
  – Combined indicators often better than ingredients

• Real-time data have only minor effect