

Enodo China Nowcast Model

Methodology

Our model “nowcasts” China’s official real GDP growth and Enodo’s own real GDP growth estimate, incorporating over 50 macroeconomics data series as they become available. We use the model-based approach to analyse the news flow in real time so we can produce monthly forecasts for the current and the next quarter.

Why do we do this?

Nowcasting literally means to forecast the present. To arrive at our short-term growth forecasts for China we chose to use this model-based approach. New methodologies in time-series econometrics have made possible the development of platforms for real-time forecasting that combine formal models for big data and filtering into nowcasting.

China can meddle with some of the figures, but it can’t meddle with them all. Using a nowcast model allows us to capture the impact of a vast set of high-frequency data, some of which are used directly in the compilation of the GDP numbers.

Why should we trust the model?

The nowcasting methodology has been tested for accuracy in many countries, including China. In the economic literature nowcast models tend to outperform the traditional macroeconomic models like Vector Autoregression (VAR) and Dynamic Stochastic General Equilibrium (DSGE), which rely on economic relationships that hold in the medium and long run but not necessarily in the short run.

These models are less suitable for China as it lacks the breath, depth, and time span of data to allow the modelling of many macroeconomic relationships. We use our judgement in analysing China’s economy and politics to arrive at our medium and long-term growth expectations.

But we find the nowcast model allows us a transparent and coherent approach to distilling the information in the high-frequency real-time data flow to arrive at our expectations for the underlying short-term growth momentum.

Back-testing the Enodo Economics China Nowcast Model has given us confidence in the degree of its accuracy.

What makes the Enodo model unique?

The selection of the data and the model parameters reflect Enodo's extensive experience analysing China's economy as well as applying econometric modelling.

We collect as much data as possible from a wide range of sources. We have a firm grasp of the figures, knowing which ones to trust and what they actually mean – in China they may be called one thing but refer to something quite different. We clean China's numbers extensively.

What do we forecast?

We forecast China's official real GDP growth and Enodo's own estimate of China's real GDP growth at both quarterly and annual frequency for the current and next quarter.

Enodo calculates its own real GDP growth for China, an exercise that Diana Choyleva has been carrying out since 2005. We use published Chinese statistics – nominal GDP and a range of price data – to arrive at our estimate.

What are the input data?

We use 51 data series, which are either monthly or quarterly and most are seasonally adjusted using our own proprietary method. Each variable enters the model in stationary form. In most cases this requires simply including the series in the same units as it is published and tracked by markets. For other variables we calculate first differences or percentage changes.

According to our chosen specification, the model has a global factor which affects all variables. Then, the data falls into six categories: real, soft, monetary, price, labour and exchange rate data.

How is our model specified?

The nowcast methodology we use is based on the (parametric) factor model developed by Giannone, Reichlin, and Small (2008) and Kalman-filtering techniques. In Giannone, Reichlin, and Small (2008) the estimation procedure exploits the fact that relevant data series, although numerous, co-move strongly so that their dynamics can be captured by few common factors.

In other words, all the variables in the information set are assumed to be generated by a dynamic factor model, which copes effectively with the so-

called 'curse of dimensionality' (the large number of parameters relative to the sample size).

The nowcast methodology digests data as “news”, mimicking the way markets work. News is defined as the difference between released data and model predictions. The weights account for the information content as well as the timeliness of the data releases.

The difference between two consecutive forecasts (that is, the forecast revision) is the weighted average of the news during the week.

Giannone, D., L. Reichlin, and D. Small. 2008. “Nowcasting: “The Real-Time Informational Content of Macroeconomic Data.”, *Journal of Monetary Economics* 55, no.4 (May): 665-76.

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