

## [Exploiting the monthly data-flow in structural forecasting](#)

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The preparation of the forecast is essentially a process of aggregation of knowledge in any policy institution and, in particular, in central banks. This process involves the combination of formal models, judgement and statistical data analysis. In this paper we address a particular part of this process and analyse the connection between two important tools in the forecasting process: the structural quarterly model and the daily monitoring of monthly data releases for the assessment of the current state of the economy.

The quarterly structural model, generally a dynamic stochastic general equilibrium (DSGE) model, is essential for constructing scenarios based on different policy paths or other conditioning assumptions, that is, for policy analysis. The objective of policy analysis is not to obtain a simple forecast, but rather to analyse the implications of policy alternatives. Moreover, from structural models one can recover quantities that are not directly observable from the data but that are often relevant for the understanding of the stance of policy, such as the natural rate of interest or the potential output. Although this part of the analysis is essential for guiding the policy discussion, any decision maker needs to have, in addition, a system in place for understanding the evolution of the current state of the economy. Such a system involves the analysis of many different data, including surveys or conjunctural leading indicators which are published early in the quarter, before the release of quarterly national account data, and can provide a timely signal on quantities of key interest such as GDP or employment. For this function, the typical structural model is of no use since it is not designed to capture realistic features of the data flow: non-synchronous calendar of publications, mixed frequency, potentially large dimension. Recent work, on the other hand, has developed a statistical framework for dealing with these problems and this allows producing continuous updates of the estimate of the current state of the economy in relation to the real time data flow. This process is labelled "now-casting".

This paper proposes a framework to bridge a structural quarterly model and a statistical model for now-casting. Such a framework is particularly relevant for the conduct of monetary policy today when, with the implementation of forward guidance, an increasing emphasis has been placed on the definition and communication of nearer term policy in relation to the evolution of the state of the economy.

Our proposed method achieves two objectives. First, we derive the monthly dynamics of the structural model, addressing a classic problem of time aggregation. Second, we show how to exploit



the additional information in an analytically consistent way as they become available according to the real time calendar. As mentioned, beside now-casting, our framework produces more accurate nowcasts and model-based estimates of economically important unobservable variables.