

# Model Evaluation in the DSGE Approach: A Comparison of Hybrid Models

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## **Abstract:**

This paper discusses the estimation of Dynamic Stochastic General Equilibrium (DSGE) models using hybrid models. These econometric tools provide the combination of an atheoretical statistical representation and the theoretical features of the DSGE model. A review of hybrid models presents the main aspects of these tools and why they are needed in the recent macroeconomic literature. After the review, the paper focuses on two of these hybrid models: the DSGE-VAR (Del Negro and Schorfheide (2004)) and the DSGE-FAVAR (Consolo, Favero and Paccagnini (2009)), two examples of hierarchical models. I choose these two hybrid models since these combinations can be considered modified versions of VAR. Two forecasting exercises on US data spanning from 1980:1 to 2010:4 are implemented. The time series for real GDP, Consumer Price Index, and Federal Funds Rate are used in the empirical evidence. A simple three-equation New Keynesian model is the benchmark for the DSGE component of these hybrid models. In the first exercise, a one-step-ahead is implemented using different forecasting samples. The DSGE-VAR outperforms the other models, when the forecasting sample is shorter. In the second exercise, a rolling forecast is implemented from one to five steps-ahead. The DSGE-FAVAR has better forecasting accuracy in the case of real GDP; instead, for the other variables, the hybrid models are outperformed by VAR and BVAR.

**JEL CODES:** C11, C15, C32

**KEYWORDS:** Model Estimation, Bayesian Analysis, DSGE Models, Vector Autoregressions