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## **Bayesian Inference on Dynamic Models with Latent Factors**

Roberto Casarin<sup>1</sup>  
Monica Billio<sup>1</sup>  
Domenico Sartore<sup>1</sup>

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<sup>1</sup> University of Venice and GRETA Associati

# Bayesian Inference on Dynamic Models with Latent Factors

Monica Billio, Roberto Casarin and Domenico Sartore <sup>‡</sup>

billio@unive.it r.casarin@unive.it sartore@unive.it

Dept. of Economics, University of Venice  
San Giobbe 873, 30121 Venice, Italy

and

GRETA Associati  
S. Marco 3870, 30124 Venice, Italy

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## Abstract

In time series analysis, latent factors are often introduced to model the heterogeneous time evolution of the observed process. The presence of unobserved components makes the maximum likelihood estimation method more difficult to apply. A Bayesian approach is sometimes preferable since it allows to treat general state space models and makes easier the simulation based approach to parameters estimation and latent factors filtering. The paper examines economic time series models in a Bayesian perspective focusing, through some examples, on the extraction of the Business Cycle components like cycle, trend and seasonality. We review some general univariate and multivariate Bayesian dynamic models and discuss the simulation based techniques useful for parameter estimation and latent factor extraction.

KEYWORDS: Bayesian Dynamic Model, Simulation Based Inference, Particle Filters, Latent Factors, Business Cycle.

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<sup>‡</sup>Corresponding author.