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**Article**

## Bayesian econometrics

Journal of Risk and Financial Management

**Provided in Cooperation with:**

MDPI – Multidisciplinary Digital Publishing Institute, Basel

*Suggested Citation:* Bernardi, Mauro; Grassi, Stefano; Ravazzolo, Francesco (2020) : Bayesian econometrics, Journal of Risk and Financial Management, ISSN 1911-8074, MDPI, Basel, Vol. 13, Iss. 11, pp. 1-2,  
<https://doi.org/10.3390/jrfm13110257>

This Version is available at:

<https://hdl.handle.net/10419/239370>

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Editorial

# Bayesian Econometrics

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Received: 26 October 2020; Accepted: 26 October 2020; Published: 29 October 2020



**Abstract:** The computational revolution in simulation techniques has shown to become a key ingredient in the field of Bayesian econometrics and opened new possibilities to study complex economic and financial phenomena. Applications include risk measurement, forecasting, assessment of policy effectiveness in macro, finance, marketing and monetary economics.

**Keywords:** Bayesian econometrics; forecasting; MCMC methods; macroeconomic and financial applications

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This special issue aims to contribute to this literature by collecting a set of carefully evaluated papers that are grouped amongst two topics in financial economics: the first three papers refer to macro-finance issues for the real economy; the last three papers focus on cryptocurrency and stock market predictability.

The first paper, written by Nguyen Ngoc Thach, studies the elasticity of factor substitution (ES) in the Cobb–Douglas production function (see [Thach 2020](#)). It proposes a new Bayesian nonlinear mixed-effects regression via Random-walk Metropolis Hastings (MH) algorithm to estimate the average ES through the specification of an aggregate constant elasticity of substitution (CES) function and applies it to the Vietnamese nonfinancial enterprises. Results indicate that the CES function estimated for the researched enterprises has an ES lower than one, i.e., capital and labor are complimentary. This finding shows that Vietnamese nonfinancial enterprises can confront a downward trend of output growth.

The second paper, written by Marco Lorusso and Luca Pieroni, investigates government public spending components in order to analyze their effects on the economy (see [Lorusso and Pieroni 2019](#)). It develops a Dynamic Stochastic General Equilibrium Model (DSGE) model with civilian and military expenditures and is applied to U.S. data. It estimates it on U.S. data taking account of financial liberalizations with Bayesian methods. Results show that total government spending has a positive effect on output, but it induces a fall in private consumption. Moreover, sizeable differences between the effects of civilian and military spending exist: civilian spending has a more positive impact on output than military expenditure.

The third paper, written by Martin Feldkircher and Florian Huber, focuses on quantitative easing, monetary policy and economics (see [Feldkircher and Huber 2018](#)). Employing a time-varying vector autoregression with stochastic volatility studies the transmission of a conventional monetary policy shock with that of an unexpected decrease in the term spread, unconventional monetary policy shocks. Results indicate that the spread shock works mainly through a boost to consumer wealth growth, while a conventional monetary policy shock affects real output growth via a broad credit/bank lending

channel. Moreover, the conventional monetary policy shock has a small effect during the period of the global financial crisis and stronger effects in its aftermath, whereas the spread shock has affected output growth most strongly during the crisis and less so thereafter.

The fourth paper, written by Rick Bohte and Luca Rossini, studies the forecasting ability of cryptocurrency time series (see [Bohte and Rossini 2019](#)). Working on the four most capitalised cryptocurrencies, Bitcoin, Ethereum, Litecoin and Ripple, different Bayesian models are compared, including models with constant and time-varying volatility, such as stochastic volatility and GARCH. Results show that stochastic volatility improves both point and density forecasting accuracy. Using a different type of distribution, for the errors of the stochastic volatility, the student-t distribution is shown to outperform the standard normal approach.

The fifth paper, written by Camilla Muglia, Luca Santabarbara and Stefano Grassi, investigates whether Bitcoin is a good predictor of the Standard and Poor's 500 Index (see [Muglia et al. 2019](#)). Using Bayesian dynamic model averaging (DMA) and Bayesian dynamic model selection (DMS) methodologies, the analysis shows that Bitcoin does not show any direct impact on the predictability of Standard and Poor's 500.

The sixth paper, written by Chiari Limongi Concetto and Francesco Ravazzolo, investigates how investor sentiment affects stock market returns and evaluates the predictability power of sentiment indices on U.S. and EU stock market returns (see [Limongi Concetto and Ravazzolo 2019](#)). Investor sentiment indices have an economic and statistical predictability power on stock market returns. Moreover, comparing the two markets, the analysis indicates a spillover effect from the U.S. to Europe.

The guest editors want to thank all referees for a speedy and high quality evaluation procedure.

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