SGPE ECNM11060

Bayesian Econometrics

Journal Article Review

Spring 2026

SCOTTISH GRADUATE PROGRAMME IN ECONOMICS

Semester 2 Options

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The journal article summary must be submitted by **12 noon on 10 April, 2026** electronically to the associated dropbox on Learn. This assessment contributes to **40% of the final mark** for this class.

Names must not appear on assignments, you should only identify yourself on your assignment by your examination number which can be found on your student card. Deadlines are absolute and must be strictly adhered to otherwise the standardised penalty will be applied without exception. Further information on late penalties is available within your Programme Handbook. The penalty will not be applied if good reasons can be given, such as documented illness. If you feel you require an extension, you should contact the Postgraduate Office as soon as possible. The Special Circumstances procedure may be appropriate where a circumstance beyond a student's control has negatively affected their ability to perform or complete a University assessment. For further guidance on the Special Circumstances procedure, please contact the Postgraduate Office, or see your Programme Handbook. When submitting on Learn, your work will be checked by TurnItIn (plagiarism checker). Further guidance on plagiarism, and how to avoid it is available here. In addition, the university's guidelines on the use of generative AI can be found here.

Nature of Assessment

If you do Bayesian empirical work in the future, one of the most important skills you will need is the ability to read, understand, and critically assess the relevant literature in order to use (or adapt) the models and methods it presents for your own dataset. This assessment is intended to give you experience in developing this skill. You are asked to read a journal article that uses Bayesian econometric methods in an empirical application involving a model that may be new to you (although, if so, it will be closely related to models covered in the lectures). You should briefly summarise the paper, critically discuss the methods used, and (if relevant) critically analyse the empirical results. The article review should be a **maximum of 2,000 words** and should include:

1. An introduction to the research question, including a precise definition of the paper's main contribution to the literature.
2. A brief description and definition of the model.
3. A brief discussion of the properties of the model, focusing on the types of economic problems for which it is well suited.
4. A description of how Bayesian methods can be used in the model (i.e., prior specification, likelihood function, posterior simulation methods and, for papers involving forecasting, methods used for forecasting). You should also demonstrate awareness of the assumptions

underlying the various estimation methods, as well as any additional assumptions required (e.g., for forecasting or structural analysis).

5. A discussion of the empirical results (if relevant) or other important issues that arise in the paper.

6. A critical and coherent evaluation of the econometric techniques, empirical results, and findings. This discussion may include limitations of the data used and shortcomings of the modelling approach.

We would suggest you choose one of the papers listed below in the Section **References**. However, if you have a particular interest or have found a Bayesian paper you would like to study in an area of interest to you, it might be possible for you to use that for your Journal Article Summary. If you want to do this, please check with Niko (your point of contact for this assessment) first to make sure the article is appropriate. If you are running up against the 2,000 word length limit, it is acceptable to refer to equation numbers in the paper you are summarizing (rather than re-typing equations already in the paper), but if you do please be very clear and explicit. For instance, when describing a posterior simulation algorithm involving VAR coefficients, $\boldsymbol{A}$, and an error covariance matrix, $\boldsymbol{\Sigma}$, it is **NOT** acceptable to simply say: *"Posterior simulation is done as in equations 1 and 2 of the paper."* But it is acceptable to say something like: *"Posterior simulation is carried out using a Gibbs sampling algorithm involving a conditional posterior density for the VAR coefficients, $p(\boldsymbol{A}|Data, \boldsymbol{\Sigma})$ and one for the error covariance, $p(\boldsymbol{\Sigma}|Data, \boldsymbol{A})$. The former is Normal and the latter is an inverse Wishart distribution with precise forms given in equations 1 and 2 of the paper."*

References

Bitto A, and Frühwirth-Schnatter S (2019), "Achieving shrinkage in a time-varying parameter model framework," *Journal of Econometrics* **210**(1), 75–97.

Bruns M, and Piffer M (2023), "A new posterior sampler for Bayesian structural vector autoregressive models," *Quantitative Economics* **14**(4), 1221–1250.

Caldara D, and Herbst E (2019), "Monetary policy, real activity, and credit spreads: Evidence from Bayesian proxy SVARs," *American Economic Journal: Macroeconomics* **11**(1), 157–192.

Carriero A, Kapetanios G, and Marcellino M (2012), "Forecasting government bond yields with large Bayesian vector autoregressions," *Journal of Banking & Finance* **36**(7), 2026–2047.

Chan JC (2022), "Asymmetric conjugate priors for large Bayesian VARs," *Quantitative Economics* **13**(3), 1145–1169.

Chan JC, Koop G, and Yu X (2024), "Large order-invariant Bayesian VARs with stochastic volatility," *Journal of Business & Economic Statistics* **42**(2), 825–837.

Chan JC, Poon A, and Zhu D (2023), "High-dimensional conditionally Gaussian state space models with missing data," *Journal of Econometrics* **236**(1), 105468.

Chan JC, and Qi Y (2025), "Large Bayesian matrix autoregressions," *Journal of Econometrics* 105955.

Clark TE, Huber F, Koop G, Marcellino M, and Pfarrhofer M (2023), "Tail forecasting with multivariate Bayesian additive regression trees," *International Economic Review* **64**(3), 979–1022.

Crawford L, Flaxman SR, Runcie DE, and West M (2019), "Variable prioritization in nonlinear black box methods: A genetic association case study," *The Annals of Applied Statistics* **13**(2), 958.

Del Negro M, Giannone D, Giannoni MP, and Tambalotti A (2019), "Global trends in interest rates," *Journal of International Economics* **118**, 248–262.

Del Negro M, and Schorfheide F (2004), "Priors from general equilibrium models for VARs," *International Economic Review* **45**(2), 643–673.

Deshpande SK, Bai R, Balocchi C, Starling JE, and Weiss J (2024), "VCBART: Bayesian Trees for Varying Coefficients," *Bayesian Analysis* **1**(1), 1–28.

Deshpande SK, and Jensen ST (2016), "Estimating an NBA player's impact on his team's chances of winning," *Journal of Quantitative Analysis in Sports* **12**(2), 51–72.

Ferreira LN, Miranda-Agrippino S, and Ricco G (2023), "Bayesian local projections," *The Review of Economics and Statistics* ahead–of–print.

Frühwirth-Schnatter S, Hosszejni D, and Lopes HF (2025), "Sparse Bayesian factor analysis when the number of factors is unknown (with discussion)," *Bayesian Analysis* **20**(1), 213–344.

Gefang D (2014), "Bayesian doubly adaptive elastic-net Lasso for VAR shrinkage," *International Journal of Forecasting* **30**(1), 1–11.

Geweke J, and Amisano G (2010), "Comparing and evaluating Bayesian predictive distributions of asset returns," *International Journal of Forecasting* **26**(2), 216–230.

Giacomini R, and Kitagawa T (2021), "Robust Bayesian inference for set-identified models," *Econometrica* **89**(4), 1519–1556.

Giannone D, Lenza M, and Primiceri GE (2015), "Prior selection for vector autoregressions," *Review of Economics and Statistics* **97**(2), 436–451.

——— (2021), "Economic predictions with big data: The illusion of sparsity," *Econometrica* **89**(5), 2409–2437.

Hauzenberger N, and Pfarrhofer M (2021), "Bayesian state-space modeling for analyzing heterogeneous network effects of US monetary policy," *The Scandinavian Journal of Economics* **123**(4), 1261–1291.

Huber F, Koop G, Onorante L, Pfarrhofer M, and Schreiner J (2023), "Nowcasting in a pandemic using non-parametric mixed frequency VARs," *Journal of Econometrics* **232**(1), 52–69.

Kapetanios G, Mumtaz H, Stevens I, and Theodoridis K (2012), "Assessing the economy-wide effects of quantitative easing," *The Economic Journal* **122**(564), F316–F347.

Klinenberg D (2023), "Synthetic control with time varying coefficients A state space approach with Bayesian shrinkage," *Journal of Business & Economic Statistics* **41**(4), 1065–1076.

Koop G, and Korobilis D (2012), "Forecasting inflation using dynamic model averaging," *International Economic Review* **53**(3), 867–886.

Korobilis D (2013), "Hierarchical shrinkage priors for dynamic regressions with many predictors," *International Journal of Forecasting* **29**(1), 43–59.

McAlinn K, Aastveit KA, Nakajima J, and West M (2020), "Multivariate Bayesian predictive synthesis in macroeconomic forecasting," *Journal of the American Statistical Association* **115**(531), 1092–1110.

Sims CA, and Zha T (2006), "Were there regime switches in US monetary policy?" *American Economic Review* **96**(1), 54–81.

Wu P, and Koop G (202x), "Fast, order-invariant Bayesian inference in VARs using the eigen-decomposition of the error covariance matrix," *Journal of Business & Economic Statistics* (forthcoming).