

XUAN VU

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EDUCATION

Ph.D. in Economics, The University of Melbourne	2019 – Present
Master of Commerce (Economics), The University of Melbourne	2018
Master of Economics, The University of Melbourne	2016 – 2017
Bachelor (Honours) (International Economics), Vietnam National University	2008 – 2012

EMPLOYMENT

Lecturer, Vietnam National University of Agriculture	2013 – Present
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FIELDS

Econometrics, Bayesian modelling, Computational economics

WORKING PAPER

Variational inference for a large dimensional Markov switching model

Abstract: I propose a new variational inference (VI) algorithm to estimate a large dimensional Markov switching model fast and accurately. Although the multivariate Markov switching model captures useful information, the Monte Carlo Markov chain algorithm's computational cost increases significantly with its dimension. My contributions are threefold. First, while taking substantially less time to compute, this method achieves comparable in-sample and out-of sample results to its MCMC counterpart. Second, this inference allows for the inclusion of important restrictions to identify hidden states. Third, my novel VI forward filtering backward smoothing algorithm is comparable to the well-known algorithm in economic literature from Chib (1996). As a result, this new strategy is simple and accessible to implement. My paper presents several results derived from multiple simulations, illustrating the accuracy and timely benefit of the new technique. For example, identifying the bull and bear states, detecting regime switching, and providing forecasts for investment strategies. In addition, applications to three sets of stock returns that are listed in the S&P 500 and one set of industry portfolios provide similar insights.

The dynamic Dirichlet process mixture model: An application to Australian banking sector

(with Silvio Contessi, Mei Dong, and Yong Song)

Abstract: This paper proposes a new dynamic Bayesian nonparametric model to capture time varying distributions. Our model is built on Gutierrez et al. (2016) and Mena and Ruggiero (2016). We improve their algorithm through incorporating a break indicator and a hierarchical prior structure governing the parameters of all components in the mixture. Using the Australian banking statistics from 1925 to 2019, we apply the model to estimate the time varying bank size/growth distributions. Our results suggest that the skewness of the weighted bank growth distribution is procyclical to the business/financial cycle. Different quantiles of the weighted bank growth distribution exhibit different correlations with financial cycles.

WORKS IN PROGRESS

Variational inference for dynamic Dirichlet process mixture model

(with Yong Song)

Heterogeneity in the Banking System in the Long Run: Evidence from New Australian Data Spanning a Century

(with Silvio Contessi, Mei Dong, and Ainura Tursulunieva)

SCHOLARSHIPS AND AWARDS

2019 – 2023	Melbourne Research Scholarship
2019	Kilmany Scholarship (best performing graduate student in coursework of Ph.D.)
2018	Dean's Honours List – Melbourne Business School
2018	Faculty of Business and Economics – Doctoral Program Scholarship
2016 – 2017	Australia Award Scholarship
2010	Dean's Honours List – University of Economics and Business, VNU
2010	DOJI Scholarship – University of Economics and Business, VNU

PRESENTATIONS

2023	Melbourne Bayesian Econometric Workshop (The University of Melbourne) Vietnam Economic Annual Meeting
2022	The 7 th Continuing Education in Macro-econometrics (Monash University) The 28 th International Conference on Computing in Economics and Finance (Southern Methodist University, USA) (cancelled due to visa delay) Ph.D. BrownBag (The University of Melbourne)
2021	The 34 th Ph.D. Conference in Economics and Business (The University of Queensland) Bayesian Analysis and Modelling Reading group (The University of Melbourne) Ph.D. BrownBag (The University of Melbourne)
2020	Ph.D. BrownBag (The University of Melbourne) Bayesian Analysis and Modelling Reading group (The University of Melbourne)
2019	Ph.D. BrownBag (The University of Melbourne)

TEACHING EXPERIENCE

Teaching Assistant:

The University of Melbourne (2018 – 2023)

Econometrics 1, Econometrics 2, Quantitative Methods 1, Quantitative Methods 2, Forecasting in Business and Economics (Graduate), Econometric Techniques (Graduate, for Australia Award scholars), Money and Banking, Quantitative Methods in Finance 2 (Graduate), Introductory Macroeconomics, Intermediate Macroeconomics

Lecturer:

Vietnam National University of Agriculture (2013 – 2015)

Introductory Econometrics, Mathematical Economics

OTHER ACTIVITIES

Competition: Econometrics Game 2021 (Team captain), Netherland (online)
Econometrics Game 2020 (Team captain), Netherland (cancelled)
Research Assistant: Associate Professor Yi-ping Tseng (2017-2022); Dr. Jean-Pierre Fenech (2020);
Professor Mei Dong (2019);
Researcher: ACIAR: AGB/2008/002; LPS/2010/047, AGB/2012/059, AGB/2012/060

PROGRAMMING

MATLAB, R, Stata, EViews, Spartan, L^AT_EX

PERSONAL

Citizenship:	Vietnamese	Gender:	Male
Languages:	English (fluent), Vietnamese (native)	Date of Birth:	24 June 1990

REFERENCES

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