

Anastasios Nicholas Panagiotelis

Associate Professor

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Research

Refereed Journal Articles

1. **A. Panagiotelis**, P. Gamakumara, G. Athanasopoulos, and R. Hyndman (2022). Probabilistic Forecast Reconciliation: Properties, Evaluation and Score Optimisation. *European Journal of Operational Research*.
2. Petropoulos, F., D. Apiletti, V. Assimakopoulos, M. Z. Babai, et al. (2022). Forecasting: theory and practice. *International Journal of Forecasting* **38**, 705–871.
3. Petropoulos, F., E. Spiliotis, and **A. Panagiotelis** (2022). Model Combination through Revised Base Rates. *International Journal of Forecasting*.
4. Tomasetti, N., C. Forbes, and **A. Panagiotelis** (2022). Updating variational Bayes: Fast sequential posterior inference. *Statistics and Computing* **32**.
5. **A. Panagiotelis**, P. Gamakumara, G. Athanasopoulos, and R. Hyndman (2021). Forecast Reconciliation: A geometric view with new insights on bias correction. *International Journal of Forecasting* **37**(1), 343–359.
6. Eckert, F., R. Hyndman, and **A. Panagiotelis** (2021). Forecasting Swiss exports using Bayesian forecast reconciliation. *European Journal of Operational Research* **291**, 693–710.
7. Gunawan, D., **A. Panagiotelis**, W. Griffiths, and D. Chotikapanich (2020). Bayesian weighted inference from surveys. *Australian & New Zealand Journal of Statistics* **62**(1), 71–94.
8. **A. Panagiotelis**, G. Athanasopoulos, B. Jiang, R. Hyndman, and F. Vahid (2019). Macroeconomic forecasting for Australia using a large number of predictors. *International Journal of Forecasting* **35**, 616–633.
9. Jeon, J., **A. Panagiotelis**, and F. Petropoulos (2019). Probabilistic forecast reconciliation with applications to wind power and electric load. *European Journal of Operational Research* **279**(2), 364–379.
10. Li, H., H. Li, Y. Lu, and **A. Panagiotelis** (2019). A forecast reconciliation approach to cause-of-death mortality modeling. *Insurance Mathematics and Economics* **86**, 122–133.
11. Tan, B. K., **A. Panagiotelis**, and G. Athanasopoulos (2019). Bayesian inference for the one-factor copula model. *Journal of Computational and Graphical Statistics* **28**(1), 155–173.
12. **Panagiotelis, A.**, C. Czado, H. Joe, and J. Stöber (2017). Model selection for regular vine copulas. *Computational Statistics and Data Analysis* **106**, 138–152.
13. **Panagiotelis, A.**, M. Smith, and P. Danaher (2014). From Amazon to Apple: Modeling online retail sales, purchase incidence and visit behaviour. *Journal of Business and Economic Statistics* **32**(1), 14–29.
14. **Panagiotelis, A.**, C. Czado, and H. Joe (2012). Pair copula constructions for multivariate discrete data. *Journal of the American Statistical Association* **107**(499), 1063–1072.
15. **Panagiotelis, A.** and M. Smith (2010). Bayesian skew selection for multivariate models. *Computational Statistics and Data Analysis* **54**(7), 1824–1839.
16. **Panagiotelis, A.** and M. Smith (2008). Bayesian density forecasting of intraday electricity prices using multivariate skew t distributions. *International Journal of Forecasting* **24**(4), 710–727.
17. **Panagiotelis, A.** and M. Smith (2008). Bayesian identification, selection and estimation of semiparametric functions in high-dimensional additive models. *Journal of Econometrics* **143**(2), 291–316.

Submitted Papers

18. Cheng, F., R. Hyndman, and **A. Panagiotelis**. (2022). “Manifold learning with approximate nearest neighbors”. Submitted to *Machine Learning*
19. Zhang, B., Y. Kang, **A. Panagiotelis**, and F. Li (2022). Optimal reconciliation with immutable forecasts. Submitted to *European Journal of Operational Research*.

Book Chapters

20. Athanasopoulos, G., P. Gamakumara, **A. Panagiotelis**, and R. Hyndman (2020). “Hierarchical time series”. In: *Macroeconomic forecasting in the era of big data*. Springer. pp.703–735
21. Sarafidis, V., **A. Panagiotelis**, and T. Panagiotidis (2017). “When did it go wrong? The case of Greek sovereign debt”. In: *The Greek Debt Crisis*. Palgrave MacMillan. pp.1–35

Working Papers

22. Behlul, T., **A. Panagiotelis**, G. Athanasopoulos, R. Hyndman, and F. Vahid. (2017). “The Australian Macro Database: An online resource for macroeconomic research in Australia”. *Monash Econometrics and Business Statistics Working paper series 1/17*
23. Jiang, B., **A. Panagiotelis**, G. Athanasopoulos, R. Hyndman, and F. Vahid. (2016). “Bayesian rank selection for multivariate regression”. *Monash Econometrics and Business Statistics Working paper series 6/16*

Software

24. Panagiotelis, A. *ProbReco: Score Optimal Probabilistic Forecast Reconciliation*. R package version 0.1.0. <https://github.com/anastasiospanagiotelis/ProbReco>.

Research Funding

- 2013 (Completed) Panagiotelis, A., G. Athanasopoulos, R.J. Hyndman, F. Vahid, “Macroeconomic forecasting in a ‘Big-Data’ world”, ARC Discovery Project.**
Total funding: **AU\$335,000**.

Conferences

- 2022 International Symposium on Forecasting, Oxford, 10-13 June.
- 2020 International Symposium on Forecasting, Rio de Janeiro (Virtual), 26-28 October.
- 2019 Workshop on Vine Copulas and their Applications, Munich, 8-9 July.
- 2019 International Symposium on Forecasting, Thessaloniki, 16-20 June.
- 2018 Australasian Actuarial Education and Research Symposium, Sydney 5-6 December.
- 2018 The Sydney Time Series and Forecasting Symposium, Sydney, 13-14 November.
- 2018 International Symposium on Forecasting, Boulder, 17-20 June.
- 2018 Analysing Large Collections of Time Series, Shonan, 12-15 February.
- 2017 The Sydney Time Series and Forecasting Symposium, Sydney, 30 November - 1 December.
- 2017 International Symposium on Forecasting, Cairns, 25-28 June.
- 2017 Melbourne Data Science Initiative, Melbourne, 29 May - 1 June.
- 2017 Ecosta, Hong Kong, 15-17 June.
- 2016 CMStatistics, Seville, 9-11 December.
- 2016 China meeting of the Econometric Society, Chengdu, 25-27 June.
- 2015 The Economic Value of Macroeconomic Forecasts with Big Data, Warwick, 28 June - 1 July.
- 2014 China meeting of the Econometric Society, Xiamen, 25-27 June.
- 2013 International Symposium on Forecasting, Seoul, 24-27 June.
- 2013 China meeting of the Econometric Society, Beijing, 13-16 June.
- 2012 Workshop on Copula Theory and Application, Krakow, 9-11 July.
- 2012 International Society for Bayesian Analysis World Meeting, Kyoto, 25-29 June.
- 2011 Joint Statistical Meetings, Miami, 30 July - 4 August.
- 2010 CSDA International Conference on Computational and Financial Econometrics, 10-12 December.
- 2010 Joint Statistical Meetings, Vancouver, 31 July - 5 August.

PhD Supervision

Yangzhuoran Yang (PhD - Monash)	<i>Forecast high-dimensional time series with linear components.</i> Expected completion date: August 2023.
Fan Cheng (PhD - Monash)	<i>Manifold learning on probability distributions</i> Expected completion date: August 2022.
Puwasala Gamakumara (PhD - Monash)	<i>Probabilistic forecasts reconciliation: Theory and applications.</i> Completed: March 2020.
Nathaniel Tomasetti (PhD - Monash)	<i>Approximate Bayesian updating for sequential inference of data Streams.</i> Completed: March 2020.
Ban Kheng Tan (PhD - Monash)	<i>Factor copula models and their applications.</i> Completed: December 2018.
David Gunawan (PhD - Monash)	<i>Bayesian inference for the measurement of multidimensional inequality and deprivation: an Australian case study.</i> Completed: March 2016.

I have also supervised the thesis projects of 15 students at an Honours or Masters level at Monash University and TU Munich. These projects have covered actuarial studies (survival analysis), economics (macro forecasting), finance (order book data, value at risk), marketing (online retail), and energy.

Refereeing Responsibilities

- Referee for *Journal of the American Statistical Association*, *Journal of Econometrics*, *European Journal of Operational Research*, *Journal of Business and Economic Statistics*, *Journal of the Royal Statistics Society Series C*, *Annals of Applied Statistics*, *Technometrics*, *Journal of Economic Dynamics and Control*, *Econometric Reviews*, *Journal of Multivariate Analysis*, *International Journal of Forecasting*, *Computational Statistics and Data Analysis*, *Australian and New Zealand Journal of Statistics*, *Electronic Journal of Statistics*, *Journal of Statistical Software*.
- Expert reviewer for internal report by *NSW Bureau of Crime Statistics & Research*
- Referee for competitive grants for the *Australian Research Council (Discovery Projects and DECRA)*s and for the *Estonian Research Council*.
- External examiner for five *PhD theses (three domestic, two international)*.

Other Research Activity

- **Program Committee *Econometric Society Australasian Meeting*, Brisbane, 2022.**
Committee assists Program Chair to select accepted talks.
- **Program Chair *International Symposium of Forecasting, Virtual + Hubs*, 2021.**
Put together a program for a virtual conference taking across multiple time zones.
- **Board of Directors, *International Institute of Forecasters (IIF)*, since 2020.**
The International Institute of Forecasters (IIF), is dedicated to developing and furthering the generation, distribution, and use of knowledge on forecasting.
- **Program Committee *International Symposium of Forecasting, Thessaloniki*, 2019.**
Committee assists Program Chair to determine conference sessions.

Teaching

Teaching Philosophy

My philosophy is that all teaching innovation must support the maxim that ‘students learn by doing’. I ensure classes are engaging both by encouraging students to interactively explore data and by embedding tasks and exercises into lectures that reinforce learning. I have managed to divide assessment into tasks that assess technical knowledge for which grading and feedback can be automated, and tasks that are more open ended assignments and mimic data analysis in a real business setting. My approach has been successful in teaching large classes (1000+ students).

Teaching Awards

2021 Nominee Wayne Lonergan Outstanding Teaching Award.

Achieved as part of a team that substantially redesigned the in the Connected Learning at Scale (CLaS) framework, including the development of authentic assessment with peer review components.

2019 Nominee Vice Chancellor’s Award for Technological Innovation in Teaching.

Achieved for using of a number of modern tools for interactive data analysis in teaching and developing web-based applications to automate the grading and feedback of assessment.

2018 Winner Dean’s Award for Teaching Excellence.

Achieved for developing content and assessment that test students’ creativity and critical thinking while ensuring interactivity is present in all teaching modes. Prize of a AU\$5000 teaching development grant.

2018 Nominee Monash Postgraduate Students’ Association, Lecturer of the Year Award.

This award is driven by the Monash postgraduate community. It acknowledges outstanding lecturers from all faculties and all campuses.

Courses/ Units Taught

2021-2022	Time Series and Forecasting, University of Sydney.
2021-2022	Foundations in Data Analytics for Business, University of Sydney.
2019-2020	Data Visualisation and Analytics. Lecturer, Monash University.
2017-2020	High Dimensional Data Analysis. Lecturer, Monash University.
2017-2018	Introductory Econometrics. Lecturer, Monash University
2016	Statistical Computing. Lecturer Central University of Finance and Economics, Beijing.
2013-2016	Survey Data Analysis. Lecturer, Monash University.
2012	Applied Econometrics. Lecturer, Monash University.
2008	Quantitative Methods for Business. Lecturer, University of Sydney.
2005-2009	Econometric Models and Methods. Tutor, University of Sydney.

Computing Skills

Programming and data analysis	R, FORTRAN, Python, C, C++.
Collaboration and reproducible research	Git for version control, Github and for collaboration, LaTeX and R Markdown for preparing documents and presentations.
Web Based Interactive graphics	Shiny
Parallel computing	Linux clusters with SLURM and SGE.
Web Design	LAMP stack used to develop ausmacrodata.org website. Personal website developed using Hugo and Blogdown.
Web Scraping	Experience using Selenium and R package rvest to scrape data from websites.

Leadership

- **Member of Faculty Unit of Study Subcommittee, University of Sydney Business School** Responsible for curriculum development and cross disciplinary consultation.
- **Member of Faculty Unit of Study Subcommittee, University of Sydney Business School** Responsible for review of new units of study and proposed changes to existing units of study.
- **Director of Education: Department of Econometrics and Business Statistics.**

The Director of Education represents the Department in important Faculty level fora, including the Faculty Education Committee. The role requires leadership on educational strategy, policy and quality assurance as well as ensuring smooth operation of day to day tasks in the teaching and learning space.
- **Committee Chair: Review of Business Statistics major.**

This review involved analysing data on all undergraduate students taking at least one unit offered by our department, consultation with industry partners on skills required in the workforce and a thorough review of units to eliminate unnecessary duplication of content. As a result of this review, two new units have been proposed, and the name of the major has been changed to *Business Analytics and Statistics*.
- **Committee Member: Departmental Senior Advisory Group.**

This group meets monthly to discuss and advise the head of department on important strategic decisions for the Department of Econometrics and Business Statistics.
- **Committee Member: Bachelor of Business review working party and core meeting group.**

The Bachelor of Business is one of the largest undergraduate programs offered at Monash University. In 2019 a major external review of the program was conducted. I am a member of two committees tasked with implementing some key recommendations of this report. One particular such reform is the development of a high-level, multidisciplinary unit on *Harnessing Big Data for Business and Society*.
- **Participant: Emerging Academic Leaders Program, Monash University.**

The Emerging Academic Leaders' Program is for talented academic staff to learn about academic leadership. The themes of this program included cultivating a collegial mindset towards academic leaders and the executive group and identifying strengths and opportunities for growth in University leadership/management.
- **Committee Member: Selection panel for staff recruitment**

I have been a member of the selection panel of a number of rounds of staff recruitment. This has been for positions targeting at candidates with a strength in Business Analytics as well as Econometrics. In the case of the latter, I attended the 2018 *American Economic Association job market*) to conduct interviews.

Employment and Education

Employment

Sep 2020 –	Associate Professor Discipline of Business Analytics, The University of Sydney Business School.
Jun 2021 –	External Expert International Monetary Fund
Apr 2019 – Sep 2020	Associate Professor Department of Econometrics and Business Statistics, Monash University.
Jan 2015 – Mar 2019	Senior Lecturer Department of Econometrics and Business Statistics, Monash University.

Employment (cont.)

May-2016 – July 2016	Guest Lecturer Department of Statistics, Central University of Finance and Economics, Beijing, China
Sep 2011 – Dec 2014	Lecturer Department of Econometrics and Business Statistics, Monash University.
Aug 2009 – Jul 2011	Alexander von Humboldt Post-Doctoral Fellow Lehrstuhl für Mathematische Statistik, Technische Universität München, Germany. <i>Alexander von Humboldt Fellowship is awarded on the basis of academic achievement by a competitive, independent, peer reviewed process.</i>
Mar 2009 – May 2009	Casual Lecturer Econometrics and Business Statistics, University of Sydney, Australia.
Mar 2003 – May 2009	Casual Tutor Econometrics and Business Statistics, University of Sydney, Australia.
Mar 2009	Consultant Quant Solutions.
Jan 2009 – May 2009	Research Assistant. Melbourne Business School, Australia.
Sep 2006 – Jan 2007	Consultant. Rismark International.
Nov 2003 – Jan 2004	Cadetship. Reserve Bank of Australia.

Education

2009	Ph.D.	Sydney University, Australia.
2004	BEC(Hons)	Sydney University, Australia (<i>won University Medal for outstanding performance</i>).

Referees

Professor Rob J Hyndman

Head of Department.

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Professor Michael Smith

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