

Nikolas Kuschnig

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Appointments

- **Senior Lecturer** (2025–)
Monash University, Department of Econometrics & Business Statistics
- **Postdoctoral Researcher** (2024–2025)
Vienna University of Economics and Business (WU), Institute for Ecological Economics

Education

- **Ph.D.** in Economics (Vienna University of Economics and Business, WU) (2024)
 - › Research visit, University of California, Berkeley (hosted by *Bryan Graham*)
 - › Research visit, Johns Hopkins Carey Business School (hosted by *Angelo Mele*)
 - › Research visit, University of Oxford (hosted by *Michael Obersteiner*)
- **M.Sc.** in Economics (WU Vienna) (2019)
- **B.Sc.** in Business, Economics & Social Sciences (WU Vienna) (2017)
 - › Exchange semester, Copenhagen Business School

Research

I develop probabilistic and computational methods for learning from data with spatial, network, and other forms of dependence. My research connects Bayesian modelling, machine learning, and causal inference to recover latent structure, quantify spillovers, and assess sensitivity of empirical results. Applications centre on socioeconomic and environmental systems, including mining, deforestation, and land use.

Peer-reviewed publications

1. Konrad, L. D. and **Kuschnig, N.** (2026). Finding most influential sets. In *Proceedings of the International Conference on Machine Learning (ICML)*. [arXiv:2606.05919](#).
2. Konrad, L. D. and **Kuschnig, N.** (2026). Testing most influential sets. In *Proceedings of the International Conference on Learning Representations (ICLR)*, [arXiv:2510.20372](#).
3. Vashold, L., Pirich, G., Heinze, M., and **Kuschnig, N.** (2026). Downstream impacts of mines on agriculture in Africa. *Journal of Development Economics*, 179:103671, DOI: [10.1016/j.jdeveco.2025.103671](#).
4. Sepin, P., Vashold, L., and **Kuschnig, N.** (2025). Mapping mining areas in the tropics from 2016 to 2024. *Nature Sustainability*, 8:1400–1407, DOI: [10.1038/s41893-025-01668-9](#).
5. **Kuschnig, N.**, Vashold, L., Soterroni, A., and Obersteiner, M. (2023). Eroding resilience of deforestation interventions — Evidence from Brazil's lost decade. *Environmental Research Letters*, 18(7):074039, DOI: [10.1088/1748-9326/acdfe7](#).
6. Giljum, S., Maus, V., **Kuschnig, N.**, Luckeneder, S., Tost, M., Sonter, L., and Bebbington, A. (2022). A pantropical assessment of deforestation caused by industrial mining. *Proceedings of the National Academy of Sciences*, 119(38):e2118273119, DOI: [10.1073/pnas.2118273119](#).
7. **Kuschnig, N.** (2022). Bayesian spatial econometrics: A software architecture. *Journal of Spatial Econometrics*, 3, 6, DOI: [10.1007/s43071-022-00023-w](#).
8. **Kuschnig, N.** and Vashold, L. (2021). BVAR: Bayesian vector autoregressions with hierarchical prior selection in R. *Journal of Statistical Software*, 100(14):1–27, DOI: [10.18637/jss.v100.i14](#).

9. **Kuschnig, N.**, Crespo Cuaresma, J., Krisztin, T., and Giljum, S. (2021). Spatial spillover effects from agriculture drive deforestation in Mato Grosso, Brazil. *Scientific Reports*, 11, 21804, DOI: [10.1038/s41598-021-00861-y](https://doi.org/10.1038/s41598-021-00861-y).
10. **Kuschnig, N.** (2021). Inadequate methods undermine a study of malaria, deforestation and trade. *Nature Communications*, 12, 3762, DOI: [10.1038/s41467-021-22514-4](https://doi.org/10.1038/s41467-021-22514-4).
11. Bruckner, M., Wood, R., Moran, D., **Kuschnig, N.**, Wieland, H., Maus, V., and Börner, J. (2019). FABIO – The construction of the food and agriculture biomass input-output model. *Environmental Science & Technology*, 53(19):11302–11312, DOI: [10.1021/acs.est.9b03554](https://doi.org/10.1021/acs.est.9b03554).

Working papers

- **Kuschnig, N.**, Zens, G., and Crespo Cuaresma, J. (2023): Hidden in plain sight: Influential sets in linear regression. *CESifo Working Paper*, 8981; revised manuscript under review.
- **Kuschnig, N.** and Girard, V.: Making mining footprints governable. *Manuscript under review*.
- **Kuschnig, N.** and Vashold, L.: Man eats forest – Impacts of cattle ranching on Amazon deforestation. *Manuscript nearing submission*.
- **Kuschnig, N.**: Networks in space – Spillovers in Amazon deforestation.

Work in progress

- Konrad, L. D., **Kuschnig, N.**, and Zhu, D.: Most influential periods – Inference and identification under contaminated episodes.
- Konrad, L. D. and **Kuschnig, N.**: Inference for population sensitivity – Influence in linear models.
- **Kuschnig, N.** and Nibbering, D.: Non-linear aggregation in network regressors.

Other publications

- **Kuschnig, N.** and Vashold, L. (2023). The economic impacts of malaria: Past, present, and future. In: *Planetary health approaches to understand and control vector-borne diseases*. Brill, DOI: [10.3920/9789004688650_008](https://doi.org/10.3920/9789004688650_008).
- Kramer, M., Kind-Rieper, T., Munayer, R., Giljum, S., Masselink, R., van Ackern, P., Maus, V., Luckeneder, S., **Kuschnig, N.**, Costa, F., and Rüttinger, L. (2023). Extracted Forests: Unearthing the role of mining-related deforestation as a driver of global deforestation. *WWF Report*, [Link](#).

Research Funding and Project Leadership

- **CEPR ReCIPE: Dynamine** (2026–2028)
Co-principal investigator with V. Girard and L. Vashold; total award: GBP 100,000.
Joint responsibility for research direction and delivery; management of project funds at Monash.
- **OeNB Anniversary Fund: Layers** (2022–2025)
Co-principal investigator with S. Giljum; total award: EUR 233,000.
Developed the project and led a team of doctoral researchers and research assistants.
- **Monash ECA Research Grant** (2026)
Principal investigator; AUD 10,000.
- **Hochschuljubiläumsfonds Wien** (2024)
Co-principal investigator with L. Vashold; EUR 10,000.
- **WU Small Project Grants** (2020, 2022, 2024)
Principal investigator; three awards of approximately EUR 5,000 each.

Awards and fellowships

- **Stephan Koren Prize**, dissertation award (2025)

- *WU International Research Fellowship*, travel (2022, 2023)
- *ÖFG Internationale Kommunikation*, travel (2023)
- *NOeG Dissertation Fellowship*, fellowship (2022)
- *Heinrich Graf Hardegg Stiftung*, fellowship (2022)
- *Nowotny Mobility Grant*, travel (2020, 2022, 2024)

Teaching and Supervision

At Monash and WU Vienna, my teaching responsibilities have included course coordination, principal lecturing, and assessment design. At WU, I designed units in Econometrics 2, Spatial Economics, and Bayesian Econometrics.

- **Statistical Foundations of Business Analytics** (M.Sc. & B.Sc.), Monash (chief examiner) (26S1, 27S1)
- **Case Studies in Applied Econometrics** (M.Sc.), Monash (chief examiner) (26S2)
- **Spatial Economics** (M.Sc.), WU Vienna (lecturer) (S24, S25)
- **Advanced Macroeconometrics** (M.Sc.), WU Vienna (lecturer) (S22, S23)
- **Macroeconomics** (B.Sc.), WU Vienna (lecturer) (W23)
- **Econometrics 2** (B.Sc.), WU Vienna (lecturer) (W20, W21, W22)
- **Econometrics 2** (M.A.), Central European University (teaching assistant) (S22)
- **Applied Econometrics** (B.Sc.), WU Vienna (lecturer) (S21)

Research Supervision

- **Ongoing PhD supervision:** *E. Rueda-Ramirez* and *Y. Zhou*.
- **Ongoing Honours supervision:** *S. Li*.
- *A. Phan* (2025): Estimating retail fuel prices in Central Europe from station-level streams. (M.Sc.)
- *M. Heinze* (2024): Does mining activity make food insecurity worse? (M.Sc.)
Now a PhD student at WU Vienna.
- *G. Pirich* (2024): From mines to minds: The impact of artisanal gold mining on human capital formation. (M.Sc.)
Recipient of a WU Vienna award for best Master's thesis; now a PhD student at the University of Zürich.
- *E. Fidrmuc* (2024): Influential periods in macroeconomic data. (M.Sc.)
Now a PhD student at the Central European University.
- *M. Heinze* (2022): The forest be mine: The impact of mines on deforestation. (B.Sc.)
Recipient of a WU Vienna award for best Bachelor's thesis.
- *T. Bürscher* (2022): Change of land use in the Brazilian Legal Amazon. (M.Sc.)
- *M. Muraier* (2021): The impacts of Amazon deforestation on human health. (B.Sc.)
Recipient of the EUR 1,000 climate research prize awarded by 'Europaplattform'.

Professional Activities

Invited talks and seminars

- '26 **University of Melbourne**, seminar (AUS); **Deakin University**, seminar (AUS); **GeoField/FAO**, invited talk (ITA); **WU Ecological Economics**, seminar (AUT); **UNSW**, seminar (AUS); **Melbourne Energy Institute**, seminar (AUS);
- '25 **SoDa Labs**, invited talk (AUS);
- '23 **Stanford GSB**, invited talk (USA); **UC Berkeley**, seminar (USA); **University of Victoria**, seminar (CAN); **Johns Hopkins Carey Business School**, seminar (USA);
- '22 **Ecosta 2022**, invited talk (online); **Nagoya University**, invited workshop (online); **WU Economics**, seminar (AUT);
- ≤ '21 **WU Economics**, seminar (AUT); **WU Ecological Economics**, seminar (AUT); **IIASA**, seminar (AUT);

Conference and workshop presentations

- '26 **ESAM** 2026, Econometric Society (AUS); **AMES** 2026, Econometric Society (VNM); **WCERE** 2026, Environmental and Resource Economics (PRT); **IAAE** 2026, Applied Econometrics (PRT); **AARES** 2026, Agricultural and Resource Economics (AUS);
- '25 **ESWC** 2025, Econometric Society (KOR); **ESOB** 2025, Bayesian Econometrics (AUS); **UEA** 2025, Urban Economics Association (DEU); **MPSS**, Workshop (AUS); **NOeG**, Workshop (AUT); **MEEW**, Workshop (AUS);
- '24 **LACEA-LAMES** 2024, Econometric Society (URY); **SEAM** 2024, Slovak Economic Association (SVK); **EEA-ESEM** 2024, European Economic Association (NLD); **EAERE** 2024, Environmental and Resource Economics (BEL); **IAAE** 2024, Applied Econometrics (GRC); **GDE** 2024, German Economic Association (DEU); **RES** 2024, Royal Economic Society (GBR); **WIFO**, Workshop (AUT); **CEU**, Workshop (AUT);
- '23 **MEG** 2023, Midwest Econometrics Group (USA); **AMES** 2023, Econometric Society (SGP); **IAAE** 2023, Applied Econometrics (NOR); **BaYSM** 2023, Bayesian Young Statisticians Meeting (online); **ERSA** 2023, Regional Science Association (ESP); **University of Vienna**, Workshop (AUT); **WU Economics**, Department Conference (SVK); **NOeG**, Workshop (AUT);
- '22 **EEA-ESEM** 2022, European Economic Association (ITA); **ISBA** 2022, Bayesian Analysis (CAN); **BaYSM** 2022, Bayesian Young Statisticians Meeting (CAN); **user!** 2022, R User Conference (online);
- ≤ '21 **BaYSM** 2021, Young Statisticians Meeting (online); **CEU**, Workshop (AUT); **NOeG**, Workshop (AUT); **user!** 2020, R User Conference (online); 13th **ISIE-SEM**, Society for Industrial Ecology (DEU);

Open science and research infrastructure

- **Software development and maintenance:** Developer and maintainer of **BVAR** for Bayesian vector autoregression; **bsreg** for Bayesian spatial regression; **influence** for sensitivity analysis using influential sets; and **sanic** for solving systems of linear equations. All are free and open-source. BVAR has more than 80,000 downloads, with documented applications including work by the OeNB, the Federal Reserve Bank of Chicago, the Bank of Mongolia, the Armenian Ministry of Finance, and Banca d'Italia.
- **Research & community infrastructure:** Developer and maintainer of the **Layers Mining Map**, an interactive resource for exploring changes in mining footprints; developer and maintainer of **Melbourne Economics**, a platform bringing together seminars and events across institutions in and near Melbourne. Major contributor to the food-and-agriculture biomass input-output (FABIO) **code** and **database**.

Academic service

- **Referee:** *Journal of Development Economics*, *Journal of Applied Econometrics*, *Journal of Environmental Economics and Management*, *Nature Geoscience*, *Nature Sustainability*, *Nature Ecology & Evolution*, *Nature Communications*, *Communications Earth & Environment*, *Global Environmental Change*, *Conservation Biology*, *Land Use Policy*, *Journal of Statistical Software*, *The R Journal*, *Journal of Spatial Econometrics*, *Spatial Economic Analysis*, *Spatial Statistics*, *Computational Statistics*, *Journal of the Royal Statistical Society: Series C*, *iScience*, *Annals of the New York Academy of Sciences*, *Empirical Economics*, *Empirica*.
- **Evaluation:** Grant evaluator for the *French National Research Agency* (ANR); conference review for the *Spring Meeting of Young Economists* (SMYE); review for the *Summer of Math Exposition* (SoME).
- **Academic community & representation:** Organised two reading groups with invited speakers; served as a representative of non-professorial academic staff (Mittelbau) in the WU Department of Economics.
- **Research communication & policy outreach:** Research on mining, deforestation, and environmental impacts cited or discussed in media and policy reports, including VoxDev <voxddev.org>, Mongabay <mongabay.com>, the European Commission <europa.eu> and its Joint Research Centre <europa.eu>, IUCN <iucn.org>, Rainforest Foundation Norway <regnskog.no>, and the Asian Development Bank <adb.org>.

Skills

- **Languages:** German (native), English (proficient), Italian (intermediate), Spanish (basic)
- **Programming:** R, C++, Python, Bash, Rust, Matlab, C, VBA
- **Computing:** Linux, Git, Slurm, Docker/Podman, (Q)GIS, SQL (PostgreSQL, DuckDB), $\LaTeX$

References

Available upon request.