Monica Alexander

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Academic Appointments

University of Toronto
Assistant Professor, Statistical Sciences and Sociology   July 2018 – *current*
(Maternity leave: April 2019 – December 2019, June 2021 – December 2021)

Professional Appointments

Lead statistical consultant
UN Interagency Group
on Stateless Populations Estimation   January 2021 – *current*

Fellow
Institute for Clinical Evaluative Sciences   January 2019 – *current*

Lead statistical consultant
World Health Organization Group
on Estimation of Causes of Maternal Mortality   January 2019 – December 2020

Education

Ph.D (Demography), **University of California, Berkeley**, 2018.

   Dissertation title: Bayesian Methods for Mortality Estimation.

   Committee: Josh Goldstein (chair); Ken Wachter; Dennis Feehan; Jas Sekhon.

M.Arts (Statistics), **University of California, Berkeley**, 2015.

M.Social Research (Demography), **Australian National University**, 2013.

B.Science (First Class Honors) (Maths and Chemistry), **University of Tasmania**, 2008.

Papers

Peer-reviewed articles

Alexander, M., and Alkema, L., 'A Bayesian cohort component projection model to estimate adult populations at the subnational level in data-sparse settings', https://arxiv.org/abs/2102.06121. (Accepted, *Demography*).

Susmann, H., **Alexander, M.**, and Alkema, L.. 'Temporal models for demographic and global health outcomes in multiple populations: Introducing a new framework to review and standardize documentation of model assumptions and facilitate model comparison'. *International Statistical Review*, 2022. https://doi.org/10.1111/insr.12491.

Alexander, M., and Root, L., 'Competing effects on the average age of infant death'. *Demography*, 2022. https://doi.org/10.1215/00703370-9779784.

Kiang MV, Tsai AC, **Alexander, M.,** Rehkopf DH, Basu S. 'Racial/Ethnic Disparities in Opioid-Related Mortality in the USA, 1999–2019: the Extreme Case of Washington DC.' *Journal of Urban Health,* 2021. Published online 2021:1-7. doi: 10.1007/s11524-021-00573-8

Wilson, T., Grossman, I., **Alexander, M.,** Rees, P., and Temple, J. 'Methods for small area population forecasts: state-of-the-art and research needs', *Population Research and Policy Review*, 2021. https://doi.org/10.1007/s11113-021-09671-6.

Kiang MV, Chen JT, Krieger N, Buckee CO, **Alexander, M.,** Baker JT, Buckner RL, Coombs III G, Rich-Edwards JW, Carlson KW, and Onnela J-P. 'Sociodemographic characteristics of missing data in digital phenotyping'. *Scientific Reports.* 2021;11(1):15408.

Alexander, M., Polimis, K., and Zagheni, E., 'Combining social media and survey data to nowcast migrant stocks in the United States', *Population Research and Policy Review*, 2020. https://doi.org/10.1007/s11113-020-09599-3.

Alexander, M., Polimis, K., and Zagheni, E., 'The impact of Hurricane Maria on out-migration from Puerto Rico: Evidence from Facebook data', *Population and Development Review*, 2019, 45(3): 617-630.

Hug, L., **Alexander, M.,** You, D., and Alkema, L. 'National, regional, and global levels and trends in neonatal mortality between 1990 and 2017, with scenario-based projections to 2030: a systematic analysis by the United Nations Inter-agency Group for Child Mortality Estimation', *Lancet Global Health*, 2019, 7(6): 710–720.

Kiang, M.V., Basu S., Chen J., and **Alexander, M.** 'Assessment of Changes in the Geographical Distribution of Opioid-Related Mortality Across the United States by Opioid Type, 1999-2016'. *JAMA Network Open.* 2019, 2(2):e190040.

Gemmill, A., Kiang, M.V., and **Alexander, M.** 'Trends in pregnancy-associated mortality involving opioids in the United States, 2007–2016', *American Journal of Obstetrics and Gynecology*, 2019, 220(1): 115–116.

Alexander, M., Kiang, M.V., and Barbieri M., 'Trends in Black and White Opioid Mortality in the United States, 1979–2015', *Epidemiology*, 2018, 29(5): 707–715.

Alexander, M., and Alkema, L., 'Global Estimation of Neonatal Mortality using a Bayesian Hierarchical Splines Regression Model', *Demographic Research*, 2018, 38(15): 335–372.

Alexander, M., Zagheni, E., and Barbieri, M., 'A Flexible Bayesian Model for Estimating Subnational Mortality', *Demography*, 2017, 54(6): 2025–2041.

Howlett, M., Gray, M., and Hunter, B., 'Wages, government payments and other income of Indigenous and non-Indigenous Australians', *Australian Journal of Labour Economics*, 2016, 19(2): 53–76.

Hunter, B., **Howlett, M.,** and Gray, M., 'The Economic Impact of the Mining Boom on Indigenous and Non-Indigenous Australians', *Asia & the Pacific Policy Studies*, 2015, 2(3): 517–530.

Gray, M., **Howlett, M.,** and Hunter, B., 'Labour Market Outcomes for Indigenous Australians', *The Economic and Labour Relations Review,* 2014, 25(3): 497–517.

Biddle, N., **Howlett, M.,** Hunter, B., and Paradies, Y., 'Labour Market and Other Discrimination Facing Indigenous Australians', *Australian Journal of Labour Economics*, 2013, 16(1): 91–113.

Book chapters

Alexander, M. 'Using social media advertising data to estimate migration trends over time'. In *Big Data Applications in Geography and Planning*. Edward Elgar Publishing. 2021.

Other published papers

Hunter, B., **Howlett, M.,** and Biddle, N., 'Modelling Exposure to Risk of Experiencing Discrimination in the Context of Endogenous Ethnic Identification', *IZA Discussion Paper #8040*, March 2014.

Gray, M., Hunter, B., and **Howlett, M.,** 'Indigenous Employment: A Story of Continuing Growth', *CAEPR Topical Issue 2/2013,* Australian National University, Canberra.

Current working papers

Maheu-Giroux, M, Sardinha, L, Stöckl, H, Meyer, S, Godin, A, **Alexander, M.,** and García-Moreno, C. 'A framework to model global, regional, and national estimates of intimate partner violence'. `https://www.medrxiv.org/content/10.1101/2020.11.19.20235101v1`.

Alexander, R., and **Alexander, M.** 'The Increased Effect of Elections and Changing Prime Ministers on Topics Discussed in the Australian Federal Parliament between 1901 and 2018'. `https://arxiv.org/abs/2111.09299`.

Alexander, M., Chong, M.Y.C., and Pejcinovska, M. 'Estimating causes of maternal death in data-sparse contexts'. `https://arxiv.org/abs/2101.05240`.

Alexander, M., and Goldstein, J., 'Deaths without denominators: using a matched dataset to study mortality patterns in the United States', `https://osf.io/preprints/socarxiv/q79ye/`.

Grants awarded

Principal Investigator:

School of Cities, University of Toronto 2021-2022
Urban Challenge Grant
Disparities in climate-induced health outcomes in the Greater Toronto Area. (co-PI)
CAD $75,000

Data Sciences Institute 2021-2022
Data Access Grant
To purchase data for research on disparities in climate-induced health outcomes in the Greater Toronto Area. (co-PI)
CAD $10,000

Social Sciences and Humanities Research Council 2019–2022
Insight Development Grant
Using Facebook data to measure and understand international migration patterns in Canada
CAD $59,000

University of Toronto Connaught New Researcher Award 2019–2021
CAD $18,900

Partner Investigator:

Australian Research Council 2019–2022
Discovery Project Grant
Developing Robust Small Area Population Forecasts for Planning and Policy

Teaching

University of Toronto
Applied Statistics II (graduate, statistics)   Winter Semester, 2020, 2021, 2022
Demographic Methods (graduate, statistics)   Winter Semester, 2019
Materials: `https://github.com/MJAlexander/demographic-methods`
Intermediate data analysis (graduate, sociology)   Winter Semester, 2021, 2022
Intermediate quantitative methods (undergraduate, sociology)   Fall Semester, 2020

University of California, Berkeley
Instructor, Formal Demography Workshop   June, 2017
Instructor, Formal Demography Workshop   August, 2015
Graduate Student Instructor, Demographic Methods   Fall Semester, 2014

Other
Designed and taught workshop on non-traditional data sources in demography   April 2022
Materials: `https://mjalexander.github.io/demopop-workshop/`
Designed and taught workshop on social media in demographic research   April 2021
Materials: `https://mjalexander.github.io/social_media_workshop/`

Conference presentations and invited talks

2022

Competing effects on the average age of infant death: reconsidering the approximation of 1a0
Cedeplar Seminar series, *UFMG* (June)

Jointly estimating subnational mortality for multiple populations
Stellar Stats Workshop, *University of Toronto* (May)

Future Projections of State-Level Foster Care Populations in the United States
PAA Annual Meeting (April)

Reproducibility in Demography
Toronto Workshop on Reproducibility, *University of Toronto* (February)

Bayesian models and reconclining incomplete demographic data
Demography Seminar, *University of Wisconsin Madison* (February)

2021

The future of data-driven demographic research (Panel member)
MPIDR 25th Anniversary (October)

A Bayesian cohort component projection model for estimating subnational populations
Demography Seminar Series, *Australian National University* (May)
CPC Seminar Series, *University of Southampton* (April)

Pop Center Brown Bag, *Florida State University* (February)
STAB Working Group, *University of Washington* (February)

Overcoming barriers to sharing code
Toronto Workshop on Reproducibility, *University of Toronto* (February)

Using social media data to estimate migration
Mathematics and Statistics Seminar, *Maynooth University* (February)

2020

Future Projections of State-Level Foster Care Populations in the United States
APPAM Annual Meeting, *Virtual meeting* (November)

Bayesian hierarchical models in demographic research
CERSI seminar series, *Yale University* (November)

Using social media data to estimate migration
Toronto Data Workshop (December)
Berkeley Formal Demography Workshop (June)
NEST seminar series, *Western University* (March)

2019

Reproducibility in demographic research
MPIDR Open Science Workshop, Rostock, Germany (October)

Combining social media data and traditional surveys to predict migration stocks
MPIDR-IUSSP Workshop on Migration Data and Models for a Better World: Perspectives from Academia, Data Science, and International Organizations, at ASA 2019: New York, NY (August)
Cornell Population Center, *Cornell University* (February)

2018

Combining social media data and traditional surveys to predict migration stocks
European Symposium in Computational Social Science: Cologne, Germany (December)
School of Geography, *University of Queensland* (November)
Institute for the Study of Social Change, *University of Tasmania* (October)
Symposium of Digital Demography: Rostock, Germany (October)
Center for Population Dynamics, *McGill University* (September)
European Population Conference: Brussels, Belgium (June)

Estimating subnational populations of women of reproductive age
International Society for Bayesian Analysis World Meeting: Edinburgh, Scotland (June)
European Population Conference: Brussels, Belgium (June)
Max Planck Institute for Demographic Research (May)
PAA Annual Meeting: Denver, CO (April)
Institute of Disease Modeling Symposium: Seattle, WA (April)

The spatial distribution of opioid mortality by race in the United States
European Population Conference: Brussels, Belgium (June)

Software

Author, `rcbayes`, R package to estimate and visualize Rogers-Castro migration schedules in Bayesian framework.
`https://cran.uib.no/web/packages/rcbayes/`

Contributor, *DemoTools*. R package for demographic analysis.
`https://timriffe.github.io/DemoTools/`

Professional Experience

World Health Organization
Consultant   September 2016 – June 2017

Data Science for Social Good
Fellow   May 2016 – September 2016

Human Mortality Database
Graduate Student Researcher   January 2015 – May 2016

UNICEF Technical Advisory Group
Consultant   March 2014 – July 2015

The Centre for Aboriginal Economic Policy Research
Research Officer   April 2012 – December 2014

Reserve Bank of Australia
Analyst/Senior Analyst   February 2010 – June 2013

Honors

Max Planck Sabbatical Award   2022-2023

Doctoral Completion Fellowship (*UC Berkeley*)   2017-2018

Elizabeth Scott Memorial Award (*UC Berkeley*)   2015
Statistics MA student showing the most promise in statistical research.

Regents-Intern Fellowship (*UC Berkeley*)   2013-2015

Lado Ruzicka Prize in Social Research (*Australian National University*)   2013
Awarded to the most outstanding Master of Social Research candidate.

W.D. Borrie Prize (*National essay competition, Masters category*)   2012
For best student paper on a population-related topic.

University Medal (*University of Tasmania*)   2008
One of three awarded to the most outstanding Science and Technology undergraduates.

Edith Rita Lowenstern Prize (*University of Tasmania*)   2008
Awarded to the most outstanding mathematics honors student.

Service

Editorial and refereeing

Associate Editor: Demographic Research

Editorial Board: Canadian Studies in Population

Reviewer: *Australian Journal of Labour Economics; Annals of Applied Statistics; Demography; Demographic Research; Epidemiology; European Journal of Population; Genus; Population and Development Review; Population Research and Policy Review; Proceedings of the National Academy of Sciences.*

University

Executive Council: University of Toronto Centre for Methodological Innovation and Training in the Social Sciences

Panel Member: *International Union of Scientific Study of Populations panel on Digital Demography.*

Team Member: *Consortium on Analytics for Data-Driven Decision-Making (CAnD3).*

Community and other

Co-founder and organizer: Formal Demography Working Group. `https://formaldemography.github.io/working_group/`

Founder and Organizer: *R-Ladies Toronto.* This community-led group aims to promote gender diversity in the R community in Toronto. Our community is designed to develop our members' R skills and knowledge through social, collaborative learning and sharing.

Women in Demography: Maintain a list of active scholars: `https://www.monicaalexander.com/women_scholars/`