

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:

Data Sciences Institute 2021-2022

Data Access Grant

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/
 Instructor, Introduction to Causal Inference, ITAM March, 2017
 Instructor, IUSSP Workshop on social media data and demography August, 2016

Conference presentations and invited talks

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 (<i>UC Berkeley</i>)	2017-2018
Elizabeth Scott Memorial Award (<i>UC Berkeley</i>)	2015
Statistics MA student showing the most promise in statistical research.	
Regents-Intern Fellowship (<i>UC Berkeley</i>)	2013-2015
Lado Ruzicka Prize in Social Research (<i>Australian National University</i>)	2013
Awarded to the most outstanding Master of Social Research candidate.	
W.D. Borrie Prize (<i>National essay competition, Masters category</i>)	2012
For best student paper on a population-related topic.	
University Medal (<i>University of Tasmania</i>)	2008
One of three awarded to the most outstanding Science and Technology undergraduates.	
Edith Rita Lowenstern Prize (<i>University of Tasmania</i>)	2008
Awarded to the most outstanding mathematics honors student.	

Service

Editorial Board: Canadian Studies in Population

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

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

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

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

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.

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.*