

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 Root, L., ‘Competing effects on the average age of infant death’. <https://osf.io/preprints/socarxiv/z4qg9/>. (Accepted, *Demography*).

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

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>.

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

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’. <https://arxiv.org/abs/2102.10020>.

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/>.

Wilson, T., Grossman, I., **Alexander, M.**, Rees, P., and Temple, J. ‘Methods for small area population forecasts: state-of-the-art and research needs’, <https://osf.io/preprints/socarxiv/sp6me/>.

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>.

Chung, P.H., and **Alexander, M.**, ‘Kin Dependency Ratios: An Extension and Application of the Goodman Method for Estimating the Availability of Kin’, <https://p-chung.com/paa/2019/abstract/>.

Grants awarded

Principal Investigator:

Social Sciences and Humanities Research Council	2019–2022
Insight Development Grant	
<i>Using Facebook data to measure and understand international migration patterns in Canada</i>	
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	
<i>Developing Robust Small Area Population Forecasts for Planning and Policy</i>	

Professional Experience

World Health Organization	
<i>Consultant</i>	September 2016 – June 2017

Data Science for Social Good	
<i>Fellow</i>	May 2016 – September 2016

Human Mortality Database <i>Graduate Student Researcher</i>	January 2015 – May 2016
UNICEF Technical Advisory Group <i>Consultant</i>	March 2014 – July 2015
The Centre for Aboriginal Economic Policy Research <i>Research Officer</i>	April 2012 – December 2014
Reserve Bank of Australia <i>Analyst/Senior Analyst</i>	February 2010 – June 2013

Teaching

University of Toronto

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

University of California, Berkeley

<i>Instructor</i> , Formal Demography Workshop	June, 2017
<i>Instructor</i> , Formal Demography Workshop	August, 2015
<i>Graduate Student Instructor</i> , Demographic Methods	Fall Semester, 2014

Other

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

Conference presentations and invited talks

2021

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)

2017

Modeling and understanding mortality disparities

School of Demography, *Australian National University* (December)
 Department of Statistics, *University of Toronto* (December)
 Department of Sociology, *University of Washington, Seattle* (November)

Temporal smoothers for use in demographic estimation

IUSSP: Cape Town, South Africa (October)
 Statistics working group, *University of Massachusetts, Amherst* (February)

Opioid-related deaths by race in the United States: trends and patterns in multiple causes of death

PAA Annual Meeting: Chicago, IL (April).

Honors

Doctoral Completion Fellowship (*UC Berkeley*)

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

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.*