

# Monica Alexander

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## Academic Appointments

### **University of Toronto**

*Assistant Professor*, Statistical Sciences and Sociology  
(Maternity leave: April 2019 – December 2019)

July 2018 – *current*

## Professional Appointments

*Lead technical advisor*

### **World Health Organization Group**

**on Estimation of Causes of Maternal Mortality**

January 2019 – *current*

*Fellow*

### **Institute for Clinical Evaluative Sciences**

January 2019 – *current*

*Member*

### **Technical Advisory Group to the World Health Organization**

**on Violence Against Women (Estimation and Data)**

January 2018 – *current*

## 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.**, Polimis, K., and Zagheni, E., ‘Combining social media and survey data to nowcast migrant stocks in the United States’, *Population Research and Policy Review*, accepted. Preprint: <https://arxiv.org/abs/2003.02895>.

**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.

#### *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 and manuscripts in progress*

**Alexander, M.**, ‘Temporal smoothers for use in demographic estimation and projection.’, [https://www.monicaalexander.com/pdf/temporal\\_smoothing.pdf](https://www.monicaalexander.com/pdf/temporal_smoothing.pdf).

**Alexander, M.**, and Goldstein, J., ‘Deaths without denominators: using a matched dataset to study mortality patterns in the United States’, [https://www.monicaalexander.com/pdf/bayesian\\_censoc.pdf](https://www.monicaalexander.com/pdf/bayesian_censoc.pdf).

**Alexander, M.**, and Alkema, L., ‘A Bayesian hierarchical model for estimating subnational female populations in developing countries’, [https://www.monicaalexander.com/pdf/bayesian\\_kenya.pdf](https://www.monicaalexander.com/pdf/bayesian_kenya.pdf).

**Alexander, M.**, and Alexander, R., ‘The Effect of Events on Discussion in the Australian Federal Parliament (1901-2017)’, abstract: [https://rohanalexander.com/pdf/2018-10-22-first\\_page.pdf](https://rohanalexander.com/pdf/2018-10-22-first_page.pdf).

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

**Social Sciences and Humanities Research Council** 2019–2021  
**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** 2019–2020  
 CAD \$18,900

## 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

## Teaching

**University of Toronto**  
 Applied Statistics II (graduate) Winter Semester, 2020  
*Materials:* <https://github.com/MJAlexander/applied-stats>  
 Demographic Methods (graduate) Winter Semester, 2019  
*Materials:* <https://github.com/MJAlexander/demographic-methods>

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

## Conference presentations and invited talks

### 2020

#### ***Using social media data to estimate migration***

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).

## 2016

***A flexible Bayesian model for estimating subnational mortality***Statistics working group, *University of Massachusetts, Amherst* (November)

European Population Conference: Mainz, Germany (August)

PAA Annual Meeting: Washington, DC (April)

Demography brown bag, *University of California, Berkeley* (March)

## 2015

***Global estimation of neonatal mortality***

UNICEF Inter-agency Group on Mortality Estimation (March, April and May)

PAA Annual Meeting: San Diego, CA (April)

## Honors

**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

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