

**CANADIAN HUMAN RIGHTS TRIBUNAL**

**BETWEEN:**

**FIRST NATIONS CHILD AND FAMILY CARING SOCIETY OF CANADA and  
ASSEMBLY OF FIRST NATIONS**

**Complainants**

**-and-**

**CANADIAN HUMAN RIGHTS COMMISSION**

**Commission**

**-and-**

**ATTORNEY GENERAL OF CANADA  
(representing the Minister of Indigenous and Northern Affairs Canada)**

**Respondent**

**-and-**

**CHIEFS OF ONTARIO, AMNESTY INTERNATIONAL, and NISHNAWBE ASKI  
NATION**

**Interested Parties**

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**AFFIDAVIT OF DR. MARTIN COOKE**

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**FALCONERS LLP**  
Barristers-at-Law  
10 Alcorn Avenue, Suite 204  
Toronto, Ontario M4V 3A9

Tel.: (416) 964-0495  
Fax: (416) 929-8179  
Email: julianf@falconers.ca  
mollyc@falconers.ca

Julian N. Falconer (L.S.O. No. 29465R)  
Molly Churchill (L.S.O. No. 72510P)

Lawyers for the Interested Party, Nishnawbe  
Aski Nation (NAN)

**TO: CANADIAN HUMAN RIGHTS TRIBUNAL**  
Attn: Judy Dubois, Registry Officer  
160 Elgin Street, 11th Floor  
Ottawa, ON K1A 1J4

**AND TO: Robert Frater, Jonathan Tarlton, Patricia MacPhee, Kelly Peck, Max Binnie & Meg Jones**  
Justice Canada  
Civil Litigation Section, Ste. 500  
50 O'Connor St.  
Ottawa, ON K1A 0H8  
Tel: 613-952-1228  
Fax: 613-954-1920

Counsel for the Respondent, the Attorney General of Canada

**AND TO: David P. Taylor**  
Conway Baxter Wilson LLP/s.r.l.  
400-411 Roosevelt Avenue  
Ottawa, ON K2A 3X9  
Tel: 613-691-0368  
Fax: 613-688-0271

**Sarah Clarke**  
Clarke Child & Family Law  
36 Toronto Street, Suite 950  
Toronto, ON M5C 2C5  
Tel: 416-260-3030  
Fax: 647-689-3286

**Barbara McIsaac**  
Barbara McIsaac Law

**Anne Levesque**  
Levesque Equality Law

Co-Counsel for the Complainant,  
First Nations Child and Family Caring Society of Canada

**AND TO: Stuart Wuttke**  
Assembly of First Nations  
55 Metcalfe Street, Suite 1600  
Ottawa, ON K1P 6L5  
Tel: 613-241-6789  
Fax: 613-241-5808

**David Nahwegahbow & Thomas Milne**  
Nahwegahbow Corbiere  
5884 Rama Road, Suite 109  
Rama, ON L3V 6H6

Co-Counsel for the Complainant, Assembly of First Nations

**AND TO: Brian Smith & Jessica Walsh**  
Litigation Services Division  
Canadian Human Rights Commission  
344 Slater Street, 9th Floor  
Ottawa, ON K1A 1E1  
Tel: 613-947-6399  
Fax: 613-943-3089

Counsel for the Canadian Human Rights Commission

**AND TO: Maggie Wente & Sinead Dearman**  
Olthuis, Kleer, Townshend LLP  
250 University Avenue, 8th floor  
Toronto, ON M5H 3E5  
Tel: 416-981-9330  
Fax: 416-981-9350

Counsel for the Interested Party, the Chiefs of Ontario

**AND TO: Justin Safayeni & Ben Kates**  
Stockwoods LLP Barristers  
TD North Tower  
77 King Street West, Suite 4130  
P.O. Box 140  
Toronto-Dominion Centre  
Toronto, Ontario M5K 1H1  
Tel.: 416-593-7200  
Fax: 416-593-9345

Counsel for the Interested Party, Amnesty International

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NATION**

**Interested Parties**

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**AFFIDAVIT OF DR. MARTIN COOKE**

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**I, DR. MARTIN COOKE**, of the City of Waterloo, in the Regional Municipality of Waterloo, in the Province of Ontario, **MAKE OATH AND SAY:**

1. I was hired by Nishnawbe Aski Nation (“NAN”) in agreement with Indigenous Services Canada (“ISC”) to conduct an independent peer review of the quantitative data modeling and analysis in *Phase II of the Remoteness Quotient Research Project (“RQ Project”) Final Report* (“the Final RQ Report”). As such, I have knowledge of the facts herein deposed by

- me.
2. I have been asked to prepare this affidavit in support of a motion by NAN concerning the RQ work. This affidavit explains the work I conducted as a third party reviewer of the Final RQ Report.
  3. I am an Associate Professor in the Department of Sociology and School of Public Health and Health Systems at the University of Waterloo. I obtained a doctorate in sociology in 2005 from the University of Western Ontario. I subsequently worked as a Postdoctoral Researcher at the University of Cambridge, prior to accepting a position as Associate Professor at the University of Waterloo. I have been working as an Associate Professor at the University of Waterloo since 2005. Attached as **Exhibit "A"** to this my affidavit is a copy of my curriculum vitae.
  4. My expertise is in health, social inequality and social policy, including the measurement of health and well-being of Indigenous peoples. My research often involves application of quantitative data analysis to better understand factors affecting social inequality and various measures of well-being. My teaching focuses on social aspects of health, social demography, and quantitative research methods. When I supervise doctoral or master's students, I often encourage them to undertake projects involving quantitative data analysis.
  5. I also provide social consulting services for governments, not-for-profits and enterprises, where my focus is on local and municipal population projections, survey and questionnaire design, focus group and qualitative interviews, and identification and analysis of social, demographic and health data. I have provided consultancy services to federal government departments including Indigenous Services Canada ("ISC"), to First Nations, and to political organizations.

### Engagement by NAN

6. In early November 2018, I was contacted by an ISC employee who inquired whether I would be okay with ISC sharing my contact information with legal counsel for NAN. The ISC employee explained that NAN's legal counsel might contact me about conducting a review of work performed by experts who had been hired to undertake work about remoteness costs in the provision of child and family services. It was explained to me that this was part of a project ISC was working with NAN on. I indicated I would be happy to be contacted.
7. On November 7, 2018, I was contacted by Molly Churchill of Falconers LLP, legal counsel for NAN. Ms. Churchill explained NAN was looking to hire a third-party reviewer to review the work of experts who had been hired by a committee on remoteness composed of representatives from NAN and representatives from ISC. She explained that the experts (Dr. Tom Wilson and the Barnes Management Group) had been tasked with developing a remoteness coefficient that could be applied to child and family services funding for agencies to determine the amount of additional funding that would be required to account for remoteness to enable an agency to provide the same standard of service in a remote community when compared to non-remote communities in Ontario. I indicated I would be interested in doing this work.
8. By November 9, 2018, the terms of my engagement by NAN were finalized. I was to review the Phase II RQ Report and provide an assessment of whether the experts had accomplished what was set out in their Engagement Letter in a credible way. My review was to focus on the statistical and methodological aspects of the work. In particular, the review was to address the following questions:
  - Is the remoteness coefficient well-justified, in terms of traditional measures of

reliability and validity?

- Are the data used to construct the remoteness coefficient and related remoteness quotient appropriate, and the best currently available?
- Are the techniques used to develop the measures appropriate?
- Are the measures well suited to the particular context for which they are proposed, accounting for remoteness in the cost of provision of child and family services in Ontario?

Review of November 17, 2018

9. My first review of the Phase II RQ Report is dated November 17, 2018, and a true copy is attached as **Exhibit “B”** to this affidavit. I thought the experts had come up with a smart approach to calculating remoteness costs, but I had some questions and concerns about the work.
10. The experts’ approach to arriving at the Remoteness Quotient is as follows:
- i. For 43 agencies in the province, an average unit cost for service is calculated. This is done using costs and caseloads for 20 service categories and weighting them by their proportion of each agency’s total costs.
  - ii. For each agency, a ratio of these actual unit costs to a “reference point” is calculated. The reference point is the unit cost for 10 non-remote agencies serving catchment areas with high Aboriginal populations. For each agency, the cost categories are combined by weighting according to the proportion of an agency’s service in each category. The ratio of these weighted average unit costs to the reference point unit costs is the Cost Ratio (CR).
  - iii. Using a regression model and data from all 43 agencies, the relationship between (log)CR and Remoteness Index among these agencies is estimated.
  - iv. An agency-specific Remoteness Coefficient (“RC”) is calculated by applying the

remoteness parameter from the regression model to each agency's remoteness score.

- v. Agency-specific RCs are rescaled to produce a Remoteness Quotient (RQ) such that the sum of the RCs for agencies in the province sum to 100.

11. I found that the overall approach, which is to model the relationship between remoteness and excess costs, and then use this information to calculate the agency-specific Remoteness Coefficient, was sensible and sound. I also found that the data used were appropriate. I nonetheless had questions and concerns about four aspects of the experts' calculation. I recommended that more details about rationales for methodological decisions should be provided, along with evidence of how the decisions affect the remoteness coefficient and remoteness quotient measures.
12. After reading my review, NAN's legal counsel asked whether I would be willing to meet with the experts to discuss my assessment. I agreed to do this.

#### Meeting with the Experts: December 17, 2018

13. On December 17, 2018, I met with experts Dr. Tom Wilson, Paul Jacobson, David Stiff, and Dino Radocchia at the Toronto office of Falconers LLP. Molly Churchill was present to make introductions and take notes.
14. The meeting lasted about 90 minutes. We went through the concerns I had raised in my first review and the experts explained how they proposed to address the concerns. By the end of the meeting, I was satisfied that the experts' proposed actions would address the concerns I had raised in my November 17<sup>th</sup> review.

#### Review of January 30, 2018

15. Following our December meeting, the experts revised the Phase II Final RQ Report.



Falconers LLP provided me with a revised report dated January 10, 2019. My review of this report is dated January 30, 2019. A true copy of my January 30, 2019 assessment is attached as **Exhibit "C"** to this my affidavit.

16. I found that the revised report had a number of improvements, including better justification of some of the methodological choices. This improved confidence in the estimates of the effects of remoteness on costs, and on the Remoteness Quotients produced for the three NAN agencies. I noted, however, that the justification of how the Cost Ratios were calculated still needed better explanation.

#### Review of February 22, 2019

17. On February 20, 2019, Falconers LLP provided me with a further revised report from the experts. My review of this further revised report is dated February 22, 2019. A true copy of my review of February 22, 2019, is attached as **Exhibit "D"** to this my affidavit.
18. The February 20, 2019, Phase II Final RQ Report addressed the concerns I had previously raised. I was satisfied with the justification provided for the methodological choices made in calculating the Remoteness Coefficient and Remoteness Quotient. I had no further recommendations for changes to the Phase II Final RQ Report.

#### Confirmation of Regression Calculations

19. After receiving my review of February 22, 2019, counsel for NAN asked that I produce one further review. They explained that they wanted to ensure due diligence and have the data used by the experts plugged into the regression models to ensure accuracy of the numbers arrived at by the experts.
20. My report outlining my regression calculations was dated March 10, 2019. A true copy of it

is attached as **Exhibit “E”** to this my affidavit. I used the experts’ data, provided to me by NAN’s legal counsel, and re-estimated the regression models with that data, using different software from the software used by the experts. The fit of the models and the estimate and variability of the remoteness coefficient parameters were identical. There were small differences in other parameters likely due to typographical errors or differences in coding; the small differences did not affect the interpretation of the remoteness coefficient parameter. In sum, I had confidence in the accuracy of the models presented in the Phase II Final RQ report.

### Conclusion

21. The experts developed a smart approach to calculating remoteness-related costs of delivering child and family services in Ontario using appropriate available data. While early versions of their Phase II Final RQ Report did not adequately justify methodological choices made, their report of February 20, 2019, does. The justifications give me confidence in the methods developed by the experts. Finally, my own calculations using the experts’ model led me to have confidence in the accuracy of the models presented in the report of February 20, 2019.
22. I make this affidavit for the purposes of NAN’s submissions on its motion regarding the RQ work, and for no other or improper purpose.

AFFIRMED BEFORE ME this )  
28<sup>th</sup> day of November, 2019 )  
 in the City of Waterloo )  
 in the Province of Ontario. )  
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*N Singh*  
 A Commissioner etc.

**NADIA SINGH**

*M Cooke*  
 Dr. Martin Cooke

This is Exhibit "A" referred to in the  
Affidavit of Dr. Martin Cooke sworn  
before me, on this 28<sup>th</sup> day of November 2019.  
In the City of Waterloo, in the Province of Ontario



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A Commissioner for taking affidavits, etc.

NADIA SINGH

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## Martin James Cooke PhD

519-679-4210

[cooke@uwaterloo.ca](mailto:cooke@uwaterloo.ca)

### Education

Degree	University	Field	Date
PhD	University of Western Ontario	Sociology	2005
MA	University of Western Ontario	Sociology	1999
BAHons	University of Winnipeg	Sociology	1997
BA	University of Winnipeg	Administrative Studies	1994

### Employment History

Date	Position and Organization
2011-present	Associate Professor, Department of Sociology and School of Public Health and Health Systems, University of Waterloo.
2010-11	Associate Professor, Departments of Sociology and Legal Studies & Health Studies and Gerontology, University of Waterloo.
2005-10	Assistant Professor, University of Waterloo. Jointly appointed in the Sociology Department and Department of Health Studies and Gerontology.
2005	Postdoctoral Researcher, Workforce Ageing in the New Economy project at the Cambridge Interdisciplinary Research Centre on Ageing, University of Cambridge.
2005	Adjunct Professor, Department of Sociology, University of Western Ontario
2002	Sessional Instructor, Department of Sociology, University of Western Ontario
1998-99	Junior Research Officer, Strategic Research Directorate, Indian Affairs and Northern Development Canada

### Academic Awards and Distinctions

2015, 2018	Outstanding Performance Award, University of Waterloo Faculty of Arts
2014	Canadian Sociological Association, Angus Reid Applied Sociology Award
2013	Outstanding Performance Award, University of Waterloo Faculty of Arts
2005	Ellen Nilson Award University of Western Ontario Department of Sociology, for outstanding graduate student
2005	SSHRC Postdoctoral Fellowship (Declined)
2001-04	SSHRC Doctoral Fellowship
2001	Ontario Graduate Scholarship (Declined)
2000	Canadian Policy Research Awards Graduate Prize (Government of Canada)
1999	Ellen Nilson Award (University of Western Ontario Department of Sociology)
1997-2001	Special University Scholarship (University of Western Ontario)

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| 1997 | Canadian Association of Broadcasters/Bureau of Broadcast Measurement Scholarship for quantitative methods |
| 1997 | Katherine Oakes Memorial Scholarship (University of Winnipeg)   |

### Scholarly and Professional Activities

#### University Service

- |                 |   |
|-----------------|---|
| 2019            | School of Pharmacy Director Nominating Committee (Provost's rep)              |
| 2015-18         | Policy 33 on Ethical Conduct Drafting Committee (President's rep)             |
| 2015            | Tenure and Promotions Committee, Renison University College                   |
| 2014-16         | Role of the Principal Investigator Working Group                              |
| 2013-17         | Co-Director, University of Waterloo Survey Research Centre                    |
| 2012-18         | Research Data Centre Management and Regional Coordinating Committees          |
| 2011-12         | Advisory Committee, UW DIRECTIONS Aboriginal youth outreach Program           |
| 2007-10         | University Advisory Committee on Distance Education                           |
| 2012 (Sept-Jan) | Faculty of Environment Promotion and Tenure Committee (VPA and Provost's Rep) |
| 2010-12         | PhD Chair pool  |

#### Departmental Service

- |            |  |
|------------|--|
| 2019-      | Chair Nomination Committee (Sociology and Legal Studies)                                     |
| 2018-19    | School Tenure and Promotions Committee (SPHHS)   |
| 2015-18    | Associate Chair for Graduate Programs (Sociology and Legal Studies)                          |
| 2015-18    | Departmental Advisory Committee on Appointments (Sociology and Legal Studies)                |
| 2015       | Chair Nomination Committee (Sociology and Legal Studies)                                     |
| 2016, 2018 | Departmental Tenure and Promotion Committee (Sociology and Legal Studies)                    |
| 2016-17    | Departmental Annual Performance Review Committee (Sociology and Legal Studies)               |
| 2015-16    | School Annual Performance Review Committee (SPHHS)   |
| 2013-17    | Professional Graduate Program Committee, (SPHHS)   |
| 2011-12    | Co-Op Officer (Sociology)  |
| 2011-12    | Graduate Affairs Committee (Sociology and Legal Studies)                                     |
| 2011-12    | MPH Program Committee (SPHHS)  |
| 2011       | Departmental Appointments Advisory Committee (Sociology)                                     |
| 2010-11    | Departmental Appointments Advisory Committee (Sociology)                                     |
| 2010-11    | Departmental Appointments Advisory Committee (HSG)   |
| 2010       | Departmental Chair Search Committee (Sociology)  |
| 2009-10    | Graduate Affairs Committee (Sociology)   |
| 2009       | Departmental Chair Search Committee (Sociology)  |
| 2008-11    | MPH Program Committee (Health Studies and Gerontology)                                       |
| 2008       | Departmental Colloquium Co-organizer (Sociology)   |
| 2005-08    | Graduate Affairs Committee (Sociology)   |
| 2007-08    | Steering Committee for Collaborative PhD in Work and Health (Health Studies and Gerontology) |
| 2005-17    | MPH Admissions Committee (Health Studies and Gerontology/SPHHS)                              |

#### Faculty Service

- |         |   |
|---------|---|
| 2019-   | Associate Dean, Undergraduate Students, Faculty of Arts           |
| 2016-17 | Member, Department of Anthropology Promotion and Tenure Committee |
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2016	External member, Political Science Chair Nominating Committee
2015-16	Renison University College Tenure and Promotion Committee
2013-current	Co-Director, University of Waterloo Survey Research Centre
2012 (to Jan)	Committee on Student Appeals (AHS)
2012-current	Chronic Disease Prevention University Centre of Excellence steering committee
2011-16	Arts representative to AHS Faculty Council
2007-16	AHS representative to Arts Faculty Council
2009	Graduate Studies Admission System (GAP) Working Group (AHS)

#### Other Professional Activities

2018-	Councilor, Canadian Population Society
2017-18	Executive member, Network of Schools and Programs of Population and Public Health.
2009-18	Editorial Board Member, <i>International Indigenous Policy Journal</i>
2016	Workshop organizer, session chair, annual conference of the Canadian Research Data Centre Network
2015	Session organizer and chair, annual meetings of the Canadian Sociology Association.
2012	Local Area Coordinator, Canadian Population Society annual meetings at Congress of Humanities and Social Sciences, Waterloo.
2012	Co-organizer, Symposium on Measuring Well-Being at the Congress of Humanities and Social Sciences, Waterloo.
2010	Chair, provincial Ontario Graduate Scholarship (OGS) panel.
2009-10	Advisory Committee Member, Native Women's Association of Canada Elder Abuse project.
2008-10	Member, International Indigenous Foundation on Biodiversity Working Group on Indicators.
2008-10	Organizer of <i>Symposium on Advanced Analytical Methods</i> at the 2009 Congress of Social Sciences and Humanities.
2007-08	Organizing Committee, annual scientific and educational meetings Canadian Association on Gerontology (2008) and session chair (2007).
2008	Session organizer and chair, annual meetings of the Canadian Population Society.
2007	Round-table submission to federal Expert Panel on Older Workers, September.
2006-07	Canadian Population Society (Councilor, International Committee Member)
2005-06	Editor, <i>CPS News</i> , the newsletter of the Canadian Population Society
2004-05	Organizing Committee for Federation of Canadian Demographers 2005 Conference on Longitudinal Data.

#### *Current Memberships*

Canadian Public Health Association  
 Canadian Sociology Association  
 Canadian Population Society  
 Aboriginal Policy Research Consortium (International), University of Western Ontario

#### **Publications**

Journal Articles [N=44] (supervised trainee lead authors in bold)

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- Cooke, M. and Penney, C. (in press). Indigenous migration in Canada, 2006–2011. *Canadian Studies in Population*.
- Fernandez, H., Cooke, M. and Patel, T. (2019). Epilepsy and lifestyle behaviours related to bone health. *Epilepsia*. 1-8. <https://doi.org/10.1111/epi.16351>
- Laxer, R. E., Dubin, J. A., Brownson, R. C., Cooke, M., Chaurasia, A. and Leatherdale, S. T. (2019), Noncomprehensive and Intermittent Obesity-Related School Programs and Policies May Not Work: Evidence from the COMPASS Study. *J School Health*, 89: 818-828. doi:10.1111/josh.12820
- Sikorski C.**, Leatherdale S., and Cooke M. (2019) Tobacco, alcohol and marijuana use among Indigenous youth attending off-reserve schools in Canada: cross-sectional results from the Canadian Student Tobacco, Alcohol and Drugs Survey. Consommation de tabac, d'alcool et de cannabis chez les jeunes autochtones qui fréquentent des écoles hors réserve au Canada : résultats transversaux de l'Enquête canadienne sur le tabac, l'alcool et les drogues chez les élèves. *Health Promotion and Chronic Disease Prevention in Canada*. 39(6-7):207–215. doi:10.24095/hpcdp.39.6/7.01
- Romano, I.**, Cooke, M. and Wilk, P. (2019). Factors affecting initiation and duration of breastfeeding among off-reserve Indigenous children in Canada: Findings from the Aboriginal Peoples Survey. *International Indigenous Policy Journal*. 10(1). <https://ir.lib.uwo.ca/iipj/vol10/iss1/5>. DOI: 10.18584/iipj.2019.10.1.5.
- Wilk, P., Maltby, A., Cooke, M. and Forsyth, J. (2019). The effect of parental residential school attendance and parental involvement on Indigenous youth's participation in sport and physical activity during school. *International Journal of Indigenous Health*. 14 (2): 133-149. DOI: 10.32799/ijih.v14i2.31929
- Leung, A., Law, J., Cooke, M., and Leatherdale, S. (2019). Exploring and visualizing the small-area level socio-economic factors, alcohol availability and built environment influences of alcohol expenditure for the City of Toronto: A Spatial Analysis Approach. *Health Promotion and Chronic Disease Prevention in Canada*. 39 (1): 15-24. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6350844/>
- Cooke, M. (2018). Implications of Global Peak Population for Canada's future: Northern, rural and remote communities. *Canadian Studies in Population* 45:1–2: 55–61. <https://journals.library.ualberta.ca/csp/index.php/csp/article/view/29375/21406>.
- Wilk, P. Maltby, A., Cooke, M. and Forsyth, J. (2018). Correlates of Participation in Sports and Physical Activities among Indigenous Youth. *Aboriginal Policy Studies*. 7(1). <https://journals.library.ualberta.ca/aps/index.php/aps/issue/view/1941>.
- Laxer, R.E., Cooke, M., Dubin, J.A., Brownson, R.C., Chaurasia, A. and Leatherdale, S.T., (2018). Behavioural patterns only predict concurrent BMI status and not BMI trajectories in a sample of youth in Ontario, Canada. *PLOS ONE*, <https://doi.org/10.1371/journal.pone.0190405>.
- Laxer, R.E., Brownson, R.C., Dubin, J.A., Cooke, M., Chaurasia, A. and Leatherdale, S.T., (2017). Clustering of risk-related modifiable behaviours and their association with overweight and obesity among a large sample of youth in the COMPASS study. *BMC Public Health*, 17(1), p.102. <https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-017-4034-0>
- Ryan, C.**, Cooke, M. Leatherdale, S., Kirkpatrick, S. and Wilk, P (2017) The Correlates of Physical Activity among Adult Métis. *Ethnicity and Health*. <http://www.tandfonline.com/doi/abs/10.1080/13557858.2017.1294655>.
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- Wilk, P., Maltby, A and Cooke, M. (2017). Residential Schools and the Effects on Indigenous Health and Well-Being in Canada - A Scoping Review. *Public Health Reviews* 38 (8). DOI: 10.1186/s40985-017-0055-6.
- Wilk, P. A Maltby and Cooke, M. (2017) Changing BMI Scores among Indigenous and Non-Indigenous Children, Youth and Young Adults: Untangling Age, period and Cohort Effects. *Canadian Studies in Population*. 44 (1-2): 28-41.
- Cooke, M., Waite, N., Cook, K., Milne, E., Chang, F., McCarthy, L., Sproule, B. (2017) Incorporating sex, gender and vulnerable populations in a large multisite health research program: The Ontario Pharmacy Research Collaboration as a Case Study. *Health Research Policy and Systems* 1 (20). DOI: 10.1186/s12961-017-0182-z
- Bhawra, J., Cooke, M., Guo, Y. and Wilk, P. (2017). The effects of household food security, household characteristics and school environment on obesity status among off-reserve First Nations and Métis children in Canada: results from the 2012 Aboriginal Peoples Survey. *Health Promotion and Chronic Disease prevention in Canada*. 37 (3). 77-86.**
- McCarthy, L., Milne, E., Waite, N., Cooke, M., Cook, K., Chang, F., Sproule, B. (2017). Sex and Gender-Based Analysis in Pharmacy Practice Research: A Scoping Review. *Research in Social and Administrative Pharmacy*. DOI: <http://dx.doi.org/10.1016/j.sapharm.2016.11.007>
- Ryan, C. J., Leatherdale, S. T., Cooke, M. (2017) A cross-sectional examination of the correlates of current smoking among off-reserve First Nations and Métis adults: evidence from the 2012 Aboriginal Peoples Survey. *Addictive Behaviours* 54 74-81. <https://doi.org/10.1007/s10935-016-0456-1> (First online 22 November 2016).**
- Ryan, C., Leatherdale, S., Cooke, M. (2016). Factors Associated with Current Smoking Among Off-Reserve First Nations and Métis Youth Results from the 2012 Aboriginal Peoples Survey. *Journal of Primary Prevention*. 1-15. DOI: 10.1007/s10935-016-0456-1.**
- Ryan, C.J., Cooke, M. and Leatherdale, S. T. (2016). Factors associated with heavy drinking among First Nations and Métis youth and adults: evidence from the 2012 Aboriginal Peoples Survey. *Preventive Medicine* 87: 95-102**
- Bhawra, J., Cooke, M.J., Hanning, R., Wilk, P. & Gonneville, S.L.H. (2015). Community perspectives on food insecurity and obesity: Focus groups with caregivers of Métis and Off-reserve First Nations children. *International Journal for Equity in Health* 14:96 DOI 10.1186/s12939-015-0232-5**
- Ryan, C. J. Cooke, M. J., Leatherdale, S., T. Kirkpatrick, S. I. and Wilk, P. (2015). The correlates of current smoking among adult Métis: Evidence from the Aboriginal Peoples Survey and Métis Supplement. *Canadian Journal of Public Health*. 106(5) 271-276.**
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- Prorok, J., Stolee, P., Lee, L., McAiney, C., & Cooke, M. (2015). Evaluation of a dementia education program for family medicine residents. *Canadian Geriatrics Journal*. 18 (3) 57-64 DOI:<http://dx.doi.org/10.5770/cgj.18.148>
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- Clatworthy, S. J. with M. Cooke, 1999. *Patterns of Registered Indian Migration between On- and Off-Reserve Locations: 1986-1996*. Report for the Research and Analysis Directorate of Indian and Northern Affairs Canada.

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Norris, M.J., M. Cooke, and S. J. Clatworthy. 2003. "The Mobility and Migration Patterns of Registered and Non-status Indians, Métis and Inuit in Canada: Similarities and Contrasts". in White, J. D. Beavon, and P. Maxim, eds. *Aboriginal Conditions*, (pp. 108-135). Vancouver: UBC Press [refereed].

### Papers Presented

#### Presentations to Professional Meetings

- Al Sabbagh, W. Chang, F., Cooke, M. and Elliott, S.J. 2019 (October 24). "Temporal patterns in case-fatality, mortality and readmissions of all opioid-related hospitalizations in Canada. A population longitudinal study from 2000 to 2012". Oral presentation at the *Canadian Society of Addiction Medicine Annual Conference*. Halifax NS.
- Pan, A., Fontaine, M-M., Rybczynski, K. and Cooke, M. 2019 (October 25). "Family, Work and Income Trajectories of Women Immigrants in Canada". Oral presentation at the *Canadian Research Data Centres Network annual conference*, Halifax NS.
- Khan T, Cooke M. 2019 (June 24). "Self-Rated Mental Health of Immigrants to Canada: Economic and Social Characteristics". Poster presentation at the *International Metropolis Conference 2019: The Promise of Migration, Inclusion, Economic Growth and Global Cooperation*, Ottawa, ON.
- Khan T, Cooke M, Naeem F. 2019 (April 30). "Anxiety and Mood Disorders among Immigrants to Canada: Sociodemographic, Socioeconomic, and Immigration Characteristics". Oral presentation at the *Canadian Public Health Association 2019 Conference*, Ottawa, ON.
- Amoud, R., Grindrod, K., Cooke, M., Alsabbagh, M. W. 2018 (October 23). "The Impact of Prescription Medication Cost Coverage on Optimal Adherence to Hypertension and Diabetes Medications: A Repeated Cross-Sectional Population-Based Study". Poster presentation at the *Canadian Association for Population Therapeutics Conference*, Toronto.
- Khan, T. and Cooke, M. 2018 (October 18). "Anxiety and Mood Disorders Among Recent Canadian Immigrants: Sociodemographic, Socioeconomic, and Immigration Characteristics". Poster presentation at the *Canadian Research Data Centres Network annual conference*, Hamilton.
- Guo, Y. Leatherdale, S., Kirkpatrick, S. and Cooke, M. (October 18) "Risk factors for Type 2 diabetes among Métis and First Nations living off-reserve: evidence from the 2012 Aboriginal Peoples Survey". Poster presentation at the *Canadian Research Data Centres Network annual conference*, Hamilton.
- Thompson-Hailie, A., Cooke M. 2018. (May 31) "The Canadian Student Tobacco Alcohol and Drugs Survey: making use of a national data set". Oral presentation at the *2018 Tobacco Control Forum*. Montréal, QC.
- Romano, I. Zummach, D., Douglas, O., Russell, S., Cooke, M., Wilk, P. 2018 (May 24–26). "An evaluation of the Healthy Weights Connection: A mixed-methods case study in Midland-Penetanguishene" Poster presentation at the *Toronto Indigenous Health Conference*, Toronto, ON.
- Wilk P, Cooke M, Maltby A, Singh S. 2017 (November 14). "Spatial Variations in Hospitalization Rates for Cardiometabolic Ambulatory Care Sensitive Conditions across Canada." *Canadian Research Data Centre Network*, Montreal, QC.

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- Wilk P, Cooke M, Maltby A. 2017 (November 14). "Exploring the Relationship between Residential School Attendance and Obesity: The Potential Mediating Role of Psychological Distress." *Canadian Research Data Centre Network*, Montreal, QC
- Cooke, M. and Penney, C. 2017 (June 1). "Migration of Indigenous peoples in Canada, 2006-2011". Oral presentation at the *Canadian Population Society annual meetings*. Toronto, ON.
- McCarthy, L., Milne, E., Waite, N., Cooke, M., Cook, K., Chang, F., & Sproule, B. "Sex and Gender Based Analysis in Pharmacy Practice Research." Poster presentation at the *Canadian Pharmacists Association Conference*. Quebec City, QC, Canada. May 26, 2017.
- Wilk, P and Cooke, M. Correlates of participation in organized sports and physical activity among Indigenous youth. *Canadian Research Data Centre Annual Conference*. Saskatoon, Sk. Nov. 1, 2016,
- Douglas, O., Zummach, D., Wilk, P., Cooke, M., Shields, T., Hill, J., and Russell, S. Attitudes toward collaboration among agencies serving urban First Nations and Métis Children and Families 6<sup>th</sup> *Conference on Recent Advances and in the Prevention and Treatment of Childhood and Adolescent Obesity*. Ottawa. Oct 25, 2016.
- Wilk, P., Cooke, M., Douglas, O., Zummach, D., Shields, T., Hill, J.L. and Russell, S. Attitudes toward collaboration among agencies serving urban First Nations and Métis Children and Families. Oral presentation at the *Canadian Public Health Association Annual Meetings*. Toronto, June 15.
- Cooke, M. and Waite, N. The consideration of sex/gender and vulnerable populations in pharmacy practice research. Oral presentation at the *Canadian Pharmacists Association annual meeting*. Calgary, June 26.
- Romano, I., Cooke, M. and Wilk, P. Factors affecting breastfeeding of indigenous children in Canada. Poster presentation at the *2016 Indigenous Health Conference*. May 26–27, Toronto.
- Cooke, M. The Healthy Weights Connection: A systems approach to reducing risk of obesity among urban First Nations and Métis children and youth. Oral Presentation at the *CIHR Sparking Solutions* conference. April 26. Ottawa.
- Waite, N., M. Cooke, E. Milne, K. Cook, F. Chang, L. McCarthy, and B. Sproule. 2016. Sex/Gender and Vulnerable Populations in OPEN Research. Presented at the *2016 OPEN Summit*, Toronto, ON, Canada.
- Waite, N., L. Wenger, M. Cooke, K. Grindrod, B. Jennings, L. MacKeigan, S. Marshall, B. Sproule, L. Dolovich, and E. Milne. 2016. Understanding the Value of Collaborations in Health Services. Poster presented at the *2016 OPEN Summit*, Toronto, ON, Canada.
- MacKeigan L, Waite N, Wenger L, Cooke M, Grindrod K, Jennings B, Sproule B, Marshall S, Dolovich L. 2015. Understanding the value of collaboration in health services research. Poster presented at the 75th FIP World Congress of Pharmacy and Pharmaceutical Sciences. Dusseldorf, Germany, Sep 29–Oct 3.
- Cooke, M., Wilk, P., Shields, T., Zummach, D., & Corvalia-Douglas, O., 2015. The Healthy Weights Connection: A public health system intervention to improve Aboriginal child health. Paper presented at the 6<sup>th</sup> International Meeting on Indigenous Child Health Ottawa, March 20.
- Bigelow, P, Crizzle, AM, Myers, A, McCrory, C, Gooderham, S, Cooke, M Ritchie, J, Thiffault, P. 2015. Health and Wellness of Commercial Motor Vehicle Drivers in Canada. Paper presented at the Canadian Society of Epidemiology and Biostatistics Annual Meeting. June 1.
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- Wilk, P. and M. Cooke. 2015. Age-Period-Cohort Analysis on Obesity Rates Among Off-Reserve Aboriginal Children and Youth. Paper presented at the Federation of Canadian Demographers Biennial conference, Ottawa June 4.
- C. Towns, M. Cooke, L. Rysdale, P. Wilk. 2015. Healthy Weights Interventions in Aboriginal Children and Youth. Paper presented at the Canadian Public Health Association Annual Meetings, Vancouver, May 26.
- Wilk, P. and Cooke, M. 2015. Intergenerational Effects of Residential Schooling on Health: Evidence from the Aboriginal Peoples Survey. Paper presented at the Canadian Research Data Centres Network annual meeting, Toronto, November. 6.
- Wilk, P. Cooke, M., Shields, T. and Zummach, D. 2014. "Healthy Weights Connection (HWC): A Public Health Systems Intervention to Improve Aboriginal Child Health." Poster presented at 5<sup>th</sup> Conference on Recent Advances in the prevention and maintenance of Childhood and Adolescent Obesity. Winnipeg. Sept 23-26.
- Wilk, P. and Cooke, M. 2014. "Changing Obesity Rates Among Off-Reserve Aboriginal Children and Youth: Untangling Age, Period and Cohort Effects". Poster presented at 5<sup>th</sup> Conference on Recent Advances in the prevention and maintenance of Childhood and Adolescent Obesity. Winnipeg. Sept 23-26.
- Cooke, M., Russell, S. and Wilk, P 2014. Innovative Approaches to Mapping Local Public Health Systems Serving Aboriginal Peoples. Canadian Public Health Association Annual meeting. Toronto, May 29.
- Bhawra, J., Cooke, M. and Wilk, P. 2013. The Impact of Food Insecurity and Diet Quality on Obesity Status Among Métis and Off-Reserve First Nations and Children. Canadian Public Health Association annual meeting, Ottawa. June 12.
- Bhawra, J., Cooke, M. 2013. "The impact of food insecurity on diet quality and obesity status among off-reserve First Nations and Métis children." presentation at the Canadian Obesity Summit, Vancouver, May 2. Abstract published *Can J Diabetes*, 37(S2), S233.
- Bhawra, J., Cooke, M and Wilk, P. 2012. Impacts of Food Insecurity on Fruit & Vegetable Consumption and Obesity among Métis and First Nations Children. Poster presentation to the Canadian Obesity Network Annual Student Meeting, Edmonton, June 20.
- Towns, C., Rysdale, L., Cooke, M. and Wilk, P. 2012. Identifying Effective Healthy Weights Interventions in Aboriginal Children and Youth: A systematic literature review. Poster presented to the Northern Health Research Conference, Thunder Bay, May 10-11.
- Cooke, M., O'Sullivan, E., Guimond, E. and Van Wyck, L. 2012. The Effects of Migration on First Nations and Inuit Community Well-Being Index. Paper presented at the Biennial conference of the International Council for Canadian Studies, Ottawa, May 23.
- Cooke, M., Wilk, P., Morrow, T. 2011. "Healthy Weights Forum: Working together to promote the health of First Nations and Métis Children in our communities". Paper presented at the Registered Dietitians of Canada Aboriginal Nutrition Network Conference. Toronto, December 6.
- Costello, M.J., Cooke, M. and Curtis, L. 2011. "Can Fruit and Vegetable Subsidies Help to Reduce Socioeconomic Inequalities in Diet-related Behaviours and Chronic Disease in Canada? A Systematic Review" Presentation at the Canadian Public Health Association Annual Meeting, Montreal, June 2.
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- Wilk, P. And Cooke, M. 2010. "Effects of Breastfeeding and Maternal Smoking During Pregnancy on Body Mass Index Trajectories Among Young Children in Canada." Conference on Recent Advances in the Prevention and Treatment of Childhood & Adolescent Obesity: Families in Focus, Hamilton ON, October.
- Cooke, M. and Wilk. P. 2010. "Risk of Obesity among First Nations, Métis and Inuit Children Living Off-Reserve." Poster Presentation at the Canadian Paediatric Society annual meeting, Vancouver BC, June, 2010.
- Mehdiphanah, R. and Cooke, M. 2010. "A Contextual Approach to Better Understanding the Health of Indigenous Populations Living in Toronto." Poster Presented at the 20<sup>th</sup> IUHPE World Conference on Health Promotion. Geneva, May 11-15, 2010.
- Wilk, P. And Cooke, M. 2010. "Body Mass Index Trajectories among Aboriginal Children in Canada." Paper Presented at the Canadian Public Health Association meetings, Toronto ON, June 14, 2010.
- Cooke, M. and Wilk. P. 2010. "Risk of Obesity among First Nations, Métis and Inuit Children Living Off-Reserve." Poster Presentation at the Canadian Public Health Association meetings, Toronto ON, June, 2010.
- Prorok, J., Stolee, P., Lee, L., McAiney, C., & Cooke, M. 2010. "Evaluation of a dementia education program." Poster Presented at the Canadian Geriatrics Society annual meetings, Hamilton ON, April, 2010.
- Cooke, M. and Newcombe-Welch, P. 2009. "Disabled Off-Reserve Aboriginal Adults: Aging and Unmet Needs for Assistive Devices." Paper presented Research Data Centre Network Conference on Health over the Life Course, London ON, October, 2009.
- Cooke, M. 2009. "Changing Human Development in First Nations Populations, 1981-2006: 2006 Revisions to the Registered Indian Human Development Index" paper presented at the 3<sup>rd</sup> Triennial Aboriginal Policy Research Conference, Ottawa, March, 2009.
- Cooke, M. 2008. "Taking a Life Course Perspective on Aboriginal Policy Research" Paper presented at the annual meetings of the Population, Work and Family Consortium (PWFC), Gatineau, December, 2008. [Also presented at the 3<sup>rd</sup> Triennial Aboriginal Policy Research Conference, Ottawa, March, 2009).
- Cumming, S., Cooke, M. and Caragata, L. 2008. "Women's Resources and Exits form Social Assistance" Paper Presented at the Annual meetings of the Population Work, and Family Consortium, Gatineau QC, December, 2008.
- Cooke, M. and Guimond, E., 2008. "Life Course Determinants of Health and Income among Older Registered Indians" Paper presented at the Canadian Association on Gerontology annual educational and scientific meetings, Calgary AB, October, 2008.
- Cooke, M. and Platman K. 2008. "Labour market transitions of IT workers in Canada and the UK" Presented at the annual meetings of the Society for the Advancement of Socio-Economics. San Jose, Costa Rica, July, 2008. [also presented at the 2007 annual meeting of the Population, Work and Family Collaboration (PWFC), Ottawa ON, December, 2007].
- Cooke, M. and Guimond, E., 2007. "Changes in Registered Indian Well-Being at Older and Younger Ages, 1981-2010". Paper presented at the annual meeting of the Population, Work, and Family Collaboration (PWFC), Ottawa ON, December, 2007.
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- Cooke, M. 2007. "Older Aboriginal Peoples and the Life Course". Paper presented at the Canadian Association on Gerontology annual educational and scientific meetings, Calgary AB, November, 2007.
- Cooke, M. 2007. "Aboriginal Inequality in Life Course Perspective". Paper presented to the Canadian Ethnic Studies Association, Winnipeg MB, September, 2007.
- Cooke, M. and Guimond, E. 2007. "The Changing Well-being of Older Registered Indians: An Application of the Registered Indian Human Development Index". Paper presented to the annual meeting of the Canadian Population Association, Saskatoon SK, June, 2007.
- Cooke, M. 2006. "Gender Inequality and Well-Being". Paper Presented at the Second Triennial Aboriginal Policy Research Conference, Ottawa ON, March, 2006.
- McMullin, J., Cooke, M., and Tomchick, T. 2006. "Work and Retirement in Canada: policies and prospects". Paper Presented at the Roundtable on Aging and Public Policy at the annual meetings of the Canadian Sociology and Anthropology Association, Toronto ON, May, 2006.
- Cooke, M. 2006 "A Welfare Trap? Social Assistance, Unobserved Heterogeneity, and the Life Course". Poster presented at the annual meeting of the Canadian Population Society, Toronto ON, June, 2006. [Also presented at the Policy Research Initiative Population, Work, and Family Consortium meetings, Gatineau QC, December]
- Cooke, M., McMullin, J. and Lehman, W. 2006. "Job Disruptions of Older Canadian Workers in the 1990s". Paper presented at the Canadian Association on Gerontology annual meetings, Quebec City QC, November, 2006.
- Gaudet, S. and Cooke, M. 2006 "The Timing of Women's Transition to Work after Childbirth: Changes and implications for social participation". Paper presented at the Policy Research Initiative Population, Work, and Family Consortium meetings, Gatineau QC, December, 2006.
- Cooke, M. 2005. "Population Ageing and Retirement Policies in Six Countries" Paper Presented at the Canadian Population Society annual meeting, London ON, June 2-4, 2005.
- Cooke, M. 2005. "Trajectories through Lone Motherhood, Social Assistance, and Work" Paper Presented at the annual meeting of the Canadian Anthropology and Sociology Association. London ON, May 31-June 3, 2005.
- Cooke, M. 2005. "Work, Social Assistance, and Lone Motherhood" Paper Presented at the meeting of the Statistics Canada Research Data Centre Network, Montreal QC, May 19-20, 2005.
- Cooke, M. 2005. "Lone Mothers, Social Assistance, and the Life Course" Paper presented at the British Sociological Association annual meeting, York, United Kingdom, March 21-23.
- Cooke, M., D. Beavon, and E. Guimond, 2004. "Measuring the Well-Being of Aboriginal People Internationally" Paper presented at the International Conference on Health Promotion and Health Education, Melbourne, Australia, April 27-30, 2004.
- Cooke, M., 2003. "Population and Labour Force Ageing in Six Countries: Themes, Controversies, and Challenges" Paper presented at the Canadian Association on Gerontology annual meeting, Toronto ON, October 30-31.
- McMullin, J. and M. Cooke, 2003. "Workforce Aging: An examination of the age composition of occupations and industries in Canada" Paper presented at the European Sociological Association Meetings, Murcia, Spain, September 24-27, 2003.
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- Cooke, M. and D. Bélanger, 2003. "First Nations Mobility on the Prairies: Understanding Migration Decisions" Paper presented at the Canadian Population Society annual Meeting, Halifax NS, June 1-4, 2003.
- Cooke, M. and D. Bélanger, 2003. "First Nations Mobility on the Prairies: Understanding Migration Decisions" Poster presented at the Population Association of America annual Meeting, Minneapolis MN, May 1-4, 2003.
- Agocs, C., R. Attieh, and M. Cooke, 2001. "Agents of Change? A Study of Equity Practitioners in Canadian Universities". Paper presented at the annual meeting of the American Sociological Association, Invitational Special Session on Hate and Hate-Bias at Colleges and Universities, Anaheim CA, August 19, 2001.
- Beavon, D and M. Cooke, 2001. "Measuring the Well-Being of Aboriginal Peoples Internationally". Paper Presented at the annual meeting of the Canadian Population Society, Quebec City QC, May 27-29, 2001.
- Norris, M.J., D. Beavon, E. Guimond, and M. Cooke, 2001. "Migration and Residential Mobility of Canada's Aboriginal Groups: An Analysis of Census Data" Paper Presented at the annual meeting of the Canadian Population Society, Quebec City QC, May 27-29, 2001.
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- Beavon, D. and M. Cooke, 2001. "An Application of the United Nation's Human Development Index to Canadian Aboriginal Peoples". Paper Presented at the annual meeting of the McGill Graduate Student Association for the Study of Canada. Montreal QC, March 8-9, 2001.
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- Agocs, C., R. Attieh, and M. Cooke, 2000. "Equity Practitioners in Canadian Universities: A Study of Organizational Change Agents' Roles". Paper presented at the annual meeting of the Society for the Study of Social Problems, Washington D.C., August 11-13, 2000.
- Norris, M. J., D. J. K. Beavon, E. Guimond, and M. Cooke, 2000. "Migration and Residential Mobility of Canada's Aboriginal Groups: An Analysis of Census Data". Poster presentation at the annual meeting of the Population Association of America, Los Angeles CA, March 23-25, 2000.
- Clatworthy, S. J. and M. Cooke, 1999. "Factors Influencing the Migration of Registered Indians between On- and Off-Reserve Locations in Canada, 1986-1991". Paper presented at the annual meeting of the Canadian Population Society, Lennoxville QC, June 9-11, 1999.

**Published Abstracts and Protocols**

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- Hosseini, S., Chaurasia, A., Cooke, M., & Oremus, M. (2016). Effect of religious involvement on cognition from a life-course perspective: protocol for a systematic review and meta-analysis. *BMJ Open*, 6(9), e011301.
- Chang, F., Cook, K., Cooke, M., McCarthy, L., Sproule, B., Waite, N. (2014). Developing and implementing more inclusive demographic survey questions. *Canadian Pharmacists Journal*, 147(4):S1-S60.
- Bhawra, J. & Cooke, M. (2013). The impact of food security on Diet Quality and Obesity Status among Off-Reserve Rist Nations and Métis Children. *Canadian Journal of Diabetes* 37(Supp:2): S233.
- Prorok, J., Stolee, P., Lee, L., McAiney, C., & Cooke, M. (2010). Evaluation of a dementia education program. *Canadian Geriatric Journal*, 13(1), 40-41.
- Cooke, M. & Wilk, P. (2010). Risk Factors for Obesity among Off-Reserve Aboriginal children in Canada. *Paediatric Child Health* 15 (Suppl A): 55A.
- Wilk, O., Sangster Bouk, M. & Cooke, M (2010). Effects of Breastfeeding and Maternal Smoking during Pregnancy on Body Mass Index (BMI) trajectories among Children in Canada. *Paediatric Child Health* 15 (Suppl A): 55A.

#### Invited Presentations, Panel presentations and Lectures

- Cooke, M. (2018). Charting the course for the next 100 years of data collection and analysis related to Indigenous peoples in Canada. Panel presentation at the *Statistics Canada: 100 Years and Counting conference*. December 6 and 7 2018 (2 sessions).
- Cooke, M. (2018). *Indigenous Data in Canada: Perspectives of a data user*. Presentation at the Statistics Canada/Data Liberation Initiative annual meetings and workshops. Montréal, May 28.
- Cooke, M. (2017). Panel presentation on *Using the Statistics Canada Research Data Centres* at the Canadian Sociological Association annual meetings. Toronto, May 30.
- Cooke, M. (2017). *Collaboration on the Métis Nation of Ontario Household Survey*. Presentation at the Workshop on Research Collaborations to Enhance Métis Health and Well-being at the Canadian Public Health Association annual meetings. Halifax, June 6.
- Roscoe, A. and Cooke, M. (2017) *First Nations Information Governance Centre Data and Mechanisms for Access*. Canada Research Data Centres Network Indigenous Policy Research Workshop. Ottawa. May 26.
- Cooke, M. (2015). *Using Aboriginal Data in Canada*. Invited colloquium at the Atlantic Research Data Centre, Dalhousie University. Halifax, January 16.
- Cooke, M. (2015). *Commentary on "Invisible" and Aboriginal populations*. Panel presentation at the meeting of the SSHRC Population Change and Lifecourse Strategic Cluster. Ottawa. March 19.
- Cooke, M. (2015). *Aboriginal child obesity: Taking a Systems Approach to Reducing Risk of Obesity among First Nations and Métis Children*. Webinar to the Northern Ontario School of Medicine Health Science Rounds, April 16,
- Cooke, M. and Wilk, P. (2015). *Aboriginal child obesity: Taking a systems approach to reducing risk of obesity among urban First Nations and Métis children*. Invited Presentation at the Indigenous Children's Health Symposium. Hamilton, April 25.
- Cooke, M. (2015). *The Healthy Weights Connection: a systems approach to reducing risk of obesity among urban First Nations and Métis children*. Waterloo Knowledge Integration program speaker series. Waterloo, October 16.
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- Cooke, M. 2014. Education, Income and Labour Force Indicators among Aboriginal peoples in Canada, the US, Australia and New Zealand. Invited Research Colloquium at Strategic research Directorate, Aboriginal Affairs and Northern Development Canada. Gatineau, July 21.
- Cooke, M. and O'Sullivan, E. 2012. "The Effects of Migration on the First Nations and Inuit Community Well-Being Index" Presentation to the Strategic Research Directorate, Aboriginal Affairs and Northern Development Canada. Ottawa. December 19<sup>th</sup>.
- Cooke, M. 2012. "Healthy Weights Forum: Working Together to promote the health of Métis and First Nations Children in our communities. Presentation at the Métis Nation of Ontario Chronic Disease Surveillance Launch. Ottawa: March 20<sup>th</sup>.
- Cooke, M. 2012. "Social Policy for 21<sup>st</sup> Century Risks" Faculty of Arts 2012 Public Lecture Series *Scholarship for an Uncertain World*. Waterloo. March 8<sup>th</sup>.
- Wilk, P., Hoosmand, S. and Cooke, M. 2012. "Obesity and Mental Health in Aboriginal Populations". Invited presentation to the Canadian Obesity Network Hot Topic Conference on Obesity and Mental Health. Toronto. June 26<sup>th</sup>.
- Wilk, P. and Cooke, M. 2012 "Obesity among Aboriginal Children in Canada". Submission to the House of Commons Standing Committee on Health. Ottawa. February 9<sup>th</sup>.
- Cooke, M. 2011. "The Healthy Weights Forum: Collaborating to improve the health of children in our communities" Presentation at the 8<sup>th</sup> Annual Diabetes conference, Mississauga First Nation. Sault Ste Marie, Sept. 13.
- Cooke, M. 2011 "Early Parenting and the lifecourse of First Nations". Presentation at the Congress of the Humanities and Social Sciences session, "Being and Becoming Aboriginal Youth in the City". Fredericton NB, June 2.
- Cooke, M. 2011. "Measuring the Changing Conditions of Aboriginal Peoples: Concerns for the Future" Global Health Discussion Forum, Schulich School of Medicine and Dentistry, London ON, April 5
- Cooke, M. 2010. "Measuring the changing conditions of Aboriginal Peoples" Presentation to the Ontario Ministry of Aboriginal Affairs. Toronto ON, November 4,.
- Cooke, M. 2010. "Social Assistance and the Lifecourse." Presentation to Ontario Ministry of Community and Social Services. Toronto ON, September 27,.
- Cooke, M. 2010. "Taking a Lifecourse Perspective in Aboriginal Policy Research" Presentation to the Strategic Research and Analysis Directorate, Indian and Northern Affairs Canada, July.
- Cooke, M. 2010. "Demographic Change and Policy Options." Plenary session at Liberal Party of Ontario *Imagining Ontario's Future* Conference. Collingwood ON, May14-16.
- Cooke, M. 2009. "Beyond the 'Social Determinants' of Health". Presentation to the Michael G. DeGroote School of Medicine Community Medicine Program. Hamilton, October.
- Cooke, M. 2009. "Older Workers and Policy Choices in Canada" Plenary session, symposium on *Older Workers and Social Policy in the 21st Century: International, National, and Regional Perspectives*. University of Massachusetts, Boston MA, April 24, 2009.
- Cooke, M. 2009. "The Health and Well-Being of Older Aboriginal Peoples" Colloquium at the University of Calgary, Calgary AB, March 20, 2009.
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- Cooke, M. and McWhirter, J. 2009. "Aboriginal Inequality in Life Course Perspective Paper presented at the Human Resources and Skills Development Canada (HRSDC) Policy Dialogue on Lifecourse as a Policy Lens." Ottawa ON, January 30, 2009.
- Cooke, M. 2008. "Measuring the Well-Being of Aboriginal Peoples in Canada: The Registered Indian and Inuit Human Development Index and Community-Well-Being Index. Presented at the International Technical Workshop on Indicators Relevant for Indigenous Peoples. Baguio City, Philippines, November 17-19, 2008.
- Cooke, M. and Guimond E. 2008. "The Changing Well Being of older Status First Nations". Presented at the Aboriginal Experiences in Aging symposium, Saskatoon SK, September, 2008.
- Cooke, M. 2007. "The Registered Indian Human Development Index" Presented at the Meeting of the Aboriginal Policy Research Consortium (International), London ON, November, 2007.
- Cooke, M. 2006. "Gender Equality and Well-Being: Applying the UNDP'S GEM and GDI Indices to the Registered Indian Population". Presentation at Indian and Northern Affairs Canada, Ottawa ON, December, 2006. Also presented at the Workshop on Indicators of Well-Being at the Second Annual Aboriginal Policy Research Conference, Ottawa ON, March.
- Cooke, M., Mitrou, F., Lawrence, D., Guimond, E. and Beavon, D. 2006. "Aboriginal Well-Being in Four Countries: An Application of the UNDP's HDI to Aboriginal Peoples in Australia, Canada, New Zealand, and the United States" Presentation at Indian and Northern Affairs, Ottawa ON, November.
- Cooke, M., 2003. "Social Assistance and Female Lone Parents: An Analysis of Durations and Transitions". Paper presented at the Statistics Canada Southwestern Ontario Research Data Centre Workshop, University of Western Ontario, London, ON, April 25.
- Norris, M.J., M. Cooke, and S. Clatworthy, 2002. "The Mobility and Migration Patterns of Registered and Nonstatus Indians, Métis and Inuit in Canada: Similarities and Contrasts." Paper Presented at the Canadian Association of Geographers Annual Conference, Special Session on the Use of Census Data, Toronto ON, May 28.
- Guimond, E., Cooke, M., Beavon, D., and Norris, M.J., 2001. "Emerging Aboriginal Identities Moving into the New Millennium: The Canadian, American, Australian and New Zealand Experiences. Paper presented at the Population Association of America Annual meetings. Washington DC, March 29-31.
- Beavon, D. and M. Cooke, 1998. "Measuring the Well-Being of First Nations Peoples". Paper presented at the Policy Research Initiative Federal Policy Research Conference, Ottawa ON, October.

#### Media

- 2016 Interviewed about the longform census on CBC Kitchener Waterloo, April 27.
- 2015 *Ottawa Citizen*. We can do better than the long form census. Feb 16.  
<http://ottawacitizen.com/news/national/we-can-do-better-long-form-census>
- 2008 *The Rutherford Show* (670 AM Edmonton) about the latest Census data on immigration, March 4.
- 2007 Interview for Canadian Press wire story, "Canadian Aboriginals come out in Top in Study" carried by CBC, CTV, and in print.  
[http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20071219/canadian\\_aboriginals\\_071219/20071219?hub=Canada](http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20071219/canadian_aboriginals_071219/20071219?hub=Canada)
- 2007 Interviewed for *The Drum/First Perspective*, about international well-being of Indigenous peoples.

2006 Interview for *Human Resources Professional Magazine*, on skills shortages and population ageing.  
 2004 Story in *The Age* (Melbourne), "Life of Aboriginals Second Worst on Earth". April 28.

#### Research Grants and Contracts

- 2018-19 *Development of A Canadian Youth Cannabis survey: Understanding changing aspects of cannabis use among young Canadians*. CIHR Catalyst Grant: Population Health Intervention Research on the Legalization and Regulation of non-Medical Cannabis in Canada. Cooke, M. (PI). Asbridge, M., Baskerville, N.B., Elton-Marshall, T., Grootendorst, P., Guindon, E., Hammond, D., MacDonald, J., MacDonald, M., Mancuso, M., Milicic, S., Montreuil, A., Muhajarine, N., Wild, C., (Co-applicants). Abramovici, H., Laroche, J., Porath, A. (Knowledge users). (\$99,820).
- 2018-19 Canadian Student Tobacco, Alcohol and Drugs Survey (CSTADS). Health Canada. Cooke, M. (PI). Asbridge, M., Card, A., Elton-Marshall, T., Hammond, D., MacDonald, J., Macdonald, M., Mancuso, M., Montreuil, A., Muhajarine, N., Wild, C., (Co-applicants). (\$1,860,643.42).
- 2017-20 *Ontario Pharmacy Evidence Network: Building Quality, Sustainable Medication Management Services for Patients and the Healthcare System (OPEN: STIMULUS)*, Health System Research Fund (HSRF) Program Awards. Waite N (program lead), Dolovich L (program co-lead); Co-Investigators: Austin Z, Cadarette S, Cooke M, Farrell B, Houle SL, Mangin D, McCarthy L. (\$2,399,299).
- 2016-20 *What Can Existing Data tell us Aboriginal Spatial and Socioeconomic Inequality?* SSHRC Insight Grants. M. Haan (PI), M. Cooke, G. Goldmann (Co-applicants). (\$169,000)
- 2016 *Intergenerational effects of residential schooling on obesity rates among Indigenous Canadians: understanding the causal mechanisms*. Indigenous and Northern Affairs Canada, Aboriginal Peoples Survey Pilot Project Grant. P. Wilk, P.I., M. Cooke, Co-P.I. (\$6,000).
- 2015 *Mapping Health Geography Data and Pharmacy Access*. UW Chronic Disease Prevention Initiative Seed Grant. N. Waite, P.I., M. Cooke, co-applicant. (\$9,800).
- 2015 *Investigating the impact of vitamin D supplementation on bone health in women with epilepsy*. UW Chronic Disease Prevention Initiative Seed Grant. T. Patel, P.I., M. Cooke, co-applicant. (\$9,314).
- 2015 Waterloo Research Incentive Fund (2015-16). M. Cooke, P.I. (\$8,000)
- 2014 *Aboriginal Education and Income Inequality in Canada, 1981-2011*. Strategic Research Directorate, Aboriginal Affairs and Northern Development Canada. M. Cooke, P.I. (\$15,000).
- 2013-16 *Ontario Pharmacy REsearch CollaboratioN (OPEN)*. Ontario Ministry of Health and Long-Term Care Health System Research Fund. N. Waite and L. Dolovich, Co- PIs. M. Cooke, Gender and Vulnerable Populations Team Co-Lead. (\$5,773,616).
- 2013-17 *Healthy Weights Forum: Working Together to Promote the Health of First Nations and Métis Children in our Communities*. Public Health Agency of Canada Innovation Strategy,

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- Taking Action to Reduce Health Inequalities in Canada Phase II: "Achieving Healthier Weights in Canada's Communities" M. Cooke, P. Wilk, Co-PIs. (\$1,595,159).
- 2011-13 *Obesity among Metis and Off-Reserve First Nations children: Understanding contexts and determinants.* Canadian Institutes of Health Research Operating Grant. M. Cooke, PI. (\$96,000).
- 2011-12 *Characteristics and Key Needs of Urban Aboriginal Populations in Southern Ontario.* SSHRC Population Change and Strategic Knowledge Cluster (PCLC) Policy Brief Grant M. Cooke. (\$5,000).
- 2011-12 *The Impact of Migration on the First Nations and Inuit Community Well-Being Index.* Aboriginal Affairs and Northern Development Canada. M. Cooke, PI. (\$24,380).
- 2011-12 *Reducing Obesity among Aboriginal Children and Youth in Canada: Development of Intervention through a Community-Based Collaboration.* Public Health Agency of Canada Innovation Strategy, Phase 1. M. Cooke, P. Wilk, Co-PIs (\$150,000).
- 2011 *Early Childbearing and the Life Course.* Indian and Northern Affairs Canada, 2010- 2011. Cooke, PI (\$9,677.73).
- 2010-11 *Obesity among off-Reserve Aboriginal Children in Canada: Trajectories, Contextual Determinants and Interventions.* Canadian Institutes for Health Research Operating Grant. M. Cooke, P. Wilk, Co-PIs (\$64,179).
- 2007-10 *Aboriginal Inequality and the Life Course.* 3-Year SSHRC Standard Research Grant. M. Cooke, Principal Investigator. J. Frideres, Co-Applicant (\$114,000).
- 2007 *The Effects of Bill C-31 Registrations on Aboriginal Human Development Index and Gender-Related Development Index Measurements.* M. Cooke, P.I. Indian and Northern Affairs Canada. (\$14, 249.19).
- 2007 *Older Registered Indian/Registered Indian youth Human Development Index.* Indian and Northern Affairs Canada, M. Cooke, P.I. (\$50,000).
- 2007 *Aboriginal Inequality in Life Course Perspective.* Human Resources and Social Development Canada. P. Bernard, P.I., M. Cooke, Co-Applicant (\$28,000).
- 2005-08 *La participation sociale des Canadiens à travers l'analyse des parcours de vie.* SSHRC Standard Research Grant. Stephanie Gaudet, P.I. M. Cooke, Collaborator. (\$141,810).
- 2006 *Examining the effects of Changes to the Census Education Measures on the Registered Indian Human Development Index.* Indian and Northern Affairs Canada. M. Cooke, P.I. (\$12,000).
- 2002-07 *Workforce Aging in the New Economy.* SSHRC INE Grant. Julie A. McMullin, P.I., M. Cooke, Co-Investigator (2005-07). (\$2,999,000).

#### Completed Graduate Supervisions

##### Doctoral

Sara Cumming (PhD, Sociology) *Social Assistance Exits of Lone Mothers.* Defended 2014.

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**Masters**

- Alan Puran (MSc, Public health and Health Systems). *Reinvestigating Unmet Healthcare Needs among Immigrants in Canada: Results from the Canadian Community Health Survey*. Defended 2019.
- Yanling Guo (MSc, Health Studies). *Diabetes among Aboriginal Peoples in Canada: Prevalence and Predictors, 1991-2011*. Defended June 2016.
- Gobika Sriranganathan (MSc, Health Studies), *Is social capital mediating the relationship between ethnicity and health in Canada? Defended 2015*
- Chris Ryan (MSc, Health Studies), *Physical Activity among Métis and Non-Aboriginal Canadian adults. Defended 2014.*
- Jasmin Bhawra (MSc, Health Studies) *The Impact of Food Insecurity and Diet Quality on Obesity Among First Nations and Métis Children in Canada. Defended 2014.*
- Sabreena Ghaffar-Siddiqui (MA, Sociology) *How does Ethnic Identity Inform Health Care Choices? Examining physician-seeking behaviour and perceptions of care among South Asians in Ontario. Defended 2013.*
- Kindra Houle (MA, Sociology) *Recidivism and Mental Health and Female Inmates. Defended 2012.*
- Roshanak Mehdipanah (MSc, Health Studies) *Urban Aboriginal Health: Using Individual and Contextual Approaches to Better Understand the Health of Aboriginal Populations Living in Toronto. Defended 2009.*

**Regular Courses Taught**
**University of Waterloo**

- SOC 248 *Health, Illness and Society* (2016)
- SOC 711 *Techniques in Longitudinal Analysis* (2009, 2010, 2011)
- PS 613 *Aboriginal Issues in Government* (2010)
- SOC 253/HLTH 253 *Demographic Change in Canada* (2007, 2008, Winter 2010, Fall 2010, 2012, Winter 2013, Winter 2014, Winter 2015)
- SOC 712 *Elements of Social Research* (2005, 2006, 2007, 2008, 2012, 2018)
- PHS 607 *Social, Cultural, and Behavioral Aspects of Public Health 1* (2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019)

**University of Western Ontario**

- Sociology 300a, *Advanced Statistics* (2005)
- Sociology 302b, *Research Methods in Empirical Sociology* (2002)
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This is Exhibit "B" referred to in the  
Affidavit of Dr. Martin Cooke sworn  
before me, on this 28<sup>th</sup> day of November 2019.  
In the City of Waterloo, in the Province of Ontario

  
A Commissioner for taking affidavits, etc.

**Third-Party Review of “Phase II of the Remoteness Quotient Research Project”**

Prepared by  
Martin Cooke PhD  
for  
Nishnawbe Aski Nation

November 17 2018

**Background**

Barnes Management Group (BMG) has submitted a report, *Phase II of the Remoteness Quotient Research Project (“RQ Project”)* to the Nishnawbe Aski Nation (NAN). The focus of that project was to be the development of measures to inform adjustments to funding of child welfare agencies that would reflect the additional costs due to remoteness.

NAN has requested this third-party review of the report. In this review, we address whether the report has met the requirements set out in the Engagement Letter. In our understanding, the report was to;

- 1) update a previous report using 2016 census data,
- 2) identify and explain the aspects of remoteness that affect program and service delivery costs,
- 3) provide a definition of remoteness for the purposes of the study,
- 4) develop a remoteness coefficient with supporting documentation, and
- 5) apply the remoteness coefficient to produce a remoteness quotient for Northern Ontario, and
- 6) explain whether and how the remoteness coefficient could be applied nationally.

As well, the report was to include sufficient detail to review and validate the data.

**About the author**

Martin Cooke, PhD, is Associate Professor in the Department of Sociology and Legal Studies and the School of Public Health and Health Systems and cross-appointed to the School of Pharmacy at the University of Waterloo. His expertise is in health, social inequality and social policy, including the measurement of health and well-being of Indigenous peoples and other vulnerable populations. From 2013–17 he was co-Director of the Waterloo Survey Research Center. Dr. Cooke is currently the Principal Investigator of the Canadian Student Tobacco, Alcohol, and Drug Survey (CSTADS), a national school-based surveillance survey conducted on behalf of Health Canada.

**Contents of the RQ Project Report**

Chapter 1 of the report describes the development of the remoteness coefficient (RC) and Remoteness quotient (RQ). Chapter 2 reviews the concept of remoteness and provides a definition of for the purposes of the report, Chapter 3 reflects on the factors related to child deprivation, with a focus on Indigenous communities. Chapter 4 provides some concluding comments on remoteness and its implication for child welfare services. Among the appendices is a presentation of the findings from engagement with NAN community members and leaders, regarding child welfare services.

### Assessment of the report

The “RQ Project” report meets several, but not all, of the goals set out in the Engagement Letter. There are weaknesses in the calculation of the measures that reduce confidence in their reliability and validity. Although the general approach to their calculation appears sound, there are methodological choices that are not well justified and which might seriously affect the appropriateness of those measures.

Below, we assess the components of the report and how they compare to the requirements in the Engagement Letter. Note that, without being provided with the Phase I report, we assume that the requirement of updating that report with new data is met.

#### *Provide a definition of remoteness*

In Chapter 2, the authors critically discuss a number of different measures and frameworks related to remoteness and its impact on service delivery. They note that remoteness is multidimensional and incorporates concepts of community size and access to services, as well as geographic distance from population centres. They conclude that the measure proposed in the Statistics Canada/AANDC report<sup>1</sup> is the most appropriate remoteness metric for the purposes of the study.

#### *Identifying aspects of remoteness that affect program and service delivery costs*

Chapter 3 focuses on identifying factors that are related to “child deprivation”, and the need for child welfare services. The factors discussed include income, housing, food insecurity, and family structure, as well as the overarching effects of intergenerational trauma.

These are important considerations and are related to both remoteness and to the overall demand for services. Factors such as food prices, which are a component of food insecurity (p. 44), will be directly related to the unit costs of providing services in remote communities. Several of them are “upstream” or socio-economic determinants of need that are correlated with community remoteness but are not reducible to it. Non-remote Indigenous communities face many of the same challenges, although often not to the same degree. This is the rationale for using non-remote reference point agencies that serve communities with high Indigenous populations as a comparison– to isolate the effects of remoteness on costs of services from the factors that influence community need.

The factors identified in the chapter are certainly important for child welfare, and this is corroborated by the community engagement results presented in Appendix IV. The Engagement Letter refers to the “aspects of remoteness that affect service delivery costs”, rather than the factors that affect needs for service in remote communities. This chapter would more clearly meet this requirement if it were more explicit about the elements of remoteness that affect the cost of services, per unit delivered.

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<sup>1</sup> Alasia, A., Bédard, F., Bélanger, J., Guimond, E., & Penney, C. (2017). *Measuring remoteness and accessibility-A set of indices for Canadian communities* (No. 18-001-X). Ottawa: Statistics Canada. <https://www150.statcan.gc.ca/n1/pub/18-001-x/18-001-x2017002-eng.htm>

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*Development of a remoteness coefficient and production of remoteness quotient*

Chapter 1 describes the development of the Remoteness Coefficient (RC) and Remoteness Quotient (RQ). The authors' approach to arriving at the RQ is as follows.

1. For each of 43 agencies in the province, an average unit cost for service is calculated. This is done using costs and caseloads for 20 service categories and weighting them by their proportion of each agency's total costs.
2. For each agency, a ratio of these actual unit costs to a "reference point" is estimated. The reference point is the unit cost for 10 non-remote agencies serving catchment areas with high Aboriginal populations. For each agency, the cost categories are combined by weighting according to the proportion of an agency's service in each category. The ratio of these weighted average unit costs to the reference point unit costs is the Cost Ratio (CR).
3. Using a regression model and data from all 43 agencies, the relationship between (log)CR and RI among these agencies is estimated.
4. An agency-specific Remoteness Coefficient is calculated by applying the remoteness parameter from the regression model to each agency's remoteness score.
5. Agency-specific RCs are rescaled to produce a Remoteness Quotient (RQ) such that the sum of the RCs for agencies in the province sum to 100

The results are that the three NAN agencies have RCs that range from 1.55 to 1.80, meaning that an increase in funding of 55% to 80% is required to provide these agencies with funding equivalent to comparable non-remote agencies. Their RQs range from 8.13 to 11.90. These numbers describe the percentage of a total remoteness funding pool that should be allocated to these agencies.

The overall approach, which is to model the relationship between remoteness and excess costs, and then use this information to calculate the agency-specific RC, is sensible. It avoids the complexities associated with identifying the elements of agency costs that are sensitive to remoteness, and the data requirements of calculating the effect of remoteness for every agency.

The data used to estimate the model are appropriate. We agree that the Statistics Canada/AANDC Remoteness Index is the best available measure of remoteness for this purpose. The assignment of agency CSDs is justified and the CSD-level Census data that are used in the modelling and to identify the Reference Point agencies are the latest available. Cost data are taken from the Ontario Association of Children's Aid Societies (OACAS) appear to be appropriate and the most recent available (2017–18).

There are four aspects of the calculation of the RC/RQ that are concerning. As described below, these are the 1) identification of the reference point, 2) the calculation of the Cost Ratio (CR), 3) the parameterization of the regression model; and 4) the variability of the regression parameter for remoteness.

*1. Identification of the "reference point" agencies and calculation of their costs and services*

The Cost Ratio (CR) is the ratio of the weighted average unit cost for service delivery by an agency, to that of a non-remote, "reference point." The reference point is a set of 10 agencies that are used as comparators to the NAN agencies, in the sense that they serve CSDs with the

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highest Aboriginal proportion of population, but have lower than the median Remoteness Index. The use of this cost comparison addresses the fact that the NAN agencies serve Indigenous populations with greater need for services than many of the other agencies.

The weighted average unit costs were determined using data from OACAS for each of the agencies. These agency data included the total costs and caseloads for 20 service types that were weighted in the final cost ratio by their proportion of the agency's total services.

The report notes that Native Child and Family Services of Toronto is not included among the 10 reference point agencies, because of its "significantly different nature" (p. 15). Data from that agency are used in the regression model and its exclusion from the reference point is not well explained. In Chapter 2, the authors argue for their method of comparing agency costs to those of agencies delivering services at a similar scale. Toronto is indeed a large community with a large indigenous population. Examining the tables of agency costs, however, we see that this agency has higher costs in some categories than the "reference point" agencies, suggesting that the effect of excluding it would be to increase the cost ratios for the NAN communities. The reasons for excluding this agency, and its effects on the CR should be made clearer. However, we do not believe that the effect of this exclusion would be enough to invalidate the method.

There are two other points about the identification of Reference Point agencies that are unclear. On p. 15, the report indicates that using 10 agencies provided "stable result (sic) in the analysis". However, what this means is not clear. The report also is vague about how the costs and services were "aggregated" across the reference point agencies (p. 16), and what effect this might have on the analysis.

## 2. Calculation of Cost Ratio (CR)

The way that the authors address cost categories in which agency costs are higher than reference point costs is a problem and has the potential to seriously weaken the relationship between the RQ and the excess costs due to remoteness.

The report indicates that for categories such as travel, in which remoteness is clearly an important driver of costs, the ratio of the agency unit costs to reference unit costs is used, and a ratio greater than one indicates higher agency costs than reference costs. However, when average unit costs in a category are *lower* than those of the reference agencies, the *reciprocal* of the ratio of the agency cost to reference unit costs is used. As described in the report,

*If the expenditure in a service category are dominate (sic) by staff salaries, and the average unit costs are less than the reference costs, either the staff are not equivalently trained (and at a lower pay scale), or agencies have insufficient funds to pay at he appropriate scale. In either case, the funding is below the level required and the ratio of the units (sic) costs of the reference agency to the agency of interest is used instead of the reverse ratio. (p 17)*

In other words, for cost categories in which an agency has unit lower costs than the reference point, it is assumed that this is in fact a reflection of *higher* costs of appropriately trained staff or of lower funding.

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In the report, the authors support this idea with reference to the use of the Rurality Index of Ontario (RIO) in a salary incentive structure in the Ontario healthcare system (p. 29). However, the assumption that child welfare staff employed by remote agencies are necessarily less well-trained seems to be unjustified. Staff salaries are not only determined by levels of training and experience, but other aspects of local labour market conditions and local costs of living, as well as non-economic benefits of living and working in a particular community. Making use of the cost data in the spreadsheet provided we find, for example, that the unit costs of Native Child and Family Services of Toronto in the category of "infrastructure and administration" are higher than those of the reference category, and higher than two of the three NAN agencies. We can imagine that some agencies in more remote communities might be able to hire staff at lower costs than Toronto or Hamilton because of lower costs of living and fewer local employment opportunities.

If this method were applied to all categories in which agency costs were higher than reference point costs, it would mean that there are no possible cost advantages, in any service category, for agencies operating in more remote (or less central) parts of Ontario. The likely effect of this assumption would be an overstatement of the relationship between remoteness and the (log of) the cost ratio, reflected in the regression parameter. The report does not identify which of these categories this "reverse ratio" has been applied, and the spreadsheets do not include the weights given to these categories in the calculation of the CR, so it is difficult to know the magnitude of the effect on the calculations. However, the spreadsheet data suggest that this might have been done for a number of categories and for a number of agencies. In that case, this calls the validity of the measures into question.

### *3. Specification of the regression model*

The model regresses  $\log(\text{CR})$  on three variables: Remoteness Index, the proportion of the CSD population aged 19 and under, and the relative size of the CSD population served by an agency (population ratio). The fit of that model is very good ( $R^2=.807$ ). The proportion of population 19 and under is a significant predictor of the cost ratio, while the population ratio is not.

The authors are not very clear in their explanation of their approach, which is to model the (log of) ratio of agency costs to Reference Point costs. They seem to indicate that this is in order to address a problem of the interdependence of the factors that drive costs. The social factors that affect need, such as income levels and the "scale" of service delivery, are not independent of remoteness, and "[o]ther socio-economic factors that may drive maternal and family stress are assumed to be proportion (sic) to the scale of community and to remoteness." (p. 28) Modelling agency costs relative to a Reference Point that has similar scale and community need (as they serve high indigenous populations) would eliminate having both remoteness and needs-driving social indicators on the same side of the equation. It also, presumably, helps deal with the fact that there are only 43 observations in the dataset, and that a model with more predictors will not have much statistical power to detect relationships.

In Chapter 3, however, the authors seem to argue for a model that allows for "...the inclusion and interaction of factors such as family size, remoteness, community size and other socio-economic variables." (p. 37). Here, they are not necessarily referring to costs as an outcome variable, but suggest that "dependent variables... might range from the probability of taking children into care to the budget share of a specific entity, such as an agency or community." (p.

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37). It is hard not to think that this is the more straightforward approach— to model agency unit costs as a function of remoteness, community needs-related factors, and community scale. This would avoid the difficulties of defining a “reference point” comparator, and correlations between remoteness and other independent variables could first be empirically verified, and then addressed in the modelling.

This approach might not be possible with the data available. It would certainly require more than the 43 cases in the current dataset, suggesting that cost data from outside Ontario or for multiple years would be required. The approach taken by the authors might therefore end up being the most practical, but it should be better justified to provide confidence in the ultimate measures. For example, the authors indicate that other models were tested with variables that proved insignificant. These were rejected in favour of a more parsimonious model, yet the population ratio was retained in the final model, even though it was insignificant. With the information provided in the report it is hard to know why the authors made the modelling decisions they did, and what the effects of other choices would have been.

#### *4. The variation around the regression parameter for remoteness*

One final concern is the wide confidence interval around the parameter for remoteness index (CI95: 0.481–1.058). Converted to remoteness coefficient for Tikinagan, this yields an interval of from 1.44 to 2.42. The reported RC of 1.80, as described above, means that an 80% increase in funding due to remoteness is appropriate. However, 19 times out of 20, the true increase required would be between 44% and 142%.

The statistical reason for this imprecision is the variability in the relationship between remoteness and cost for the agencies used to estimate the model, and the small number of agencies used. It might therefore be very difficult to improve on this. Taking data from other provinces might be inappropriate, as might be using several years of agency data. This is not an issue that invalidates the method, although it might be important to recognize the lack of reliability that it creates in the RQ.

#### *Concluding whether the RC and RQ are appropriate nationally*

A final requirement of the report was to explain whether the RC and RQ measures provided could be applied nationally. In the Executive Summary the report does conclude that the measures could be applied nationally, as long as it were applied to agencies that provided similar services to youth of similar ages. It proposes a similar calculation for agencies in each jurisdiction.

#### **Conclusions**

This report meets most of the requirements set out in the Engagement Letter. It does define remoteness appropriately. It discusses many of the factors related to child welfare needs, although not addressing unit cost directly, and it presents remoteness coefficients and remoteness quotients with a statement about their applicability to the national context.

As described above, there are weaknesses in the RC and RQ measures. The general approach seems appropriate but it is not clear how some details of the method might affect the results. Aspects of the calculation of the cost ratios lead to questions about the validity of the measures, or whether they do adequately reflect the effect of remoteness on cost. The lack of clarity about

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the construction of the regression model reduces our confidence in the remoteness parameter that it produces. Because of the importance of this parameter in the calculation of the RC and RQ, and its potential impact on funding, these are major problems and lead us to conclude that the report as presented does not fully meet this requirement. At a minimum we suggest that more details about the rationale for the methodological decisions made, and evidence of the sensitivity of the RC and RQ measures on those decisions, is necessary.

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This is Exhibit "C" referred to in the  
Affidavit of Dr. Martin Cooke sworn  
before me, on this 28<sup>th</sup> day of November 2019.  
In the City of Waterloo, in the Province of Ontario



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A Commissioner for taking affidavits, etc.

**NADIA SINGH**

## Comments on revised "Phase II of the Remoteness Quotient Research Project" Report (January 10 2019)

Prepared by  
Martin Cooke PhD  
for  
Nishnawbe Aski Nation

January 30 2019

### Background

This report is a follow-up to our third-party review of the report, "Phase II of the Remoteness Quotient Research Project", prepared by Barnes Management Group (BMG) for the Nishnawbe Aski Nation. Our review of the previous version of the BMG report identified some weaknesses, which were further discussed in a meeting with BMG December 17, 2018. The present report is an assessment of the revised report (dated January 10 2019) in light of that discussion.

### Issues identified in the previous report

In our peer review of the November 7 2018 version of the report, there were four main issues identified. Our assessment of how each has been addressed in the revised report is presented below.

#### *1. Exclusion of Native Child and Family Services of Toronto from among the reference point agencies.*

The estimation of the effects of remoteness on agency costs used a set of 10 "non-remote" agencies that served populations with high proportions of Indigenous peoples, as a comparator. Native Child and Family Services was specifically excluded from that group, on the grounds of its uniqueness. In our report and in the meeting we suggested that this be reconsidered, or that a stronger justification be added. It was also suggested that the effect of including 10 agencies (and not others) on the Remoteness Coefficient be examined.

In the revised report a more complete rationale for excluding this agency is included, including the footnote on p. 7. Regression models that use 8 and 12 agencies in the reference point are now presented in Appendix III. The comparison of the model fit and the coefficients shows that the choice of 8, 10 or 12 reference agencies has little effect. This concern is addressed.

#### *2. Calculation of the cost ratio.*

A major concern was with the calculation of the agency-specific cost ratio, which is the ratio of agency-specific costs to the aggregated "reference point" agency costs. The method used costs in 20 categories of service, each weighted by its proportional contribution to each agency's total costs. For service categories in which the costs of the remote agencies are higher than the reference point agencies, the ratio of the remote agency costs to the non-remote agency costs is positive. However, for service categories in which remote agencies had a cost advantage, particularly those that are dominated by the cost of personnel, this ratio was inverted. The justification provided in the initial report and at the meeting was that the lower personnel costs

in remote locations reflects the lack of appropriate funding, resulting in services being provided by staff with fewer formal qualifications, or requiring staff to handle higher caseloads, or both.

A main recommendation made at the meeting was that, if this approach to calculating the cost ratio was maintained, it should be better justified. One source of justification can be found in the community engagement that was conducted for the report. In the revised Chapter 1 (p. 17) the revised report refers to the community engagement chapter of the report as well as to “Distinct Needs and Services” reports from each of the NAN agencies. That paragraph also includes several other references including to the summary of the Truth and Reconciliation Commission of Canada final report, the *Wen:de* report (Blackstock et al., 2005), and reports from the Assembly of First Nations and the Canadian Association of Social Workers. It also identifies the service categories that are dependent on personnel, and to which the reverse ratio has been applied.

As we wrote in our initial report, comparing the remote agencies’ costs to those of a set of non-remote reference agencies is an innovative way to address the problem of estimating the additional funding that would need to be provided to achieve the same standard of service. We support that general approach and do not have an alternative method to recommend.

However, our concerns regarding the use of the inverted cost ratio for service categories with high personnel costs remains incompletely addressed and a weakness of the report. The assumption that the lower per-unit costs for these categories of service by remote agencies is in fact a reflection of the *higher* costs of service is counterintuitive and therefore requires strong justification. Although the report now states that there is “considerable literature” regarding the lack of staffing resources for remote agencies, it does not describe how this literature supports the idea that this lack of resources results in lower personnel costs for these agencies.

The literature that is cited is used poorly. For example, the authors do not describe how the 382-page summary of the Truth and Reconciliation Commission (TRC) report supports this claim. The pages referred to in the BMG report (137–144) do not seem to be relevant (they are endnote pages). The TRC summary report does refer to a “lack of adequate funding” (p.186–7), but only cites a 2005 survey of 12 First Nations agencies, and refers to the provision of “culturally appropriate services”, not specifically to the issue of personnel costs, or how lower personnel expenditures could reflect higher costs due to remoteness. Moreover, this section of the TRC report refers to the *Wen:De* report also cited, and thus provides no additional support itself.

We recommend three further changes to address this concern.

First, a clearer justification is required for the decision to invert the cost ratio for these categories. In addition to the references provided in the revised report, a more compelling case should be made through reference to peer-reviewed academic literature and other credible sources that more directly support the claim that the lower personnel costs in fact reflect higher costs due to remoteness.

Although there is little literature that investigates the costs of staffing remote child and family service agencies specifically, there is a well-developed literature regarding the challenges of

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recruiting and retaining health care personnel and teachers in Indigenous and remote communities in Canada and Australia. We recommend that this literature (some references are included at the end of this report) be used to make a clearer argument.

To make that argument, explicit reference should be made to the idea that remoteness makes recruitment and retention of qualified personnel more difficult. For example, the paper by Zhao and Malyon (2010), considering health care professionals in a remote Australian context, shows that the additional cost of qualified personnel in these areas is significant. This can then be reasonably extended to Canada, and several Canadian papers and reports provide evidence of recruitment and retention as challenges for remote agencies. In the case of physicians, nurses and teachers in remote areas, *higher* salaries and benefits appear necessary to retain staff with the required qualifications. For childcare and social service workers, however, specific formal qualifications are likely more flexible. We would explicitly argue that this leads to positions being filled by staff with fewer formal qualifications than in non-remote agencies, or to staff being asked to perform more duties than would be the case in non-remote agencies. The result is that the per-unit expenditures in these categories are *lower* for remote agencies, and that this in fact reflects the higher cost of staffing remote agencies adequately.

Second, we recommend that the authors look for and present some evidence that the personnel in remote agencies do in fact hold fewer formal qualifications than those in less remote agencies, or that they have higher caseloads than staff in other agencies, or both. These data might not be available, but if included they would provide strong direct support for the assertion that the lower expenditure reflects higher costs due to remoteness. A simple comparison of the qualifications and workload of occupants of similar positions in a remote and non-remote agency would provide support for this assumption.

Third, we recommend that the report include an explicit demonstration of the sensitivity of the calculations to this assumption by calculating the cost ratios and estimating the resulting remoteness coefficients without these categories included. Using the spreadsheet provided by BMG (dated January 4), we calculate that the contributions of these cost categories to the total expenditures of Kuuwaniimano, Payukotayno James and Hudson Bay Family Services and Tikinagan Child and Family Services were 41.1%, 24.7% and 32.0%, respectively. We believe that excluding these expenditure categories from the calculation, rather than including them with the non-inverted cost ratio, would still result in positive cost ratios for the NAN agencies, yet would not require the assumption that lower personnel costs reflect higher costs due to remoteness. Providing the results of this alternative calculation of the cost ratio would allow a reader to judge the effect of this assumption. We expect that this would demonstrate that the use of the inverse ratio is responsible for some, but not all, of the estimated excess costs due to remoteness and this transparency would increase confidence in the method.

### *3. Specification of the regression model*

The November 7 report included the results of a regression model that estimated the Remoteness Coefficient that was then used to calculate agency-specific Remoteness Quotients. The report indicated that other parameterizations of this model were tried, but did not provide a discussion of the modelling decisions that were made or their effects on the results.

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The revised report includes a comparison of various regression models, including those that include social assistance accessibility and heating degree days as covariates. The comparison successfully demonstrates that including these variables does not substantially improve the estimation of the Remoteness Coefficient.

#### *4. Variation around the regression parameter for remoteness*

The relatively small dataset used to estimate the regression model (43 cases) results in a wide confidence interval around the estimated Remoteness Coefficient. This lack of statistical reliability means that there is a wide range in which the “true” effect of remoteness is likely to fall. Using a higher or lower point in this range in the calculation of the Remoteness Coefficients would have a large effect on the proposed allocation of costs.

As we noted in our review and at the meeting, this might be difficult to address with the available data. However, the possibility of using either multiple years of data or data from multiple jurisdictions should at least be considered.

In the revised report, the authors address this concern by pointing out the issue of the wide confidence interval directly (p. 21–22), and that data from other provinces, or Ontario data from other years, would not likely be comparable.

#### *5. Additional Issues*

In reviewing the revised report one additional concern arose. The revised report does not explicitly note any revision of the methods. However, the “primary” regression results presented in the revised report (Appendix III, p. 79) are not the same as in the original report (Appendix III, p. 78). Both seem to use the same data (43 observations), but the fit of the model ( $R^2$ ) in the revised report is slightly lower, and the Remoteness Coefficient is reduced from 0.7696 to 0.6827. This reduces the reported Remoteness Quotients for the three NAN agencies slightly. The reason for the difference between this and previous reports should be explained.

#### **Overall assessment of the revised report and recommendations for further changes**

The revised report has a number of improvements. It has been edited and several of the methodological choices made are better justified. This improves confidence in the estimates of the effects of remoteness on costs, and on the Remoteness Quotients produced for the three NAN agencies.

The use of the inverse cost ratio for some expenditure categories remains poorly justified and we strongly recommend that the report be revised with better support for this choice, as described above. We also recommend that the difference in the estimated Remoteness Coefficient reported in the original report and the revised report be explained.

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### Suggested References

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- Zhao, Y., Russell, D. J., Guthridge, S., Ramjan, M., Jones, M. P., Humphreys, J. S., & Wakerman, J. (2018). Cost impact of high staff turnover on primary care in remote Australia. *Australian Health Review*. <https://doi.org/10.1071/AH17262>
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This is Exhibit "D" referred to in the  
Affidavit of Dr. Martin Cooke sworn  
before me, on this 28<sup>th</sup> day of November 2019.  
In the City of Waterloo, in the Province of Ontario



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A Commissioner for taking affidavits, etc.

NADIA SINGH

Comments on revised "Phase II of the Remoteness Quotient Research Project" Report  
(February 20 2019)

Prepared by  
Martin Cooke PhD  
for  
Nishnawbe Aski Nation

February 22 2019

**Background**

This report is a second follow-up to our third-party review of the report, "Phase II of the Remoteness Quotient Research Project", prepared by Barnes Management Group (BMG) for the Nishnawbe Aski Nation. The purpose of this report is to provide an assessment of the revisions made in response to previous recommendations and to indicate whether additional changes are necessary. The material reviewed for this report includes the February 20 2019 revision of the report and the covering letter that accompanied the report.

**Recommended changes to the January 10 report and revisions in the February 20 report**

In our assessment of the previous version of the report (dated January 10 2019) we made four recommendations for revision. Three were intended to improve the justification for the way that the cost ratios were calculated. In particular, we were concerned that the calculation relied heavily on the assertion that *lower* per unit costs in service categories that were dependent on personnel reflected *higher* costs of service provision in remote locations. This is counterintuitive and potentially has a strong effect on the Remoteness Index. Therefore, a stronger case for this methodological choice was needed.

1. We recommended that the report be revised to refer to previous literature as evidence of the effect on remoteness on recruitment, retention, salaries and qualifications of staff in other sectors, including education and health care. This would support the claim that the lower personnel costs reflect personnel with fewer formal qualifications, or with higher workloads, than in non-remote agencies. The previously revised report had added some references, but we recommended strengthening the report with a clearer justification and better use of the existing literature from Canada and elsewhere, and suggested some possibly useful sources.

In the revised report the authors have strengthened the literature review regarding recruitment and retention on pages 37–42. This provides a much stronger justification for the cost ratio inversion.

2. We recommended that the authors try to include evidence that the personnel in remote agencies hold fewer formal qualifications than those in less remote agencies, or that they have higher caseloads than staff in other agencies.

Suggesting that there are no available comparisons of the qualification and workload of staff in remote and non-remote agencies, the authors now recommend this as a next stage of research (page 41). This is appropriate.



3. We recommended that the report demonstrate the sensitivity of the calculations to the inversion of the cost ratio assumption by calculating the cost ratios and estimating the resulting remoteness coefficients without these categories included.

The report now presents and interprets the results of a model in which the cost ratios were not inverted (page 86). This serves the purpose of demonstrating to the reader the effects of the inverted-cost assumption on the calculations.

4. A fourth recommendation was to explain the small discrepancy in the regression coefficient and the resulting Remoteness Coefficients between the January 10 2019 report and the November 7 2018 report.

This is clearly explained in the cover letter that accompanied the February 20 2019 report.

**Overall assessment of the revised report and recommendations for further changes**

The revised report has addressed the concerns that we raised in our previous assessments. The report now makes a much stronger case for the methodological choices made in the calculation of the Remoteness Coefficient and Remoteness Quotients. We have no further recommendations for changes to this report.

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This is Exhibit "E" referred to in the  
Affidavit of Dr. Martin Cooke sworn  
before me, on this 28<sup>th</sup> day of November 2019.  
In the City of Waterloo, in the Province of Ontario



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A Commissioner for taking affidavits, etc.

NADIA SINGH

**NAN Remoteness Regression Model Confirmation**  
**March 10 2019**  
Martin Cooke

**Introduction**

This report presents the results of a confirmation of the models presented in the Feb 20, 2019 version of *Phase II of the Remoteness Quotient Final Report*, prepared by Barnes Management Group for Nishnawbe Aski Nation (the "RQ Report").

**Procedure**

We reproduced the models presented in the report. The data used for the models were provided in the Excel spreadsheet RQfinal\_agency-SummaryJan4.xlsx. For each of the 43 agencies used in the analysis, the spreadsheet provided the dependent variable (the log of the cost ratio), the main independent variables (remoteness index) and other independent variables (fraction aged 19 and under, ratio of Aboriginal to non-Aboriginal in the catchment area, heating degree days and social assistance accessibility). Models were estimated using Stata software, version 12.0 and the Ordinary Least Squares regression procedure ("regress" command). The model output is included as an appendix.

**Results**

Below we present the results of the confirmation regressions and compare them to the model in Appendix III (p. 82–3) of the RQ Report.

The results for the primary regression are shown in in Table 1. The parameters and standard errors of the two models are identical after rounding.

Table 1. Primary Regression Results

	Confirmation Regression		RQ Report Results	
	Coefficient	Standard error	Coefficient	Standard error
Constant	-0.8938806	0.1179809	-0.8939	0.118
Fraction 19 and under	3.608947	0.5654382	3.6089	0.565
Population Ratio	0.0602269	0.0147743	0.0602	0.015
Remoteness Index	0.6828930	0.1567636	0.6827	0.157
R <sup>2</sup>	0.7867		0.787	
F	47.94		47.94	
DF	42		42	

The RQ Report presents two supplementary models to demonstrate the effects of including two additional variables, heating degree days and social assistance accessibility. As shown in Table 2, the remoteness index coefficients and standard errors produced by the confirmation regressions were identical to those shown in the report.

There were some differences between the confirmation regressions and the reported models. The heating degree days parameter was different in Model II (0.515 in the RQ Report and .00004 in the confirmation regression). The parameter for social assistance accessibility was inverted in Model III (0.1601 in the confirmation model and -0.1601 in the RQ Report), likely due the parameter being reverse-coded. These could be due some difference in parameterization or to a typographical error in the report. Neither of these additional variables was statistically

significant and they do not affect the interpretation of the remoteness index coefficient. The model fit ( $R^2$ ) was identical for the confirmation regressions and the models in the RQ Report.

Table 2. Supplementary regression results

	<b>Confirmation regression</b>		<b>RQ Report Results</b>	
	Remoteness Index coefficient	Standard error	Remoteness Index coefficient	Standard error
Social assistance and heating degree days (Model II)	0.5214406	0.4009209	0.5214	0.401
Social assistance (Model III)	0.7523606	0.2536564	0.7524	0.254

### **Conclusion**

The regression models presented in the RQ Report are confirmed by using the data provided to re-estimate the models, using different software. The fit of the models and the estimate and variability of the remoteness coefficient parameters are identical. Small differences in other parameters are likely due to typographical errors or differences in coding and do not affect the interpretation of the remoteness coefficient parameter. We have confidence in the accuracy of the models presented in the RQ report.

Appendix: Model output

1 . regress lncostratio remotenessindex fraction19andunder populationratio

Source	SS	df	MS	Number of obs =	43
Model	2.24431155	3	.74810385	F( 3, 39) =	47.94
Residual	.608548571	39	.01560381	Prob > F =	0.0000
Total	2.85286012	42	.067925241	R-squared =	0.7867
				Adj R-squared =	0.7703
				Root MSE =	.12492

lncostratio	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
remotenessindex	.6826893	.1567636	4.35	0.000	.365605	.9997736
fraction19andunder	3.608947	.5654382	6.38	0.000	2.46524	4.752654
populationratio	.0602269	.0147743	4.08	0.000	.0303431	.0901108
_cons	-.8938806	.1179809	-7.58	0.000	-1.13252	-.6552416

2 . regress lncostratio remotenessindex fraction19andunder populationratio socialassistanceaccessibility

Source	SS	df	MS	Number of obs =	43
Model	2.24628806	4	.561572016	F( 4, 38) =	35.18
Residual	.606572059	38	.015962423	Prob > F =	0.0000
Total	2.85286012	42	.067925241	R-squared =	0.7874
				Adj R-squared =	0.7650
				Root MSE =	.12634

lncostratio	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
remotenessindex	.7523606	.2536564	2.97	0.005	.2388602	1.265861
fraction19andunder	3.828283	.8459277	4.53	0.000	2.115792	5.540774
populationratio	.0597465	.0150054	3.98	0.000	.0293698	.0901233
socialassistanceaccessibility	.1600691	.4548908	0.35	0.727	-.7608091	1.080947
_cons	-1.096475	.5879772	-1.86	0.070	-2.286773	.0938225

3 . regress lncostratio remotenessindex fraction19andunder populationratio heatingdegreeday

Source	SS	df	MS	Number of obs =	43
Model	2.25477127	4	.563692817	F( 4, 38) =	35.81
Residual	.598088852	38	.01573918	Prob > F =	0.0000
Total	2.85286012	42	.067925241	R-squared =	0.7904
				Adj R-squared =	0.7683
				Root MSE =	.12546

lncostratio	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
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User: Martin Cooke

remotenessindex	.4744546	.3000603	1.58	0.122	-.1329858	1.081895	
fraction19andunder	3.62171	.5681014	6.38	0.000	2.471649	4.771771	
populationratio	.0576645	.0151676	3.80	0.001	.0269593	.0883696	
heatingdegreeday	.0000435	.0000533	0.82	0.420	-.0000645	.0001514	
_cons	-1.052495	.2278104	-4.62	0.000	-1.513673	-.5913175	

4 . regress lncostratio remotenessindex fraction19andunder populationratio socialassistanceaccessibility heatingdegreeday

Source	SS	df	MS	Number of obs =	43
Model	2.25529294	5	.451058587	F( 5, 37) =	27.93
Residual	.597567186	37	.016150464	Prob > F =	0.0000
Total	2.85286012	42	.067925241	R-squared =	0.7905
				Adj R-squared =	0.7622
				Root MSE =	.12708

	lncostratio	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
remotenessindex		.5214406	.4009209	1.30	0.201	-.2909022 1.333783
fraction19andunder		3.736502	.8597277	4.35	0.000	1.994528 5.478476
populationratio		.0575387	.0153804	3.74	0.001	.026375 .0887023
socialassistanceaccessibility		.0842358	.4686974	0.18	0.858	-.8654354 1.033907
heatingdegreeday		.0000413	.0000553	0.75	0.460	-.0000708 .0001534
_cons		-1.151248	.5959618	-1.93	0.061	-2.358781 .0562855

5 . log close

name: <unnamed>  
log: /Users/Martin/Dropbox/Socialtrends.ca/NAN Remoteness Coefficient review 2018/Regression confirm  
log type: smcl  
closed on: 9 Mar 2019, 09:37:26

**FIRST NATIONS CHILD AND FAMILY  
CARING SOCIETY OF CANADA et al.**  
**Complainants, Commission & Interested  
Parties**

**-and-**

**ATTORNEY GENERAL OF CANADA**

**Respondent**

**Docket: T1340/7008**

**CANADIAN HUMAN RIGHTS  
TRIBUNAL**

**AFFIDAVIT OF DR. MARTIN COOKE**

**FALCONERS LLP  
Barristers-at-Law  
10 Alcorn Avenue, Suite 204  
Toronto, ON M4V 3A9**

**Julian N. Falconer (L.S.O. #29465R)  
Molly Churchill (L.S.O.#72510P)**

**Tel: 416-964-0495  
Fax: 416-929-8179**

**Lawyers for the Interested Party, Nishnawbe  
Aski Nation (“NAN”)**