“Vancouver and Surrey Are Not the Same City”: Exploring Health Inequalities in Canada Beneath the Level of CMA

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Canadian Population Society Meetings
Regina, May 31st, 2018

Overview

- Introduce Urban Public Health Network (UPHN) and Measuring Trends in Health Inequalities in Cities project
- Discuss conceptual and methodological quandaries motivated by measuring health inequalities at the city-level
- Share preliminary results and speculative findings at CMA and CSD levels

Health inequalities

- In the the public health domain in Canada the term “health inequalities” is used a variety of ways
- However, the most common usage is Asada’s (2007) “differences in health by socio-economic [SES] status or social class” (11).
- In other words, it refers to a bivariate relationship—measuring health inequalities entails measuring both SES and a health outcome

Area vs. individual inequalities

- A great deal of health information in Canada is derived from hospital administrative, vital statistics and surveillance data
- These provide rich information on health outcomes, but no information on SES
- Area-based indicators of SES have emerged as a useful way to assign SES to these kinds of data
- Area-based and individual inequalities are not the same

Rural vs. urban health inequalities

- Area based measures of inequalities are sensitive to the areas we use to construct them
- These differences are particularly pronounced when we contrast urban and rural geographies
- Rural geographies tend to be less populated and less segregated
- As a result, health inequalities tend to be underestimated using area-based measures in rural areas

Urban health inequalities

- This motivates the exclusive study of urban health inequalities, but this gives rise to its own sets of challenges
- Note: there are different ways of quantifying (i.e. summarizing) health inequalities
- In this presentation I am going to work with what is known as the Disparity Rate Difference (DRD)
    - The difference between the health outcomes of the first and fifth income quintiles

Urban Public Health Network

- Established in 2004, the UPHN is a network of Medical Officers of Health in charge of Canada's largest urban centres
- The network is responsible for the public health of more than half of the Canadian population
- The aim of the UPHN to address public health issues that are common to urban populations

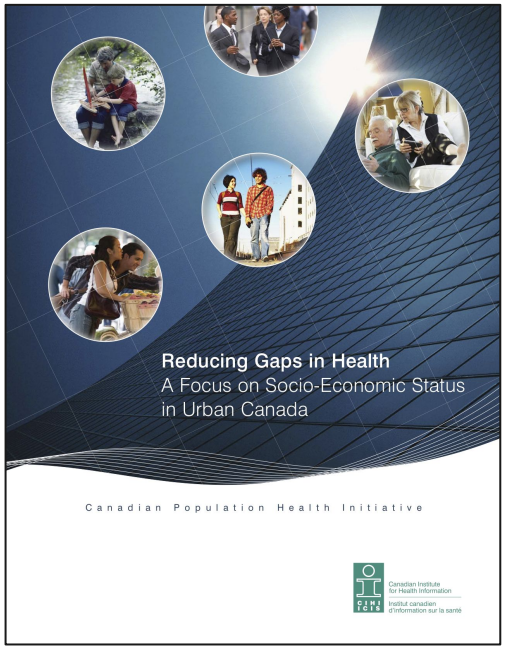
UPHN Cities

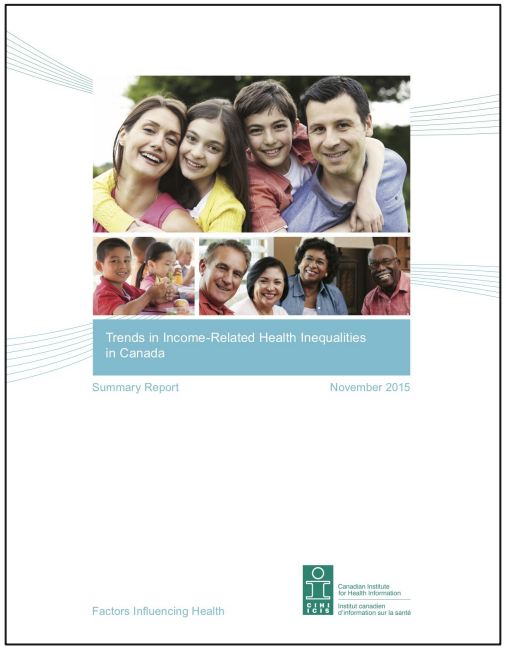
+ Surrey
+ Mississauga
+ Laval
+ Longueuil
+ Sherbrooke
+ Fredericton

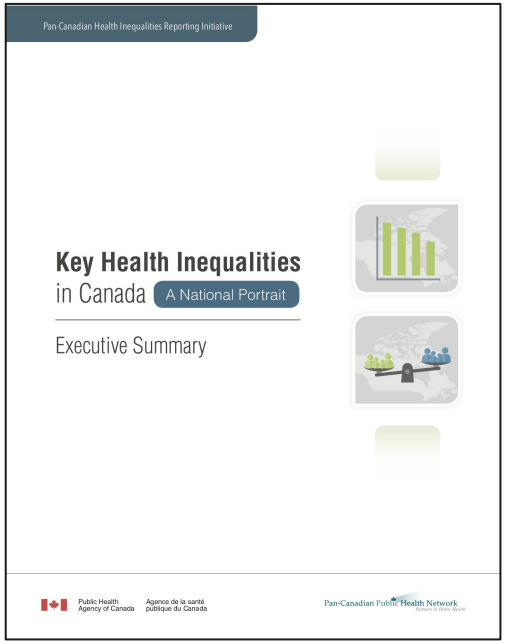
UPHN Objectives

1. Share best practices in delivery and evaluation of public health
2. Raising awareness of urban public health issues
3. Fostering collaborative action on issues of mutual interest
4. Advancing policy change by developing a collective voice for urban public health
5. Facilitating research in public health.

MTHIC precedents







MTHIC

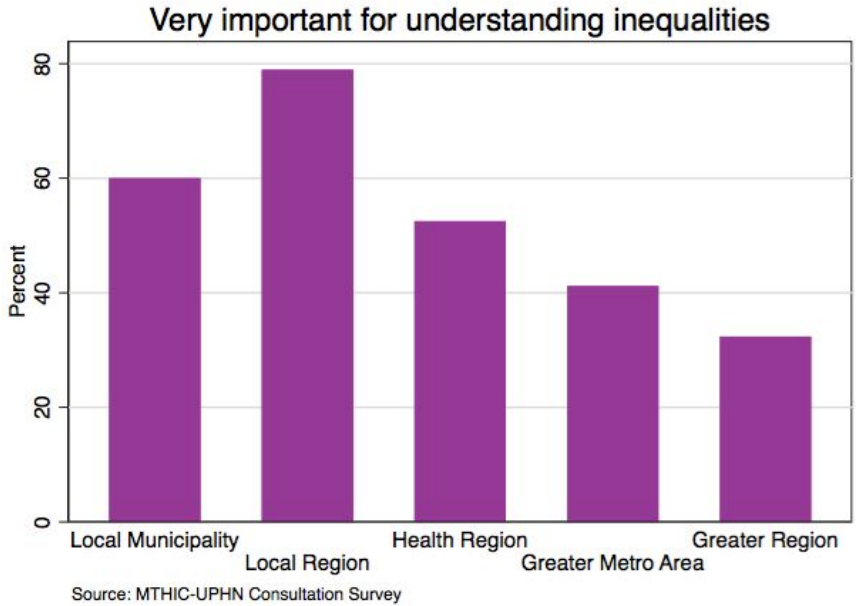
- MTHIC stands for “Measuring Trends in Health Inequalities in Cities”
- Project objectives:
    a. To work with leading Canadian data sources on health to present a national-level portrait of urban health inequalities in the 23 UPHN member cities.
    b. To help UPHN member cities use these resources and further monitor health inequalities using their own local data sources.
- Partners: Canadian Institute for Health Information (CIHI), Statistics Canada, Public Health Agency of Canada (PHAC), and others.

What is a city?

1. Inequalities refer to a distribution within a population

2. Which population should we use?

    a. Census subdivision
    b. Health Region
    c. Census metropolitan area
    d. Census division
    e. Province



“Vancouver and Surrey Are Not the Same City”

- CMA are controversial among health practitioners
- CMA are defined by the size and commuting patterns of adjacent municipalities (i.e. census subdivisions)
- For example:
    - “Given a minimum of 100 commuters, at least 50% of the employed labour force living in the CSD works in the delineation core” (92)
- Canada’s largest CMA span multiple health regions and UPHN members

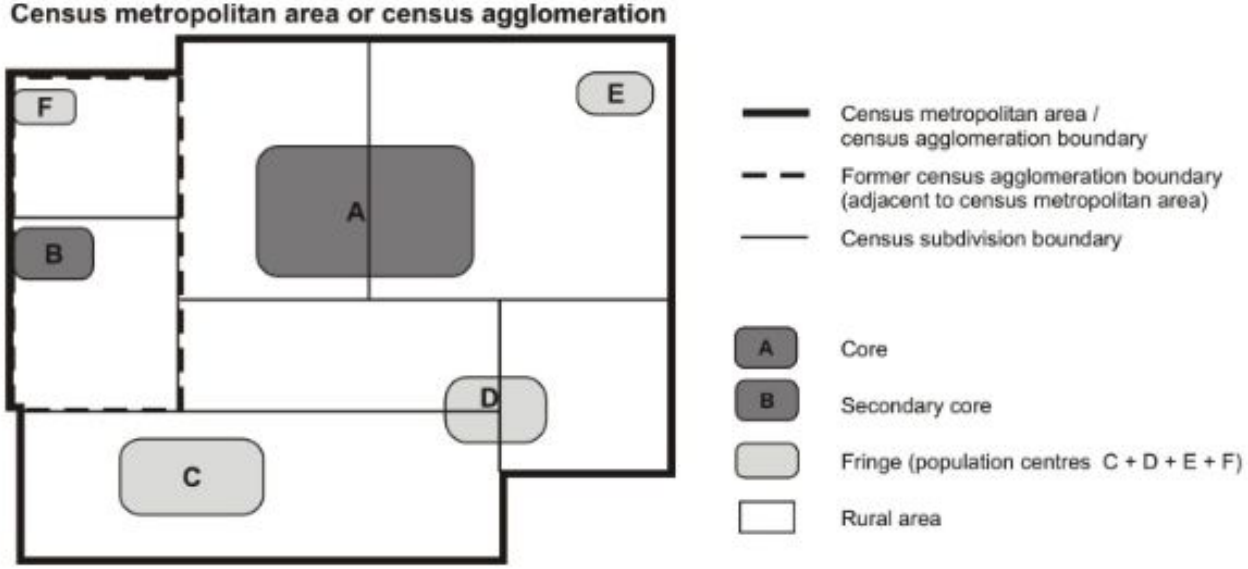
Alternative geographies

Geography	Issues
User defined	Defined differently with every research project
Health regions	Arbitrary and regularly changing
Neighbourhoods	Too small to generate disclosable and/or statistically useful results
CSD	Less arbitrary and largely unchanging

What is urban?

- Because of the way in which CMA are defined, they can include substantial rural areas
- We follow the lead of CIHI (2008) and only include neighbourhoods that are identified by Statistics Canada to be population centres:
    - “Area with a population of at least 1,000 and no fewer than 400 persons per square kilometre” (121)
- That is areas within CMA identified as core, secondary core, or fringe

Figure 12 Example of a census metropolitan area or census agglomeration, showing core, secondary core, fringe and rural area



Source: Statistics Canada, 2011 Census of Population.

City-level analysis

- MTHIC is working on estimating health inequalities for viable cities at CSD and CMA-levels
- Three key innovations:
    a. Taking as our unit of analysis 5-year between census intervals
    b. Adopting an indicator-by-indicator approach to analysis
    c. Developing new vetting practices to determine when data is sufficient

Data used (this presentation)

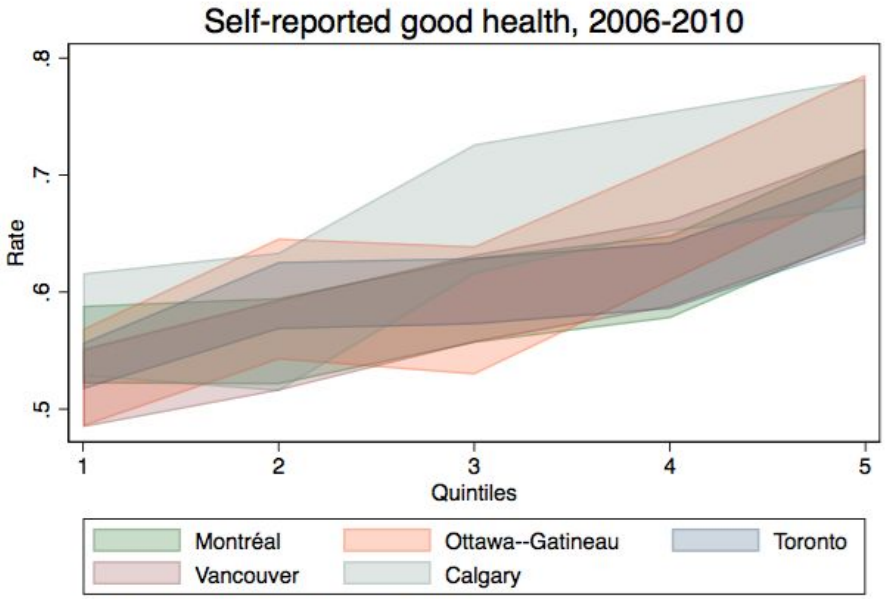
- The 2006 Census is used to code DA according to their income levels
- Pooled Canadian Community Health Survey (CCHS) over the between 2006-2010 interval (i.e. 2007, 2008, 2009, 2010)
- In the near future, the aim is to extend analysis to 2001-2005 and 2011-2015
- Data are accessed via RDC

Operationalizing SES

- We operationalize SES at the dissemination area (DA) level
- Average household adjusted after-tax income is calculated within DA
- We then sort DA into five quintiles within CMA
- This is the variable similar to “QAIPPE” in the PCCF+

Preliminary results

- Early results in the CCHS suggest that there is more variation in health inequalities between CMA than within them
- However, there is also as much variation among CMA within the largest provinces as there is between provinces
- These (early) results point to the CMA as an important and useful level of analysis for understanding health inequalities in Canada



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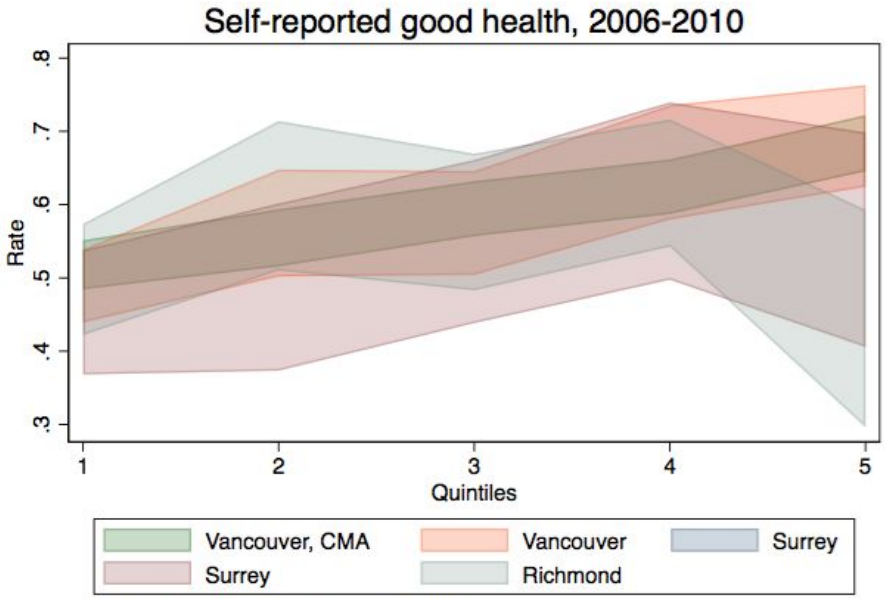

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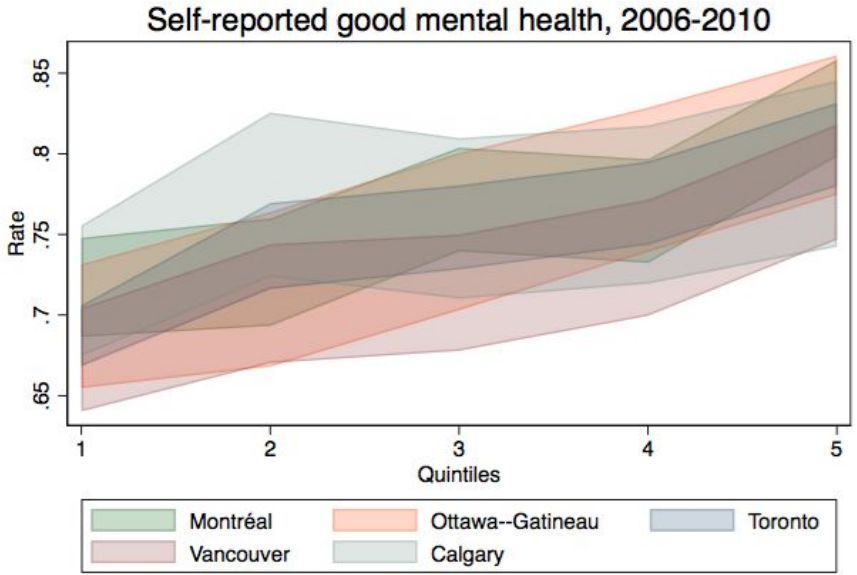

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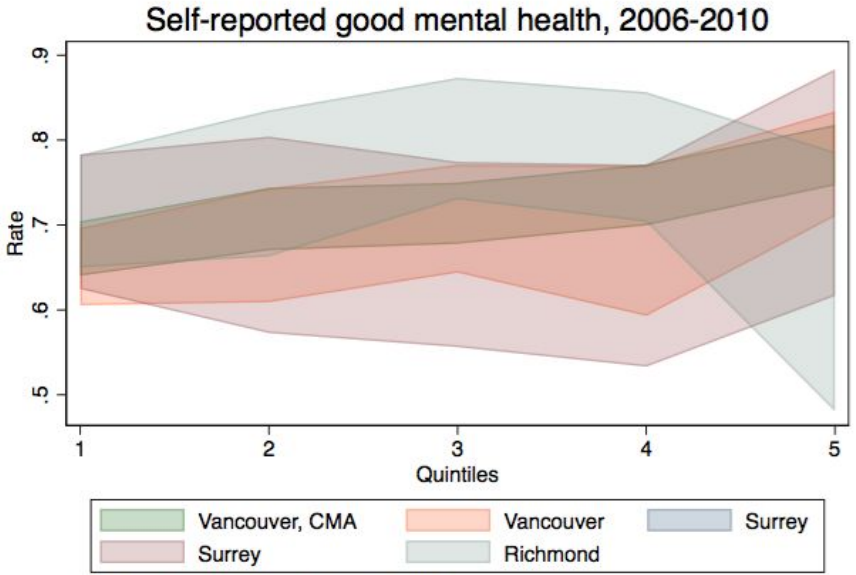

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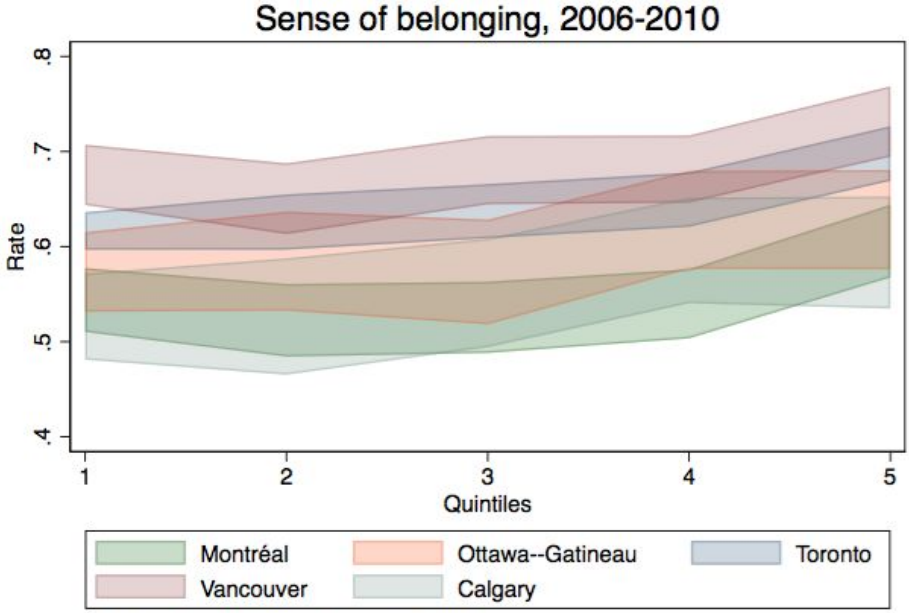

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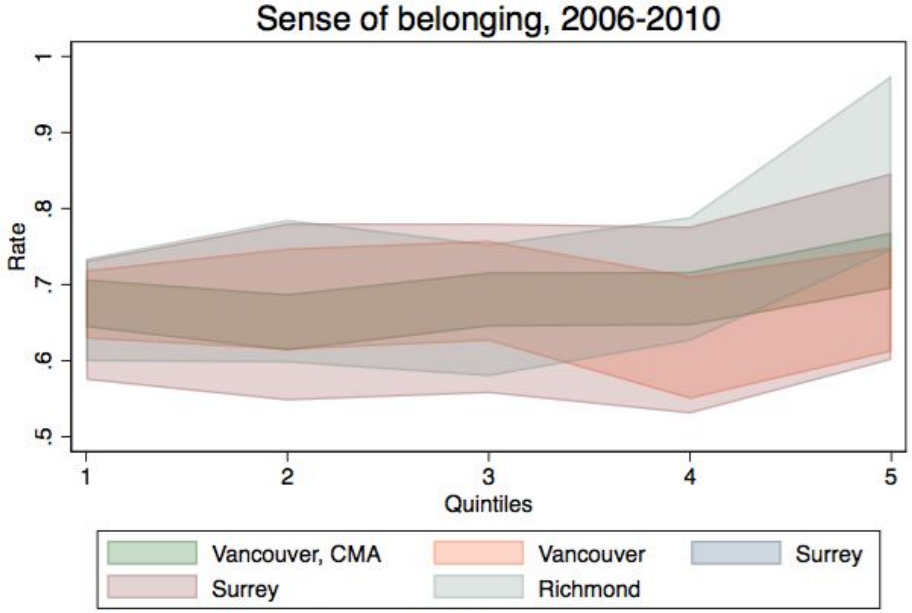

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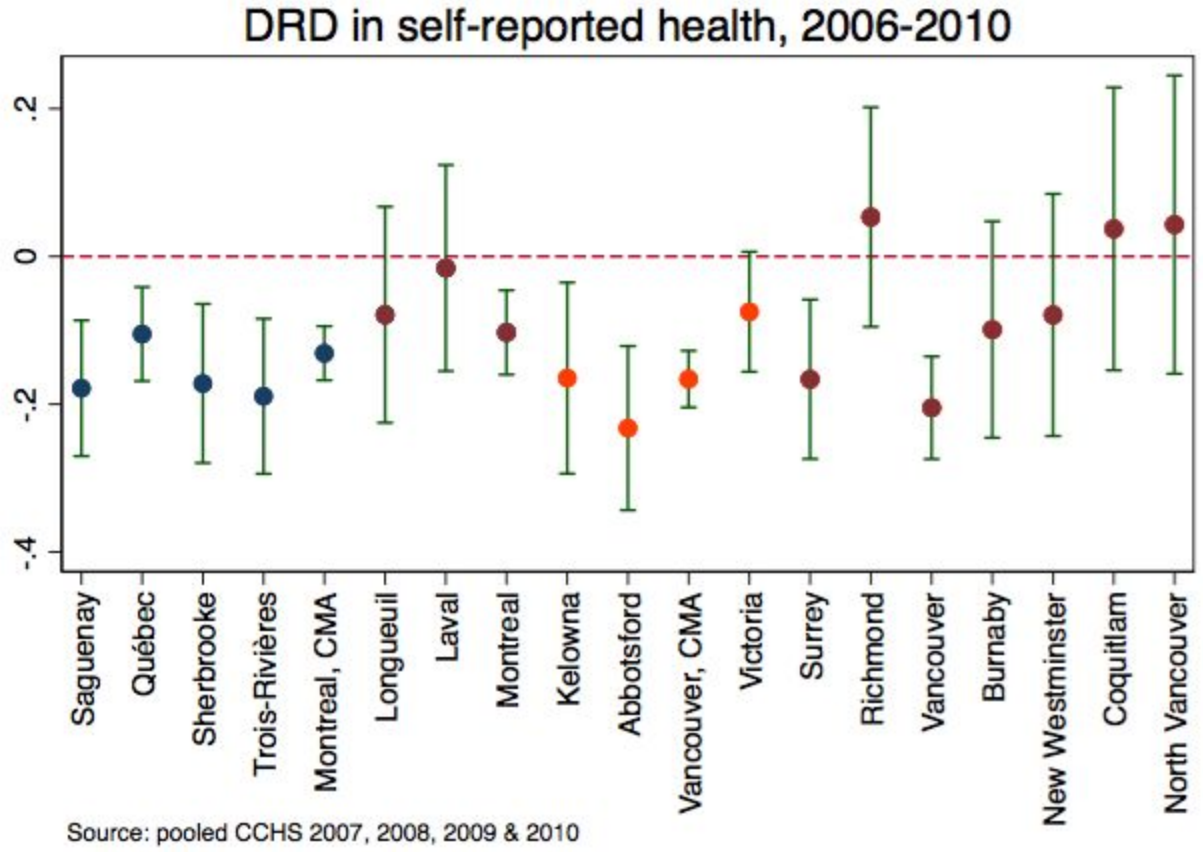
DRD in self-reported health, 2006-2010
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Laval
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Kelowna
Abbotsford
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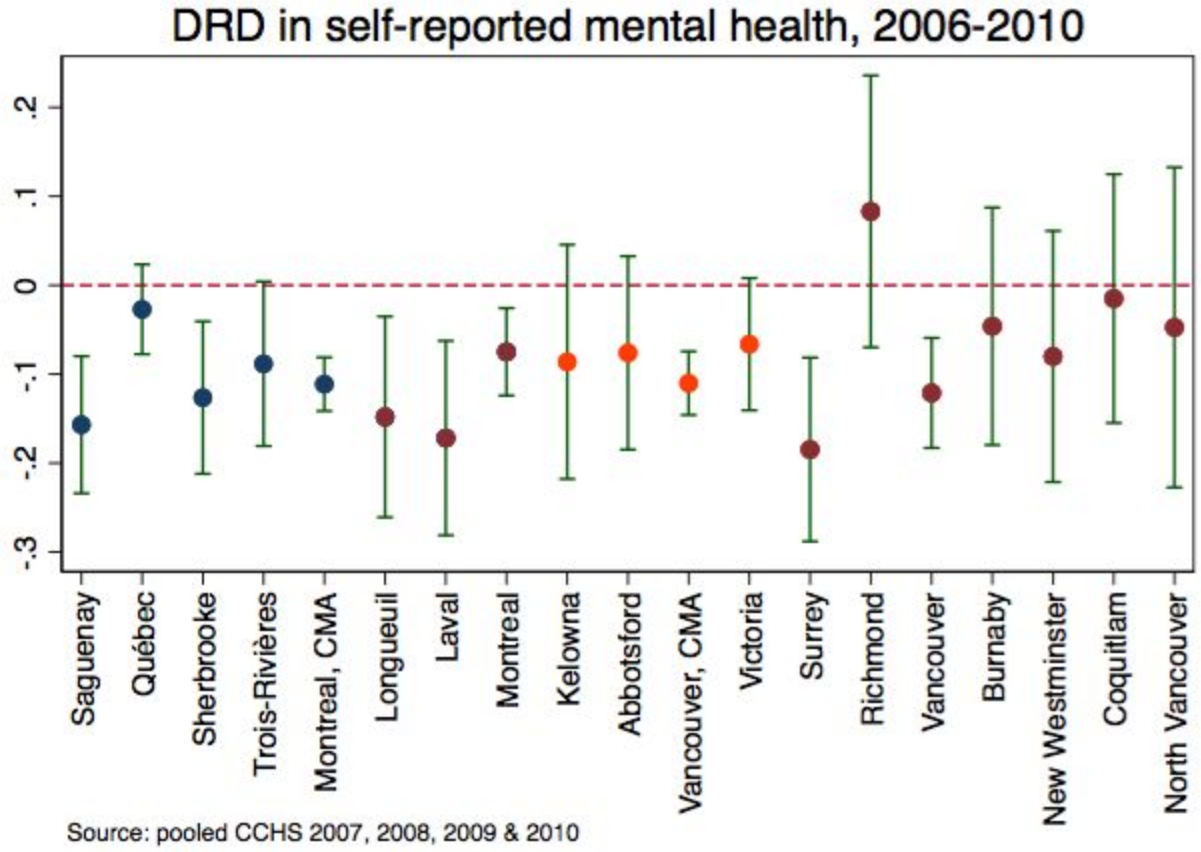
New Westminster
Coquitlam
North Vancouver
Source: pooled CCHS 2007, 2008, 2009 & 2010


DRD in self-reported mental health, 2006-2010
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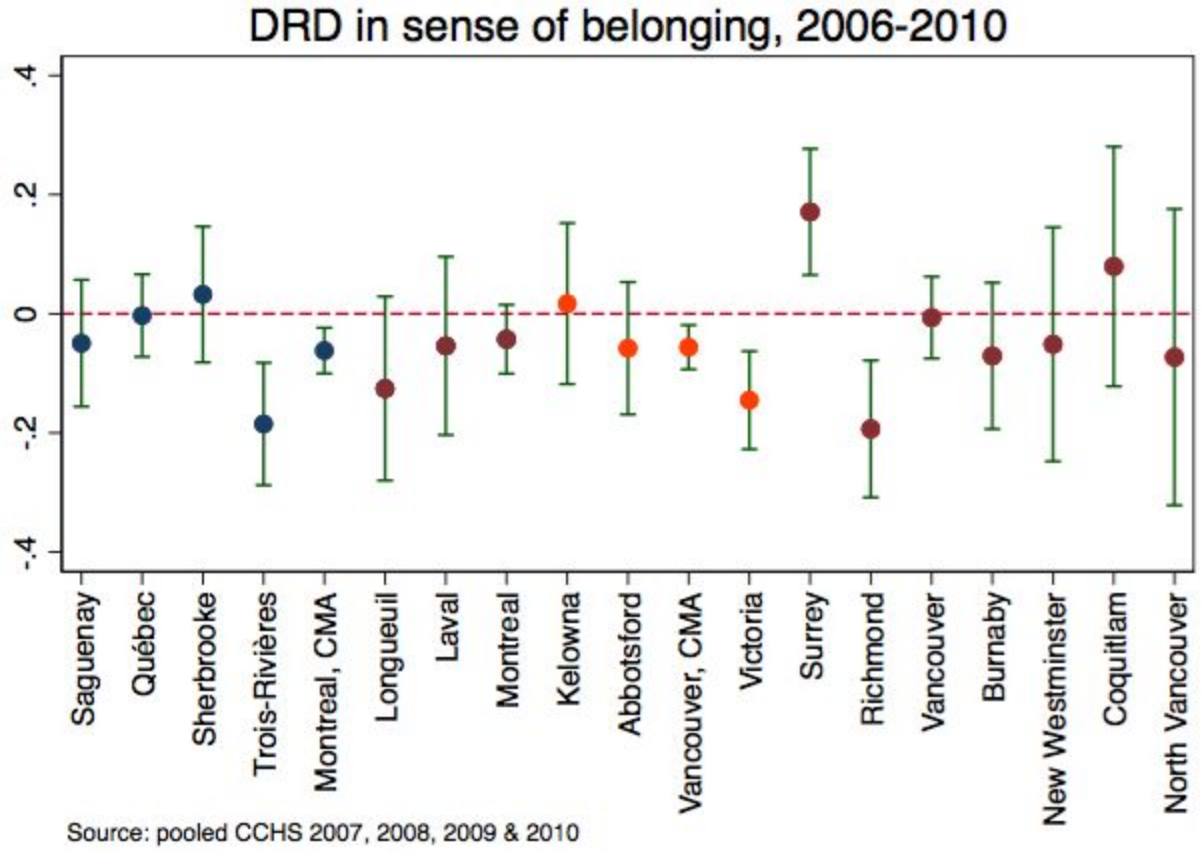
North Vancouver
Source: pooled CCHS 2007, 2008, 2009 & 2010


DRD in sense of belonging, 2006-2010
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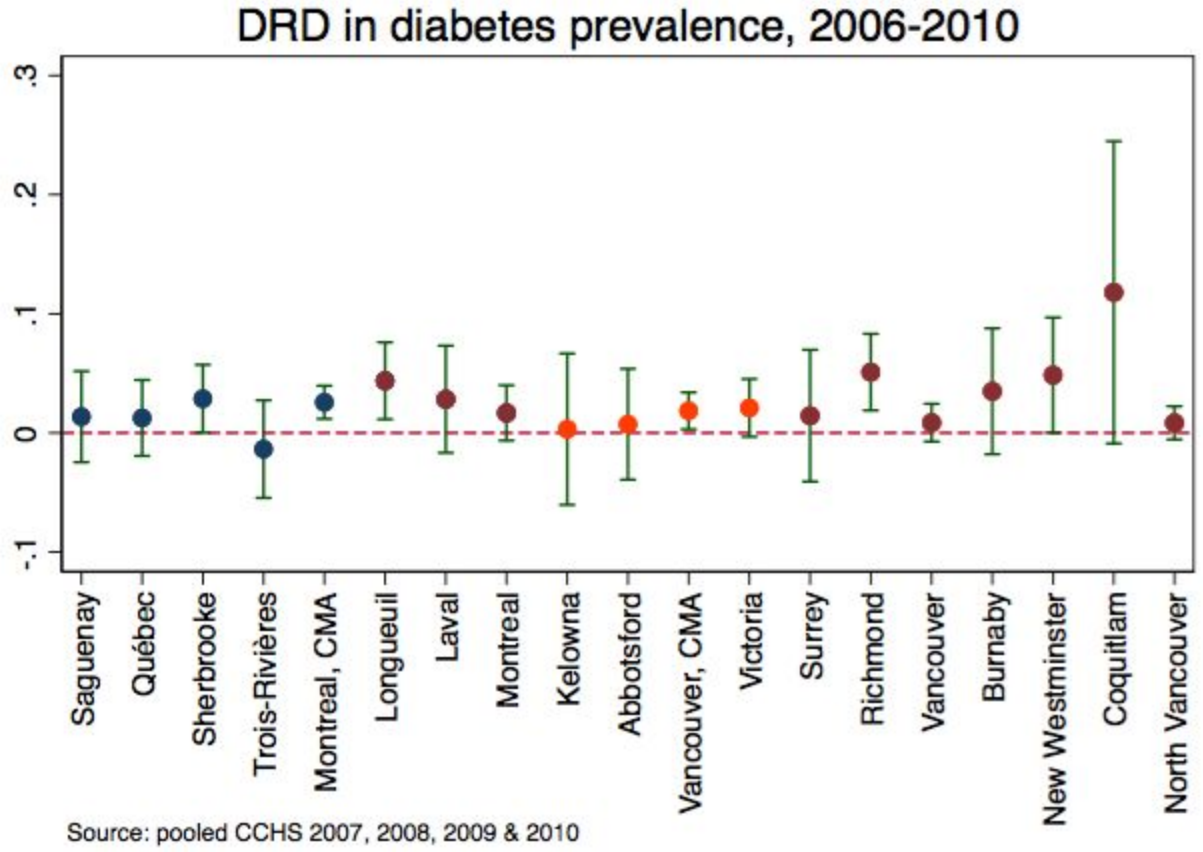
Source: pooled CCHS 2007, 2008, 2009 & 2010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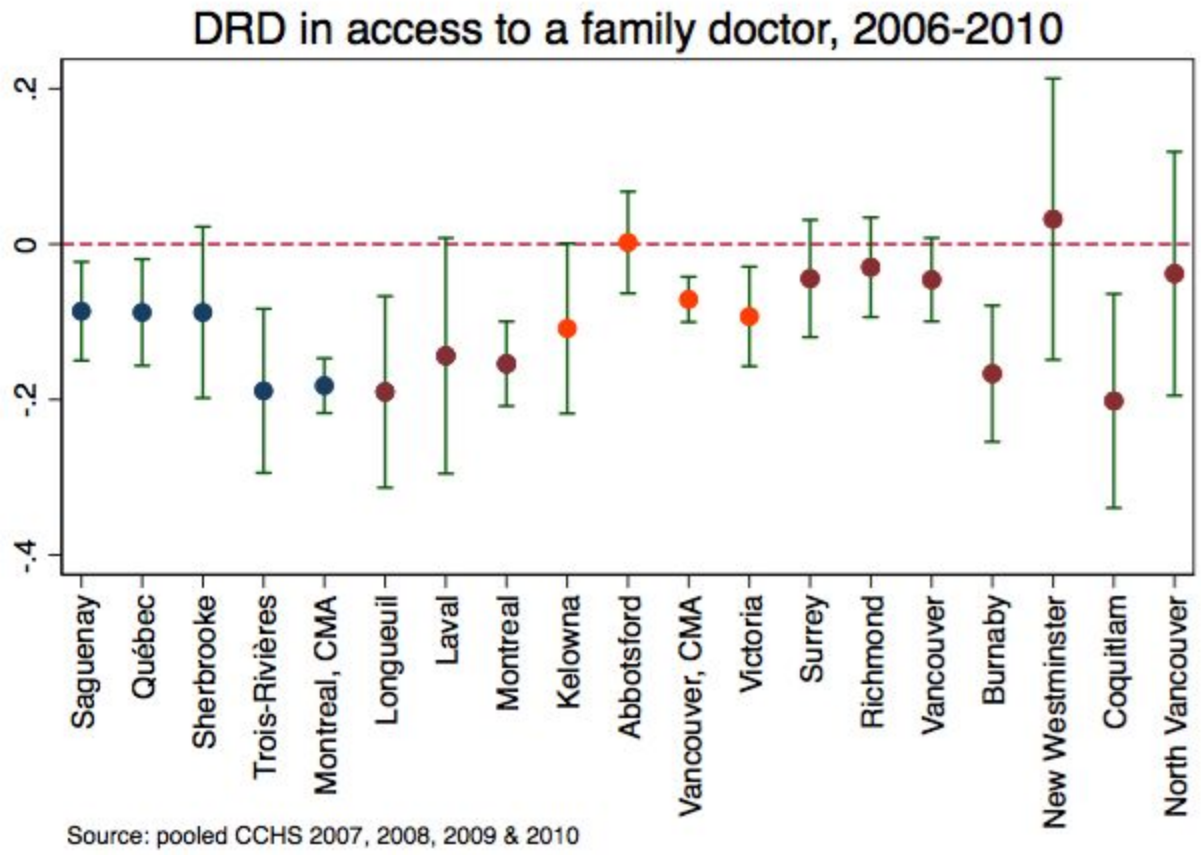
Source: pooled CCHS 2007, 2008, 2009 & 2010


DRD in access to a family doctor, 2006-2010
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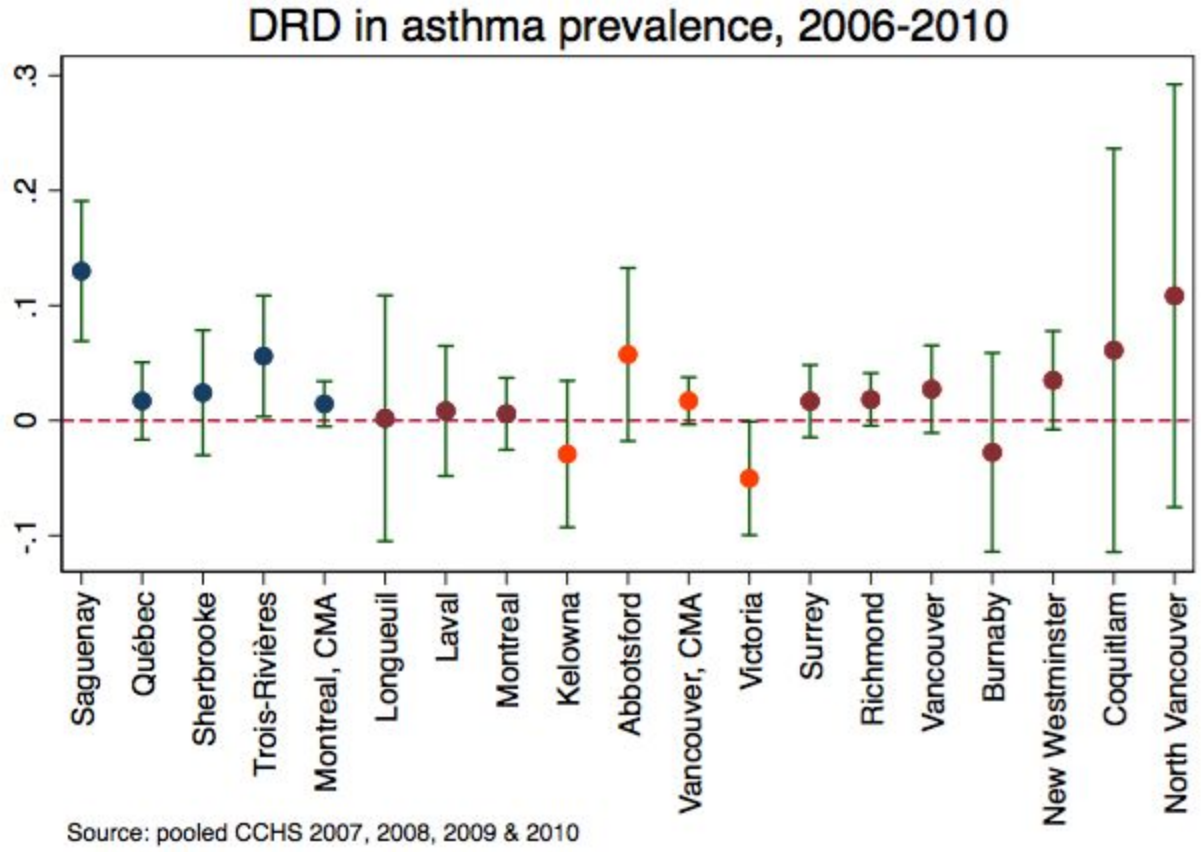
Source: pooled CCHS 2007, 2008, 2009 & 2010


DRD in asthma prevalence, 2006-2010
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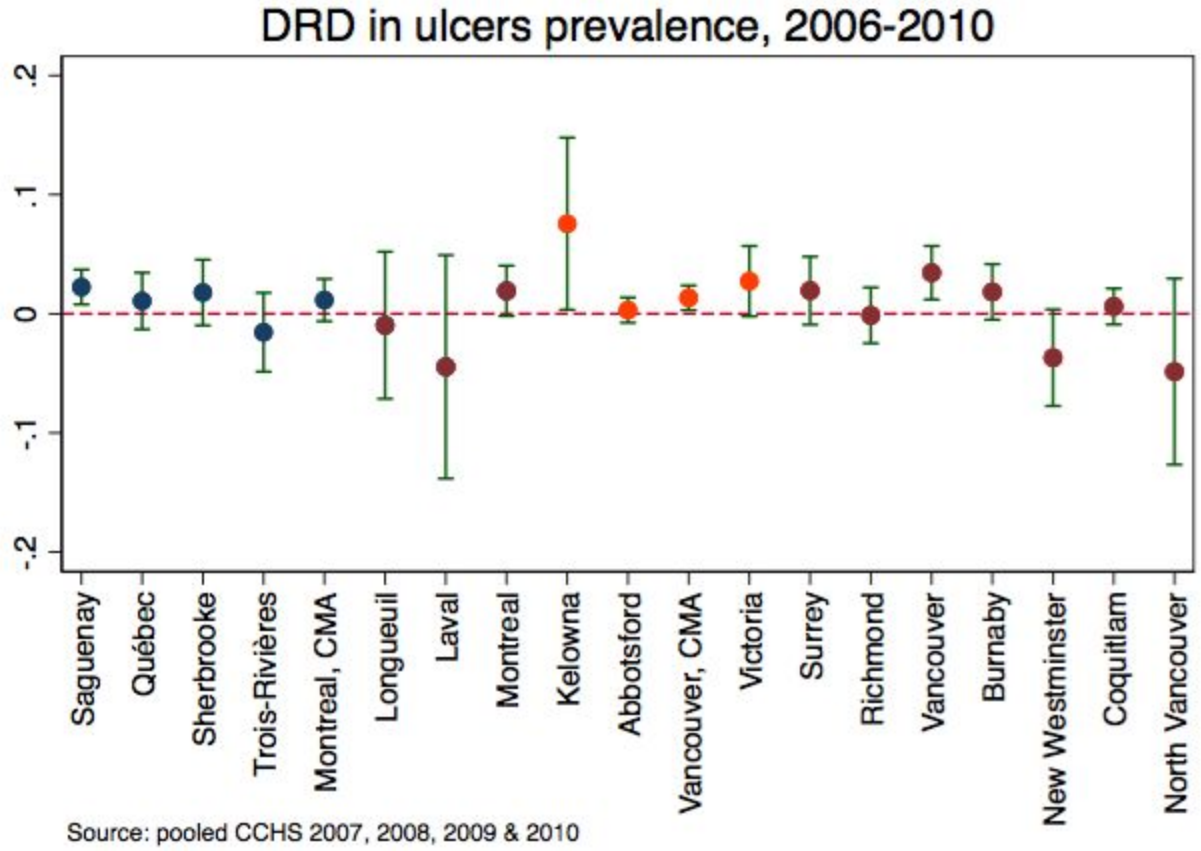
Source: pooled CCHS 2007, 2008, 2009 & 2010


DRD in ulcers prevalence, 2006-2010
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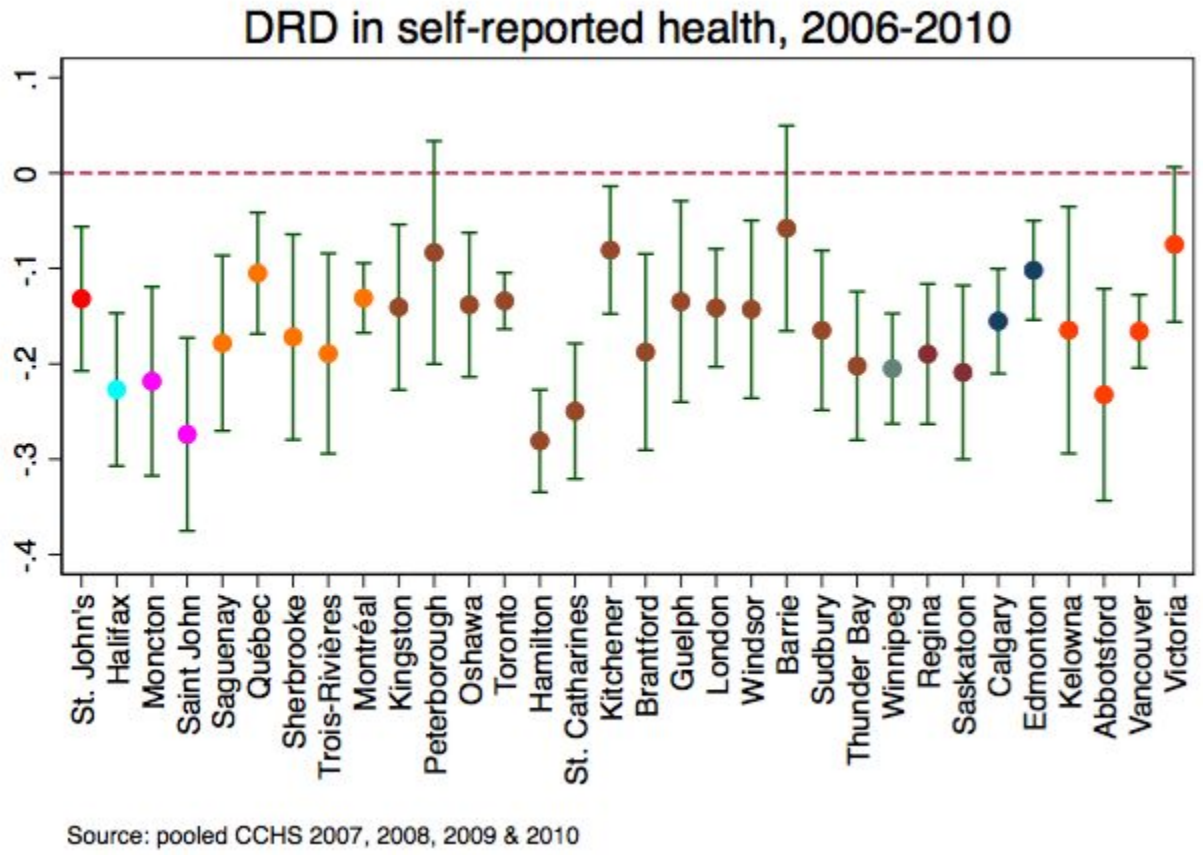
Source: pooled CCHS 2007, 2008, 2009 & 2010



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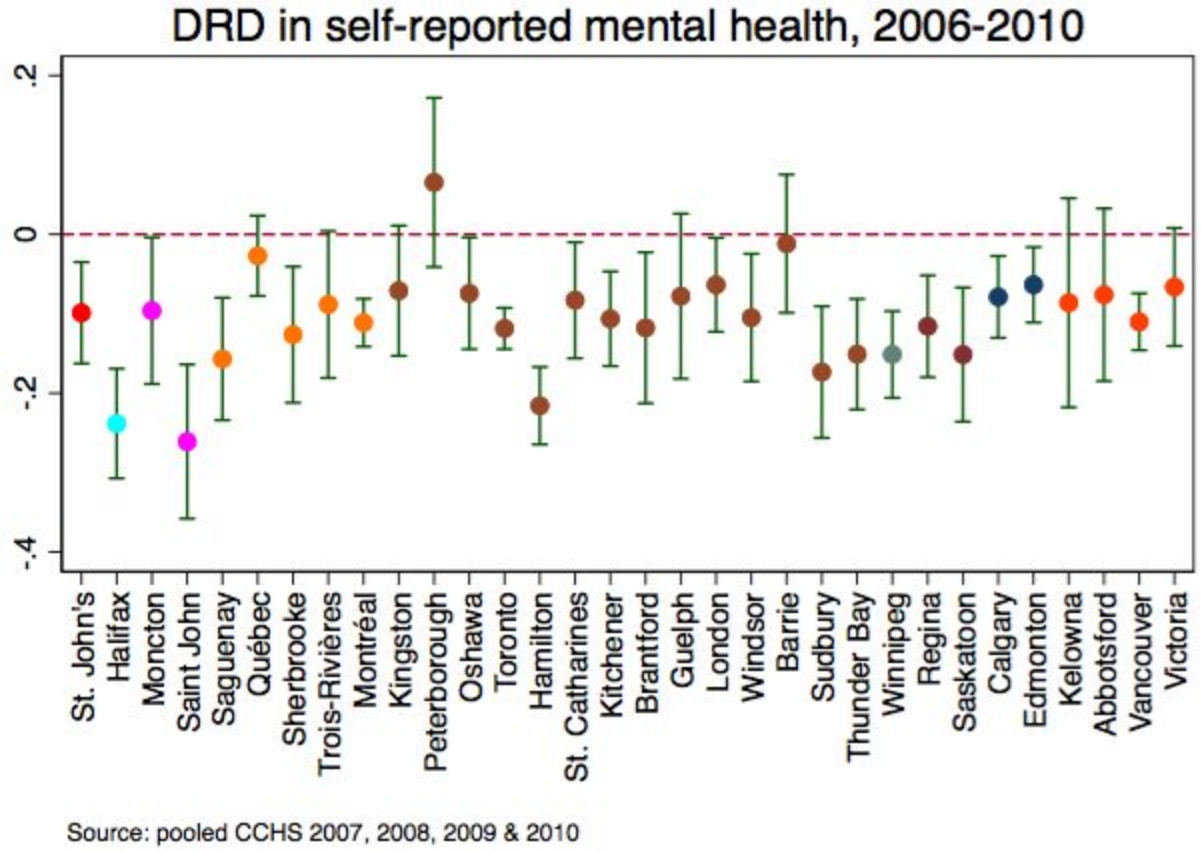

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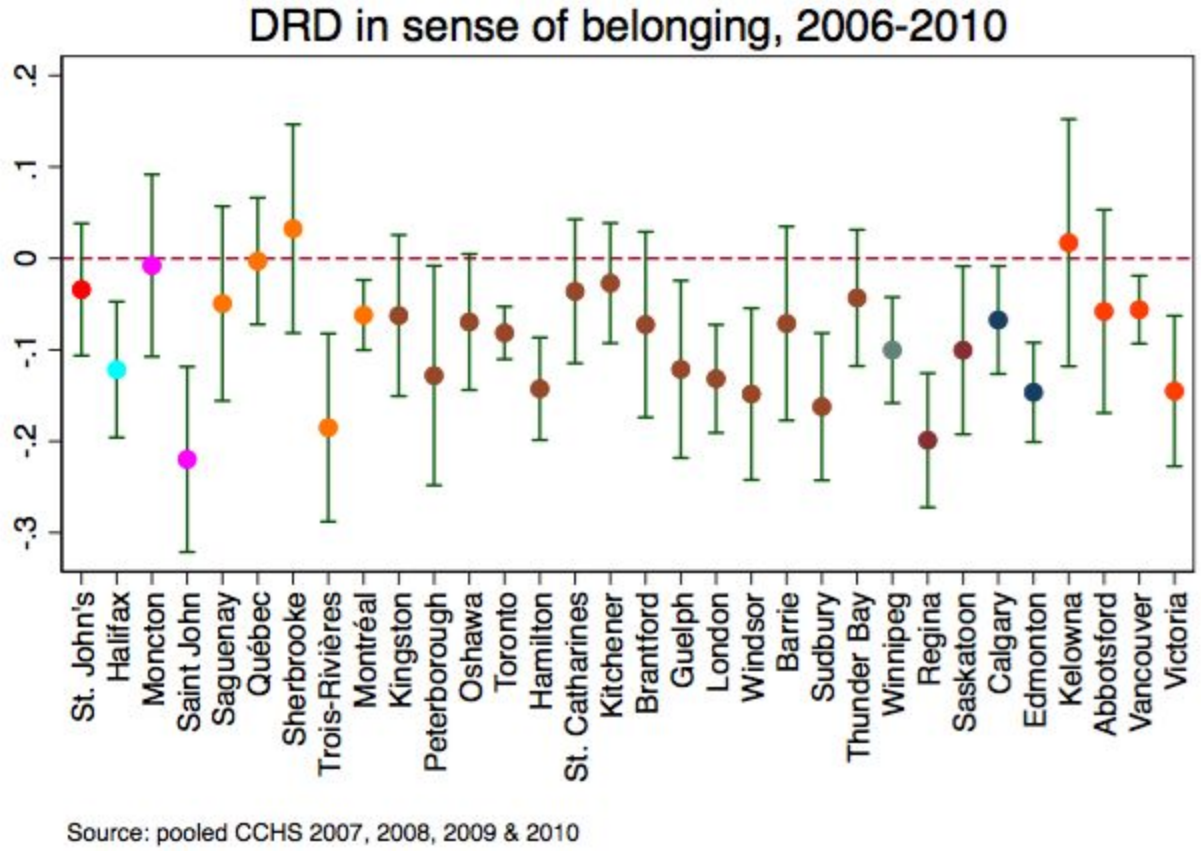


Source: pooled CCHS 2007, 2008, 2009 & 2010

This design controls for composition

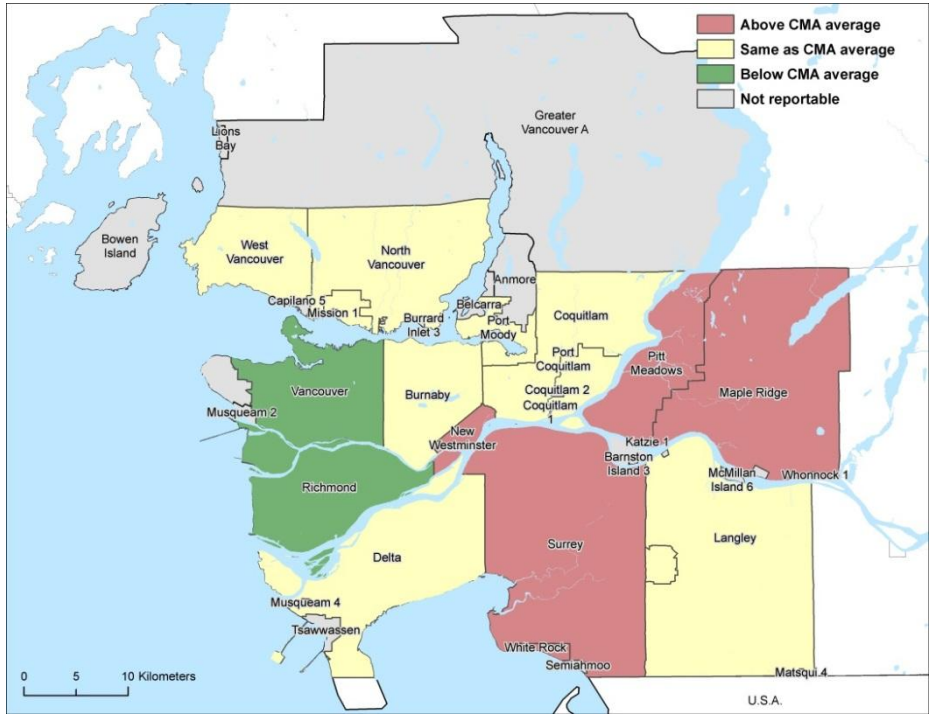
- Note that these results do not mean that there are not large inequalities in health between CSD within CMA
- Just that the health levels of similar SES neighbourhoods within CMA are relatively similar
- Types of neighbourhoods are not distributed evenly within a CMA
    - For example, a far greater share of Westmount or Hampstead neighbourhoods will be high-SES than Longueuil

Preliminary results from CIHI in levels

- The following two slides contain CSD-level rates of Hospitalizations due to Opioid poisoning
- These were calculated by the CIHI team working with MTHIC: Sara Grimwood, Junior Chuang, Meredith Nichols, Sara Allin, Geoff Hynes and Jean Harvey
- These are preliminary results and not yet for distribution

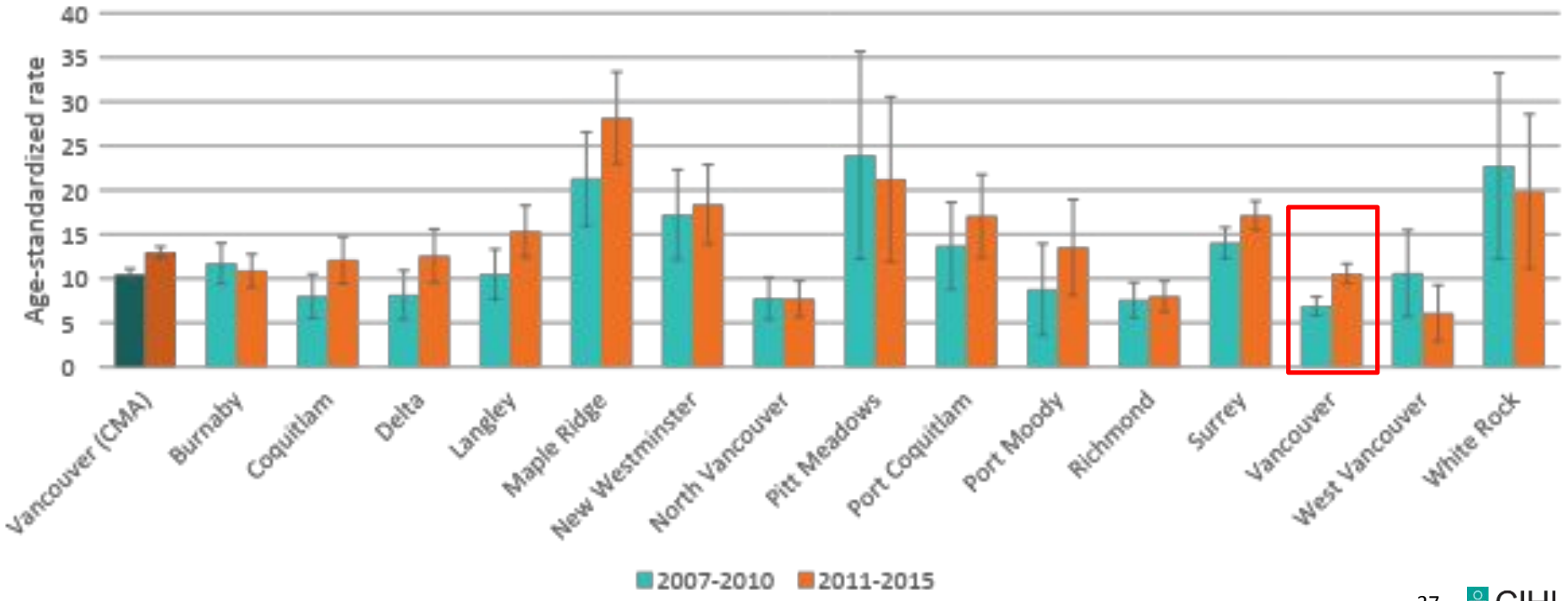
Hospitalizations due to Opioid poisoning, by CSD for Vancouver CMA, over time

2007-2010: 10.4 hospitalizations/100, 000



2011-2015: 13.0 hospitalizations/100, 000

Hospitalizations due to Opioid Poisoning, by CSD for Vancouver CMA, over time



CIHI

Looking ahead

- Need to interrogate whether health inequalities actually vary among CSD within CMA with using more robust methods
- Perhaps we should be asking, in which circumstances does CSD-level add information and become worthwhile?
- In other words, let's pose the title of this presentation differently, as a question: "Are Vancouver and Surrey the same city?"
- Explore differences in levels in CSD CCHS and other data sources and a develop an understanding of what these mean

Thank you.

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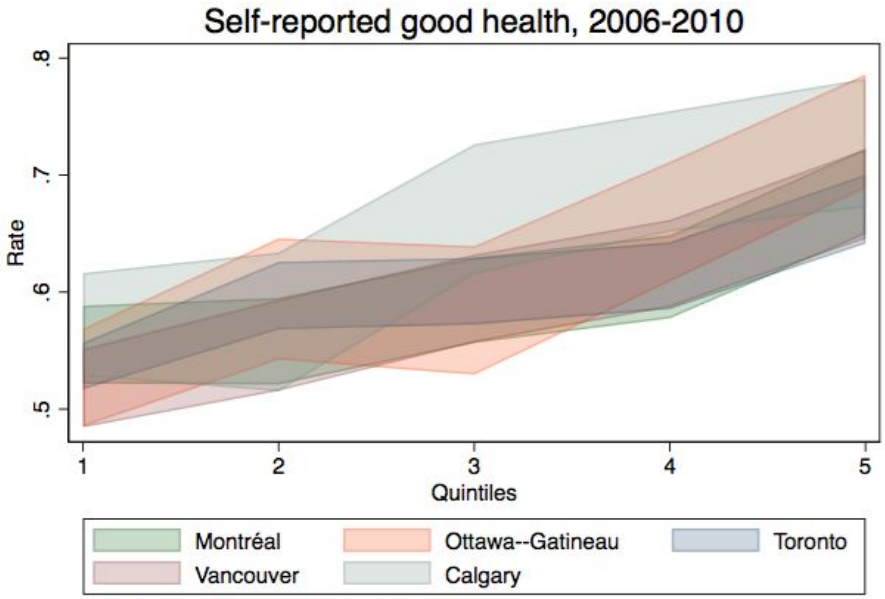
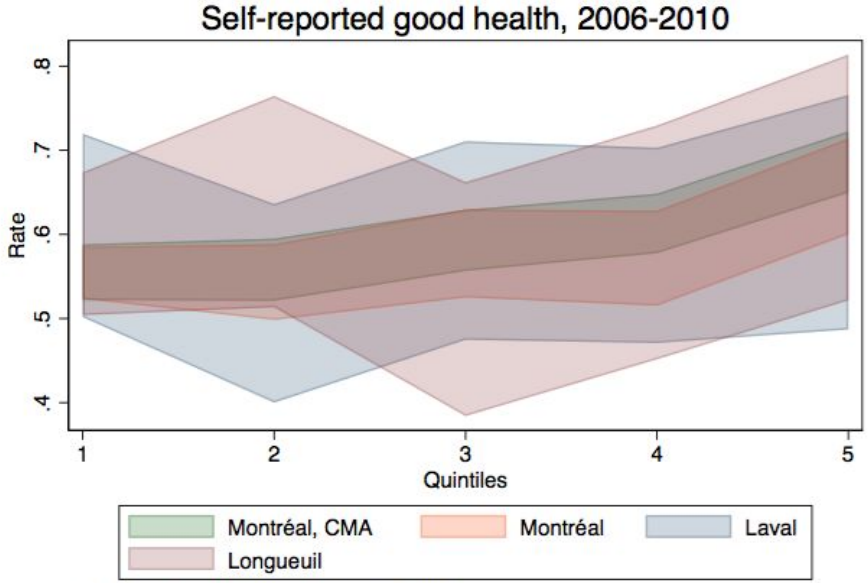


Source: pooled CCHS 2007, 2008, 2009 & 2010



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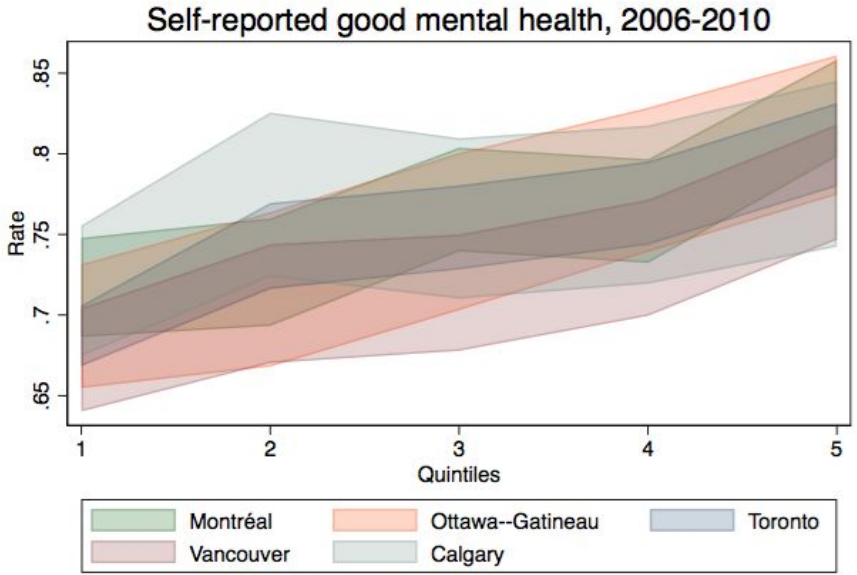

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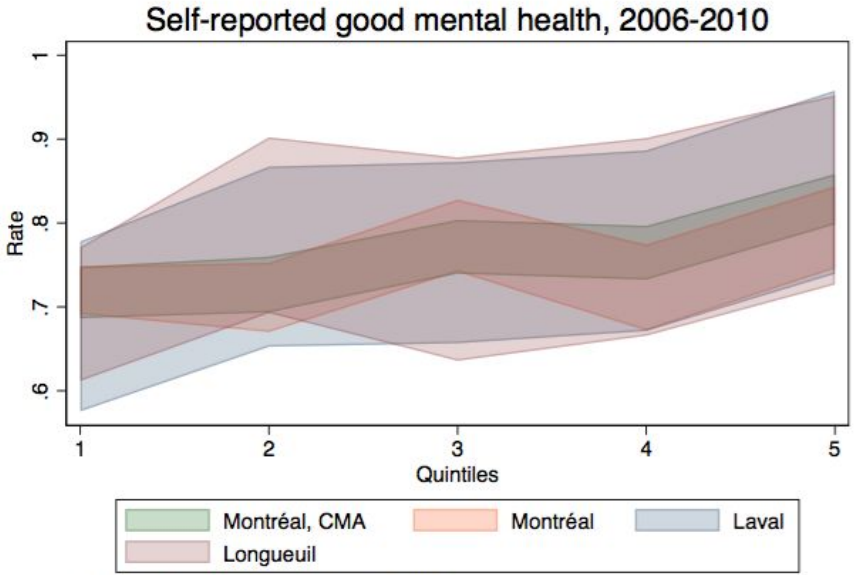

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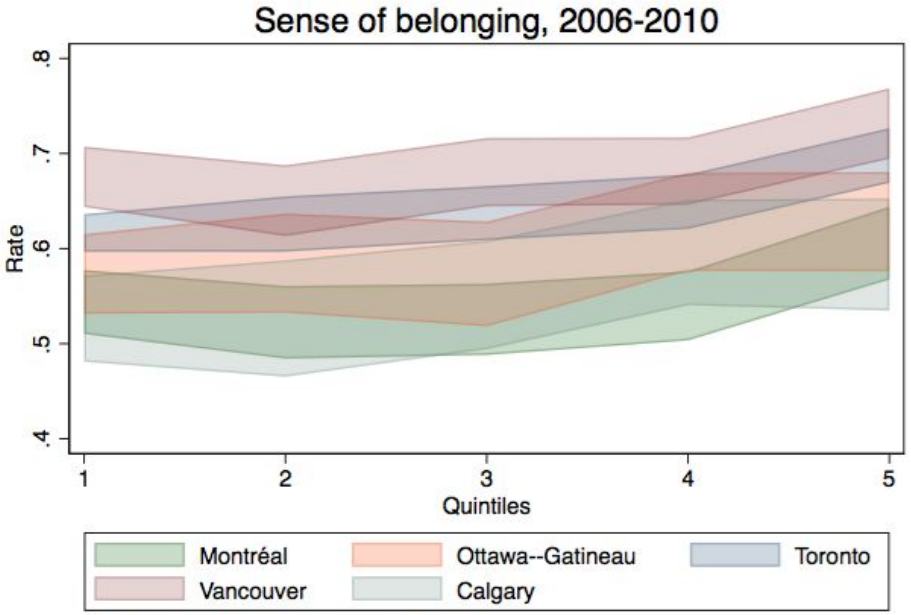

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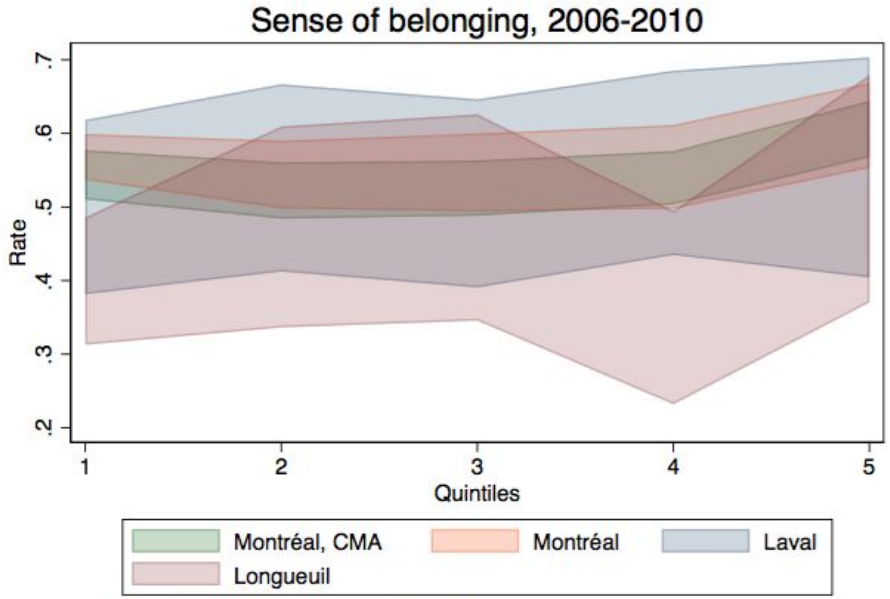

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