



# Analyzing Complex Samples Using Statistics Canada Data

Jennifer McConnell-Nzunga, Ph.D.

RDC Analyst  
Statistics Canada

&

Richard MacLennan, Ph.D.

Professor Psychology,  
University of Regina

Delivering insight through data, for a better Canada



Statistics  
Canada

Statistique  
Canada

Canada

# Presentation Outline

---

- Part I
  - Introduction to the Research Data Centre (RDC) Program
  - Sample of Datasets
  - How to Access the RDC
- Part II
  - Complex Samples
  - Weighting Cases
  - Bootstrap Estimation

# CONTINUUM of DATA ACCESS

Self-serve

Secure Access

	Public Use Microdata Files (PUMFs)	Self-Serve Tabulation Tool	Confidential Microdata Files
ACCESS SOLUTIONS	Free download Subscription to PUMF platform	Subscription to Real Time Remote Access (RTRA)	Virtual Data Lab (vDL) Virtual Research Data Centre (vRDC)
LOCATION OF ACCESS	StatCan website	StatCan website	StatCan premise Secure room Authorized workspace
TYPE OF DATA	Social data Data available: <a href="https://www150.statcan.gc.ca/n1/en/type/data?MM=1#publicusemicrodata">https://www150.statcan.gc.ca/n1/en/type/data?MM=1#publicusemicrodata</a>	Social data Data available: <a href="https://www.statcan.gc.ca/en/micro-data/rtra/data">https://www.statcan.gc.ca/en/micro-data/rtra/data</a>	Social and business data Data available: <a href="https://www.statcan.gc.ca/en/micro-data/data-centres/data">https://www.statcan.gc.ca/en/micro-data/data-centres/data</a>



Statistics  
Canada

Statistique  
Canada

Canada

# What is an RDC?

A secure facility on campus through which researchers can access confidential Statistics Canada microdata

The Canadian Research Data Centre Network (CRDCN) is one of 17 CFI Major Science Initiatives (CFI-MSI) in Canada funded by CFI, Statistics Canada, SSHRC, CIHR, the FRQ, provinces, and partner universities to support research to inform public policy

Staffed by Statistics Canada employees and located conveniently throughout the country so that researchers do not have to travel to access data



# There are 33 RDCs located across Canada

Researchers at different RDCs can collaborate on projects!

- ☆ Centre
- Branch



# CRDCN: A Snapshot



## RESEARCH COMMUNITY



## RESEARCH DISCIPLINES



## CONTRIBUTIONS

### Over the lifetime of the Network

- 944** Graduates
- 4876** Publications
- 2392** Peer-reviewed articles
- 302** Books and book chapters
- 541** Reports to policy groups



## DATA

**575**  
DATA SETS

100



Statistics  
Canada

Statistique  
Canada

# Why work in the RDC?

Growing collection of linked health, immigration, economic, social, crime, education, and recently business data to address research questions

Access to high-quality national data including linked administrative data that permits longitudinal analyses

Researchers on a short timeline can use data that is high quality, has already been collected, is ready for analysis, and allows for publication in high impact journals.

# Why work in the RDC?

Public Use  
Microdata Files  
(PUMFs) do not  
always contain  
the level of detail  
needed or may  
not exist

Census 2006 PUMF	Census 2006 Microdata File available in RDCs
850,000 observations; ~3 % Canadian population	6.5 million observations
123 variables	279 variables
Geography at CMA	Geography at census tract
Categorical variables: age, income, etc.	Full variable details



# Why work in the RDC?



CRDCN Canadian Research Data Centre Network

About

Search Publications

Home » The CRDCN Emerging Scholars Grant

## The CRDCN Emerging Scholars Grant

We are pleased to introduce the CRDCN Emerging Scholars Grant, a \$1,000 grant to Ph.D. students who are undertaking thesis-related research in one of the 30 RDCs or branches at universities across the country.



From its inception in 2001, training of the next generation of social science and health researchers has been an integral part of the Canadian Research Data Centre Network's mission. By facilitating the development of researchers' skills and expertise in data manipulation and statistical analysis, the Network has become a resource through which students



CRDCN

## National Policy Challenge

## Overview

CRDCN, in partnership with SAS and Statistics Canada, hosts the National Policy Challenge every year, inviting finalists to present their research findings to a jury of researchers and policy professionals who will select the winners of three prizes:

- **First place:** \$1,500
- **Second place:** \$1,000
- **Third Place:** \$500

Previous Competitions [▶](#)



# Snapshot of selected survey, administrative, and linked data

Delivering insight through data, for a better Canada



Statistics  
Canada

Statistique  
Canada

Delivering insight through data, for a better Canada

Canada

## Survey on COVID-19 and Mental Health (SCMH)

- The aim of the SCMH is to assess behaviours and symptoms associated with depression, anxiety, suicidal thoughts, and post-traumatic stress disorder, suicide risk, pressure on parents, substance use, household violence, and general mental health.
- The target population is all non-institutionalized persons 18+, living in Canada's ten provinces and territorial capitals, who are not members of collectives or living on reserves.
  - Sample size of 30,000
- Wave 1 was conducted in Fall 2020 and Wave 2 was conducted in Spring 2021

# Education Data: Education and Labour Market Longitudinal Platform (ELMLP)

## **Post Secondary Information System (PSIS)**

- Provides detailed information on enrolments and graduates of Canadian public postsecondary institutions in order to meet policy and planning needs in the field of postsecondary education

## **Registered Apprenticeship Information System (RAIS)**

- The survey compiles data on the number of registered apprentices taking in-class and/or on-the-job training in trades that are either Red Seal or non-Red Seal

## **T1 Family File**

- T1FF contains tax data

# Education Data: Education and Labour Market Longitudinal Platform (ELMLP)

- Postsecondary Student Information System (PSIS) - All Years
- Registered Apprenticeship Information System (RAIS) - All Years
- Registered Apprenticeship Information System (RAIS) and Postsecondary Student Information System (PSIS) linked to T1FF - All Years
- Apprenticeship Grants (AG) - All Years
- Canada Student Loans Program (CSLP) - All Years
- Canada Apprentice Loan Program (CAL) - All Years
- British Columbia Kindergarten to Grade 12 (BCK-12) - All Years
- British Columbia Kindergarten to Grade 12 (BCK-12) linked to T1FF - All Years
- British Columbia Kindergarten to Grade 12 (BCK-12) linked to Census (CEN) 2016 - keys
- Longitudinal Administrative Databank (LAD) linked to Apprenticeship Grants (AG) keys
- Longitudinal Administrative Databank (LAD) linked to Canada Apprentice Loan Program (CAL) keys
- Longitudinal Administrative Databank (LAD) linked to Canada Student Loans Program (CSLP) keys
- Longitudinal Administrative Databank (LAD) linked to Postsecondary Student Information System (PSIS) keys
- Longitudinal Administrative Databank (LAD) linked to Registered Apprenticeship Information System (RAIS) keys
- National Graduates Survey (NGS) linked Education and Labour Market Longitudinal Platform (ELMLP) AllYear keys
- Postsecondary Student Information System linked to CEN keys
- Registered Apprenticeship Information System (RAIS) linked to CEN keys
- Postsecondary Student Information System linked to IMDB keys
- Registered Apprenticeship Information System (RAIS) linked to IMDB keys
- Linkage of socioeconomic and treatment data to the Canadian Cancer Registry

# General Social Survey

The General Social Survey (GSS) gathers data on social trends in order to monitor changes in the living conditions and well being of Canadians over time; and provides information on specific social policy issues of current or emerging interest.

## **Current themes:**

- Caregiving and care receiving
- Families
- Time use
- Social Identity
- Giving, volunteering, and participating
- Safety

## **Discontinued themes:**

- Access to and use of information communication technology
- Education, work and retirement
- Health
- Canadians at Work and Home (GSS)

## Aboriginal People's Survey (APS)

- The APS is a national survey on the social and economic conditions of First Nations people living off reserve, Métis and Inuit, aged 15 and over, in Canada
- The 2017 APS represents the fifth cycle of the survey and focuses on:
  - Aboriginal peoples
  - Aboriginal society and community
  - Education, literacy and skills
  - Health and well-being
  - Households, housing and environment
  - Languages and cultures
  - Population characteristics
  - Work, income and spending
- Now called the Indigenous People Survey (IPS) being collected in 2022

# Canadian Community Health Survey (CCHS)

- The CCHS is a cross-sectional survey that collects information related to health status, health care utilization and health determinants for the Canadian population. The survey is designed to provide reliable estimates at the health region level every 2 years.
- The CCHS has the following objectives:
  - Support health surveillance programs by providing health data at the national, provincial and intra-provincial levels;
  - Provide a single data source for health research on small populations and rare characteristics;
  - Timely release of information easily accessible to a diverse community of users;
  - Create a flexible survey instrument that includes a rapid response option to address emerging issues related to the health of the population.



# CCHS and Mental Health

- 2002, and 2012
- The main objective was to address priority mental health determinants, mental health status and mental health system utilization data gaps at the provincial level. The sample is provincial respondents aged 15 and up.
- Mental disorders were selected from the WHO WMH-CIDI, and definitions of mental disorders were taken from DSM-IV.
- Mental Disorders Assessed:
  - Depression, Mania, Panic Disorder, Social Phobia, Agoraphobia, GAD
- Other Components:
  - Life Satisfaction, Distress, Alcohol / Drug Dependence, Work Stress, Medication Use, Mental Health Services, Positive Mental Health, Perceived Need for Care, Family Mental Health

# Mental Health and Access to Care Survey 2022

- Now being collected in 2022, the CCHS-Mental Health has been renamed the **Mental Health and Access to Care Survey (MHACS)**.
- The primary goal of the 2022 MHACS is collect information about the mental health status of Canadians, as well as their access to and need for services and supports, whether formal or informal.
- In addition, the 2022 MHACS intends to assess the impact of the COVID-19 pandemic on population health as well as evaluate changes in patterns of mental health, service use and functioning in the last ten years.
- Mental Disorders Assessed:  
Depression, Mania, Panic Disorder, Social Phobia, GAD

# CCHS Mental Health in the Canadian Armed Forces

- 2002, and 2018 (longitudinal survey on same participants)
- The main objective of the 2002 survey was to address priority mental health determinants, mental health status and mental health system utilization data gaps in the Canadian Forces. A follow-up of the original 2002 sample was conducted in 2018.
- Mental disorders were selected from the WMH-CIDI, and definitions of mental disorders were from DSM-IV.
- Mental Disorders Assessed:
  - Depression, Mania, Panic Disorder, Social Phobia, Agoraphobia, GAD
- Other Components:
  - Life Satisfaction, Distress, Alcohol / Drug Dependence, Work Stress, Mental Health Services, Medication Use

## Canadian Health Survey on Seniors (2019, 2020)

- The CHSS collects health-related data on the Canadian population aged 65 and over. It's objectives are:
- To better understand what contributes to healthy aging by collecting data on the health and well-being of seniors, including their use of health care services and supports, as well as social, demographic, geographic and economic determinants.
- To produce estimates on the health of seniors aged 65 and over at the provincial level, and for seniors aged 85 and over at the national level.
- To produce a cross-sectional dataset on the health of seniors that permits analysis on a range of research questions and surveillance activities.
- To evaluate changes on certain aspects of health from the CCHS - Healthy Aging (HA), 2008/2009.
- Content:  
General Health, PTSD (self-report), Loneliness

# Canadian Armed Forces Mental Health Survey

- The purpose of the Canadian Forces Mental Health Survey is to continue work on preventing mental disorders, overcoming barriers to care, and delivering effective and efficient mental health care to Canadian Forces members.
- The target population consists of all full time regular members of the Canadian Forces and reservists who have been deployed in support of the mission in Afghanistan.
- a response was obtained for 6,700 regular members and 1,500 reservists
- Topic Areas:
  - Positive Mental Health, Depression, Suicide, PTSD, Military Sexual Trauma
  - Mental Health Service Use, Medication Use, Deployment, Mental Health Training

# Finding Statistics Canada Data

- For a list of all Statistics Canada data, you can look here:  
<https://www23.statcan.gc.ca/imdb-bmdi/pub/indexth-eng.htm>
- You can browse the data available for academic research at the RDCs at the [Statistics Canada RDC website](#).  
There is a contact email on this page if you cannot find a type of dataset that you are looking for.  
You can always contact the Research Data Centre Analyst if you are looking for data on a particular topic.
- Publicly available data is available for some Statistics Canada datasets  
Contact the [Data Liberation Initiative librarian](#) at your academic institution for more information.
- Browse previous publications from RDC Researchers [Publications - Canadian Research Data Centre Network \(crdcn.ca\)](#)




# Searching for Data on the Statistics Canada RDC Website

## Data available at the Research Data Centres

The following datasets are available at the Research Data Centres (RDCs).

If data you are seeking for your RDC project is not listed, please contact [statcan.mad-rdc-data-dam-cdr-donnees.statcan@canada.ca](mailto:statcan.mad-rdc-data-dam-cdr-donnees.statcan@canada.ca) to enquire about its availability.

Filter items  Showing 1 to 6 of 6 entries (filtered from 223 total entries) | Show  entries

Record number 	Survey name 	Acronym 
3226 5015	<a href="#">Canadian Community Health Survey - Cycles 2000-2014 linked to the Longitudinal Immigration Database (IMDB)</a>  CCHS - Annual cycles (2.1, 3.1, 4.1, 2008-2014) linked to IMDB CCHS - Focus content cycles (1.2, 5.2) linked to IMDB	CCHS_IMDB
5017 3154 8006 3901 3207	<a href="#">Education and Labour Market Longitudinal Platform (ELMLP)</a>  <a href="#">Postsecondary Student Information System (PSIS) - All Years</a> <a href="#">Registered Apprenticeship Information System (RAIS) - All Years</a> Registered Apprenticeship Information System (RAIS) and Postsecondary Student Information System (PSIS) linked to T1FF - All Years Apprenticeship Grants (AG) - All Years Canada Student Loans Program (CSLP) - All Years Canada Apprentice Loan Program (CAL) - All Years British Columbia Kindergarten to Grade 12 (BCK-12) - All Years British Columbia Kindergarten to Grade 12 (BCK-12) linked to T1FF - All Years	ELMLP PSIS RAIS RAIS-PSIS-T1FF AG CSLP CAL BCK-12 BCK-12-T1FF BCK-12-CEN LSTD

# Searching for Publications on the CRDCN website

## Publications

Our bibliography is regularly updated to offer quick and easy access to all of the CRDCN-enabled publications by researchers from across the Network. If you would like to have access to the data in the Network's Research Data Centres (RDC), please visit the [Accessing RDC Data](#) page.





### FILTER

Subject

Year

Type

Language

Data Centre

Michael Baker, Derek Messacar, Mark Stabile

The effects of child tax benefits on poverty and labor supply: Evidence from the Canada child benefit and universal child care benefit

2021

Brendan T. Smith, Salma Hack, Mahsa Jessri, JoAnne Arcand, Lindsay McLaren, Mary R. L'Abbé, Laura N. Anderson, Erin Hobin, David Hammond, Heather Manson, Laura C. Rosella, Douglas G. Manuel

The equity and effectiveness of achieving Canada's voluntary sodium reduction guidance targets: A modelling study using the 2015 Canadian Community Health Survey-Nutrition

2021

Fei-Ju Yang

The "How" question of the healthy immigrant paradox: Understanding psychosocial resources and demand as pathways linking migration to mental health risks

2021



# Searching for Publications on the CRDCN website

Home » Publications » The "How" question of the healthy immigrant paradox: Understanding psychosocial resources and demand as pathways linking migration to mental health risks

## The "How" question of the healthy immigrant paradox: Understanding psychosocial resources and demand as pathways linking migration to mental health risks

Authors: Fei-Ju Yang

OVERVIEW

RELATED PUBLICATIONS

DATA USED

RESEARCH DATA CENTRE(S)

### OVERVIEW

#### Abstract (English)

The current migrant health literature tends to focus on what determines immigrants' mental health rather than how pathways such as psychosocial resources mediate the relationship between years since migration and mental health. Based on 4,282 foreign-born Canadian immigrant samples, this study includes both psychological distress and positive mental health as mental health measures because immigrants do not necessarily respond to stress by exhibiting distress. The correlation between psychological distress and positive mental health shows that these two measures are interrelated but distinctive concepts. Using piecewise regression models, this study finds that midterm immigrants have the highest levels of psychological distress and interpersonal strain. Guided by the stress process model, this study indicates that interpersonal strain acts as a major pathway to immigrants' psychological distress but not positive mental health.

#### Abstract (French)

Please note that abstracts only appear in the language of the publication and might not have a translation.

### Details

Type	Journal Article
Author	Fei-Ju Yang
Publication Year	2021
Title	The "How" Question Of The Healthy Immigrant Paradox: Understanding Psychosocial Resources And Demand As Pathways Linking Migration To Mental Health Risks
Volume	11
Journal Name	Society And Mental Health
Number	1
Pages	69-89
Publication Language	English

### SUBJECTS

HEALTH

### QUICK LINKS

Google Scholar

Online Publication

# Searching for Publications on the CRDCN website

Home • Publications • The "How" question of the healthy immigrant paradox: Understanding psychosocial resources and demand as pathways linking migration to mental health risks

## The "How" question of the healthy immigrant paradox: Understanding psychosocial resources and demand as pathways linking migration to mental health risks

Authors: Fei-Ju Yang

OVERVIEW

RELATED PUBLICATIONS

DATA USED

RESEARCH DATA CENTRE(S)

### DATA USED

Canadian Community Health Survey - Nutrition  
CROSS-SECTIONAL, REPEATED (2004 TO 2015)

CCHS



# Accessing the RDC

Delivering insight through data, for a better Canada



Statistics  
Canada

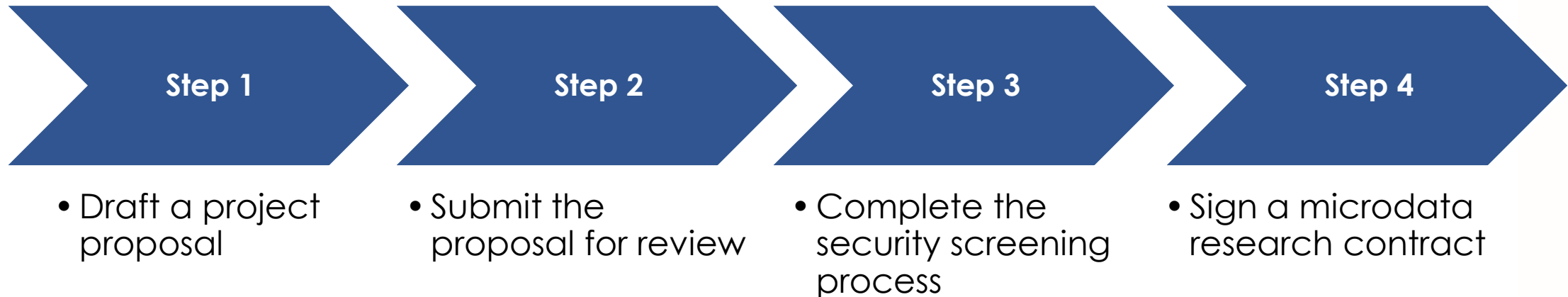
Statistique  
Canada

Delivering insight through data, for a better Canada

Canada

## Accessing the Research Data Centre:

All researchers must submit their research proposal through a review process before access to the RDC is granted.



**Application process guidelines are outlined in our website:**

<https://www.statcan.gc.ca/eng/microdata/data-centres/guide>

## Accessing the Research Data Centre:

### Step 1

Draft a project proposal and obtain a letter of support (students)

- Maximum 10 pages
- Template available online
  - Focus on modelling
  - Access 1-3~ datasets
  - Produce product
  - Contact analyst for proposal assessment
- A letter of support from academic supervisor for projects with student as PI

- Draft a project proposal

## Accessing the Research Data Centre:

### Step 2

Create an account on the Microdata Access Portal (MAP) website

Required information:

- Email
- Username
- Research profile
- Contact information

- Submit the proposal for institutional review

**Login - Microdata Access Portal**

[About the RDC program](#) [Help for Microdata Access Portal](#)

**Welcome to the Microdata Access Portal**

The Microdata Access Portal is an application system for Statistics Canada microdata files.

[Log in](#) [Create new account](#) [Reset your password](#)

**Username \***

**Password \***

[Log in](#)

## Accessing the Research Data Centre:

### Step 2

My Dashboard will hold all applications created and provide user information which includes:

Title of project,  
MAP ID,  
date Created,  
date Last modified,  
Status,  
Role, and  
project End date.

- Submit the proposal for institutional review

[Home](#) → [My dashboard](#)

### My dashboard

[About the RDC program](#) [Help for Microdata Access Portal](#)

Signed in as atupy [Account settings](#) [Sign out](#)

To start a new project, use the **Start a new application** button at the bottom of this page.

Save the information you have entered by pressing the **Save** button at the bottom page of each module. You can resume your session at any time.

You can view your applications' status below.

The status **Draft** means that the application has not been submitted. To resume an application, just click on it.

When the status is **Submitted**, the project is final and may not be edited.

[i](#) ▶ **Tips**

#### Applications

Filter items  Showing 1 to 1 of 1 entries |

<a href="#">Project Title</a> ↑↓	<a href="#">MAP ID</a> ↑↓	<a href="#">Created</a> ↑↓	<a href="#">Last modified</a> ↑↓	<a href="#">Status</a> ↑↓	<a href="#">Role</a> ↑↓	<a href="#">End date</a> ↑↓
<a href="#">Test application</a>	1196	2020-01-10	3 hours	Draft	Principal investigator	








[Start a new application](#)

## Accessing the Research Data Centre:

### Step 2

- Submit the proposal for institutional review

**Project information**

 Project details	 Created 2020-01-10 7 minutes 4 seconds	 Incomplete 2020-01-10 7 minutes 4 seconds	<a href="#">View</a> <a href="#">Edit</a>
	<hr/>		
 Billing information	 Created 2020-01-10 27 seconds	 Complete 2020-01-10 1 second	<a href="#">View</a> <a href="#">Edit</a>
	<hr/>		
 Approval	<input type="button" value="Provide approval information"/>		



## Accessing the Research Data Centre:

### Step 2

#### Evaluation of a proposal

- Each proposal is evaluated by a Statistics Canada Subject Matter Expert(s). The approval of proposals will be based on:
  - relevance of the methods to be applied
  - the data to be analyzed;
  - demonstrated need for access to detailed microdata
  - expertise and ability of the researchers

- Submit the proposal for institutional review

## Accessing the Research Data Centre:

### Step 3

Contact the RDC analyst for the Personnel Screening, Consent, and Authorization Form

- Supporting identification must be provided
- Additional documentation is required for applicants who have lived abroad for six months or longer within the last five years.
- Undergo fingerprinting as part of a criminal record check\*

Attend a virtual\* Orientation session with the RDC.

- The Oath (or Affirmation) of Office and Secrecy will be administered by the Statistics Canada analyst

## Accessing the Research Data Centre:

### Step 4

Sign a microdata research contract with Statistics Canada

- The contract specifies the terms of access:
  - Data sets to be provided
  - Purpose and scope of the research project
  - Project start and completion dates.
  - Agreement of the researchers to abide by the RDC security and confidentiality requirements.
  - Agreement to provide a final product

- Sign a microdata research contract

# Key websites

---

The RDC  
Network

Canadian Research Data Centre Network (CRDCN):  
<https://crdcn.com/>

Application  
Process and  
Guidelines

Statistics Canada RDC Application Process and  
Guidelines: <https://www.statcan.gc.ca/eng/rdc/process>

Current Data  
and some  
documentation

List of Data available in the RDCs:  
<https://www.statcan.gc.ca/eng/rdc/data>

# Thank you!

---

- Contact RDC Analyst Jennifer McConnell-Nzunga at: [jennifer.mccconnell-nzunga@statcan.gc.ca](mailto:jennifer.mccconnell-nzunga@statcan.gc.ca)
- For more information, please visit
- [www.statcan.gc.ca](http://www.statcan.gc.ca)

#StatCan100

