Regional Analytics Laboratory **PRESENTS**

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DATA TO DECISIONS:
Data by Geographical Areas

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THE HARRIS CENTRE
Memorial University

Future Skills Centre

Foreward

Data to Decisions is an initiative of the Regional Analytics Laboratory (RAnLab) and is sponsored in part by Future Skills Centre.

RAnLab is the data and analytics unit of Memorial University's Leslie Harris Centre of Regional Policy and Development. RAnLab analyzes data and geography to provide insight into, and projection modeling for, things like demographics, labour supply, service demands, commodity prices, and other socio-economic indicators. Some examples of their work include producing long-term community and regional population projections, assessing local housing demand, and providing detailed local data analysis and modelling to municipalities and regions–providing critical information for evidence-based decision-making.

The purpose of Data to Decisions is to help Canadians from varying backgrounds learn how to apply data to their own projects. Data to Decisions uses plain language, examples, and video presentations to enhance the learning experience.

If you have any questions, please contact Meghan Eibner (meibner@mun.ca) or Jamie Ward (jward@mun.ca).

Throughout this chapter, you will see clickable buttons that link to webpages with additional information.
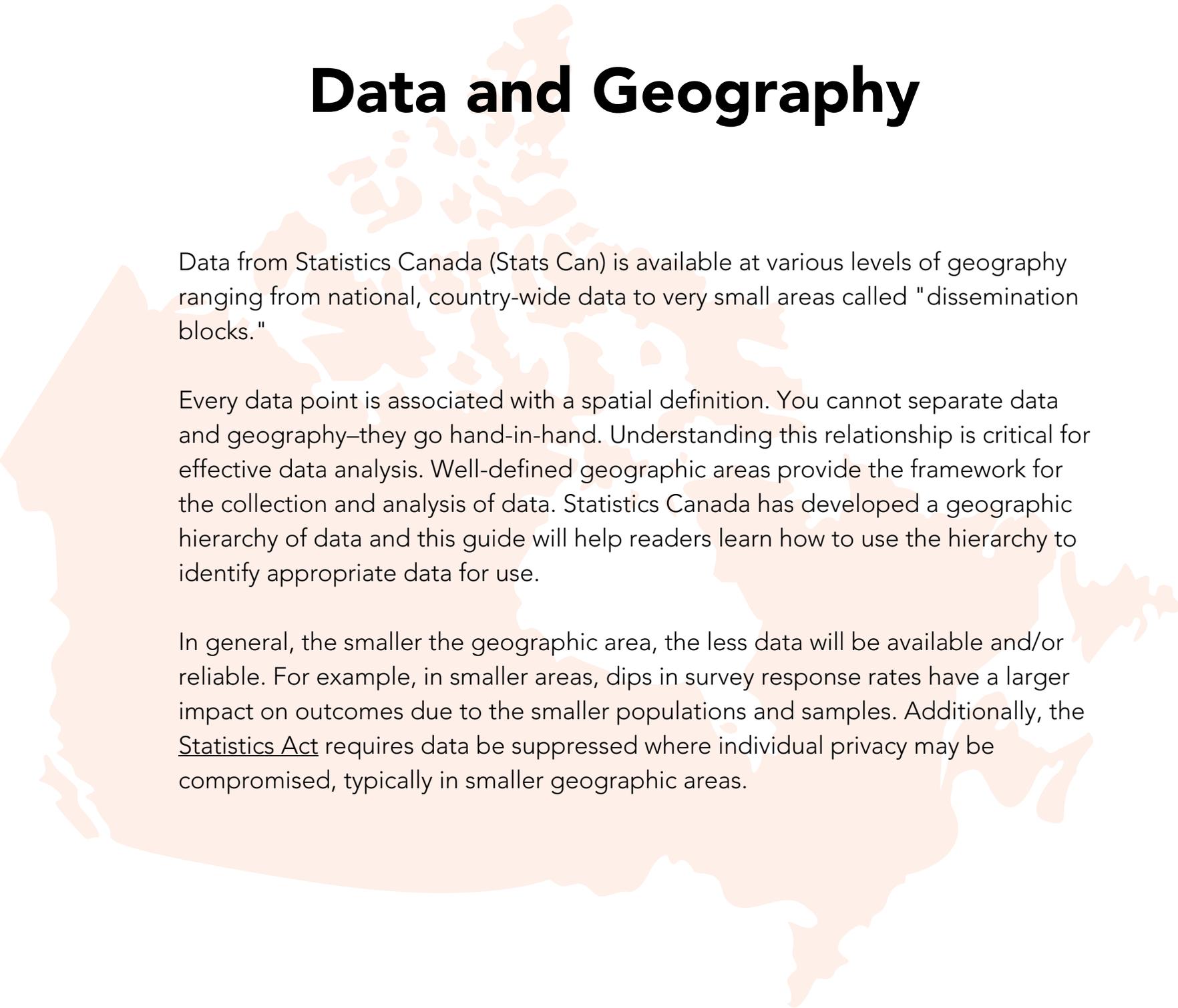
The button on the right will lead you to the Data to Decisions presentation on Data by Geographical Areas.

Want to enhance your learning experience?

Watch our YouTube video about Data by Geographical Areas

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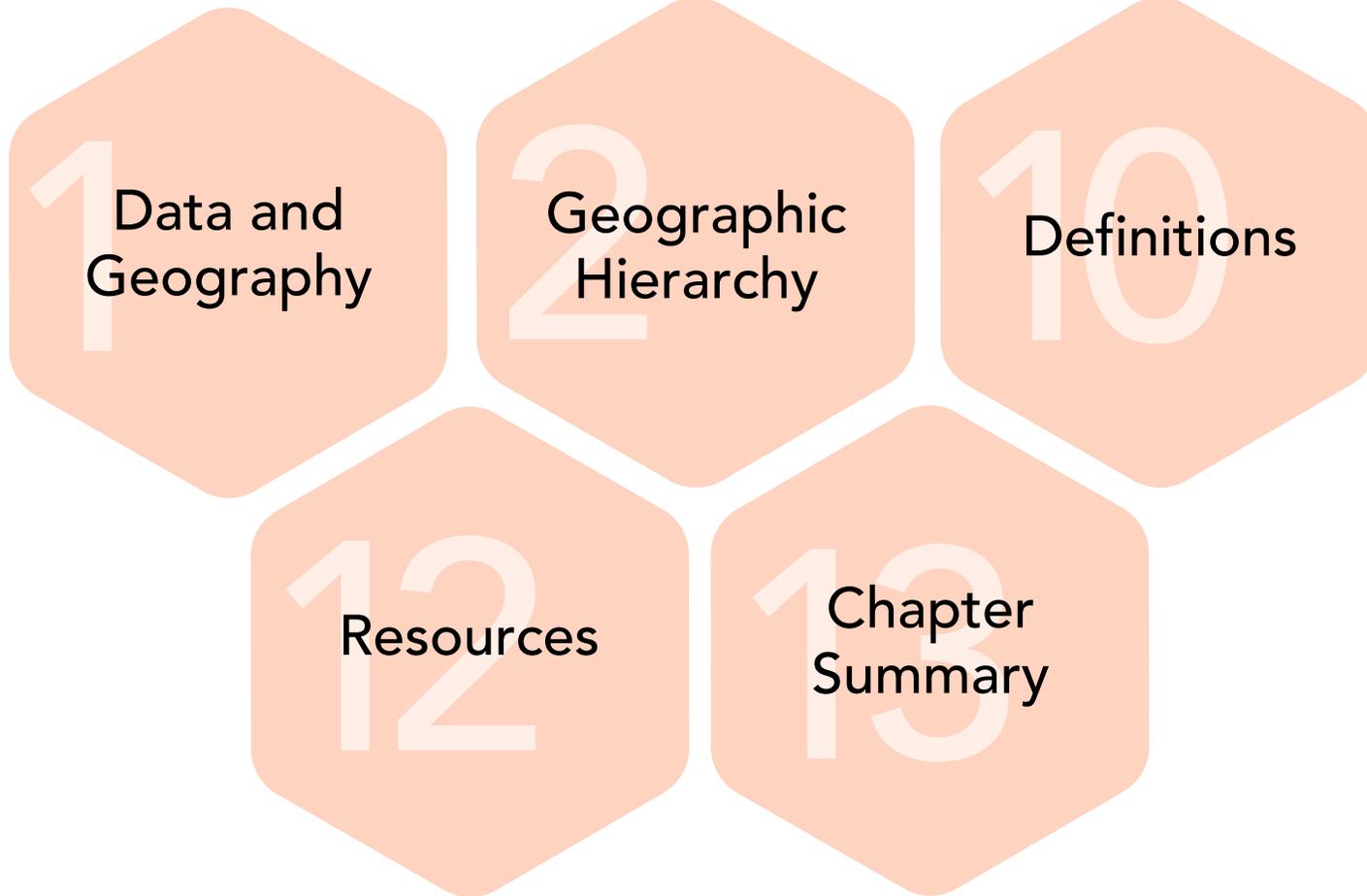
Data and Geography

Data from Statistics Canada (Stats Can) is available at various levels of geography ranging from national, country-wide data to very small areas called "dissemination blocks."
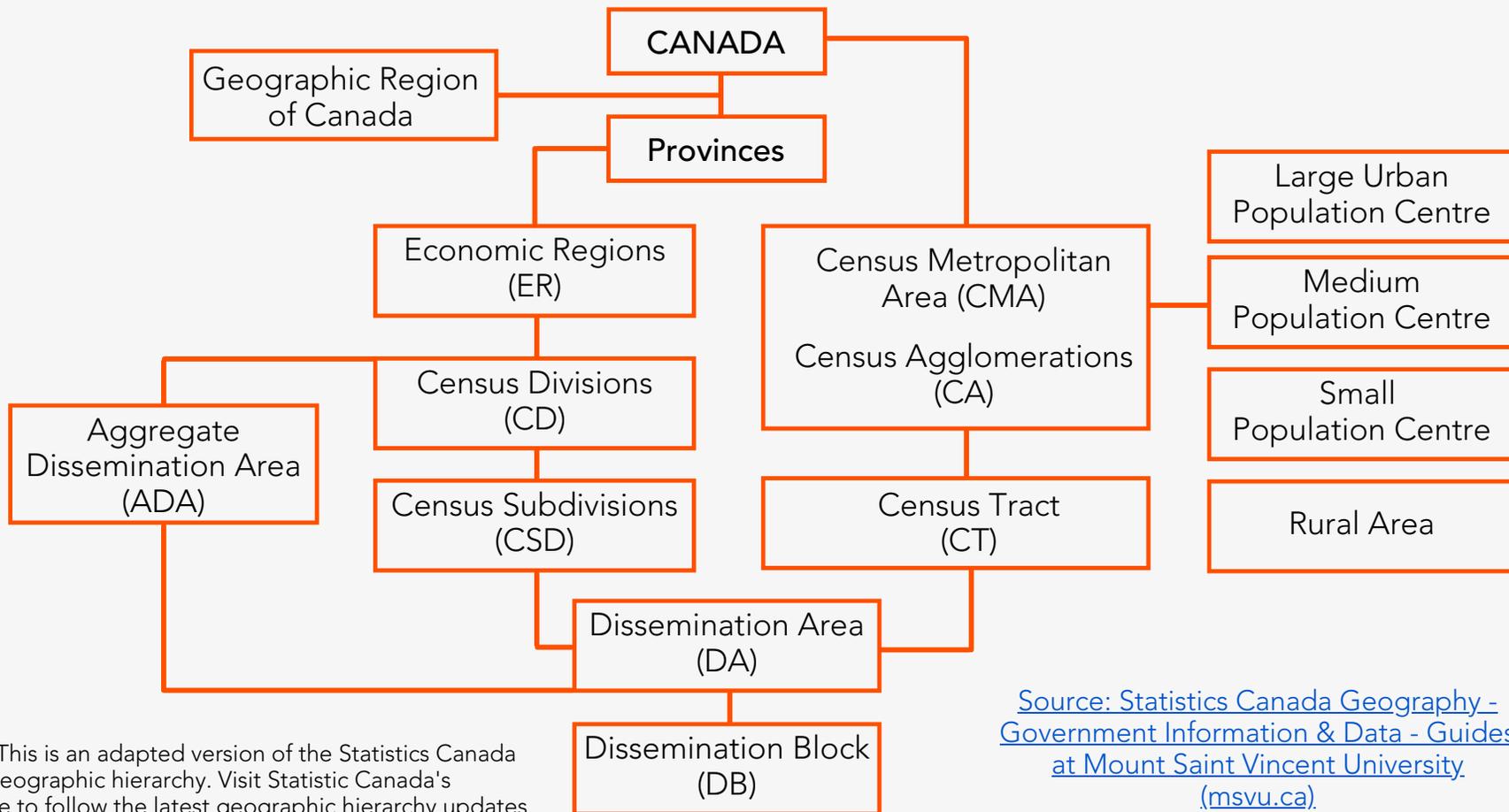
Every data point is associated with a spatial definition. You cannot separate data and geography—they go hand-in-hand. Understanding this relationship is critical for effective data analysis. Well-defined geographic areas provide the framework for the collection and analysis of data. Statistics Canada has developed a geographic hierarchy of data and this guide will help readers learn how to use the hierarchy to identify appropriate data for use.

In general, the smaller the geographic area, the less data will be available and/or reliable. For example, in smaller areas, dips in survey response rates have a larger impact on outcomes due to the smaller populations and samples. Additionally, the Statistics Act requires data be suppressed where individual privacy may be compromised, typically in smaller geographic areas.

Geographic Hierarchy

The following graphic is based on the Statistics Canada 2016 Geographic Hierarchy. At first glance it may look daunting, but it can be broken down into smaller, easier to understand parts. It is useful to know how geographical areas are organized across the country and at what geographic levels data is available.

Click here for a detailed hierarchy of standard geographic areas for dissemination

```
                              CANADA

Geographic Region
   of Canada                  Provinces

                                                    Large Urban
                                                    Population Centre
              Economic Regions         Census Metropolitan
                    (ER)               Area (CMA)
                                                    Medium
                                       Census Agglomerations    Population Centre
              Census Divisions         (CA)
                    (CD)
Aggregate                                           Small
Dissemination Area                                  Population Centre
    (ADA)     Census Subdivisions      Census Tract
                   (CSD)               (CT)
                                                    Rural Area

                      Dissemination Area
                            (DA)

                      Dissemination Block
                            (DB)
```

Note: This is an adapted version of the Statistics Canada 2016 geographic hierarchy. Visit Statistic Canada's website to follow the latest geographic hierarchy updates

Source: Statistics Canada Geography - Government Information & Data - Guides at Mount Saint Vincent University (msvu.ca)

The Geographic Hierarchy chart can be roughly split down the middle into two sides: Administrative and Functional.
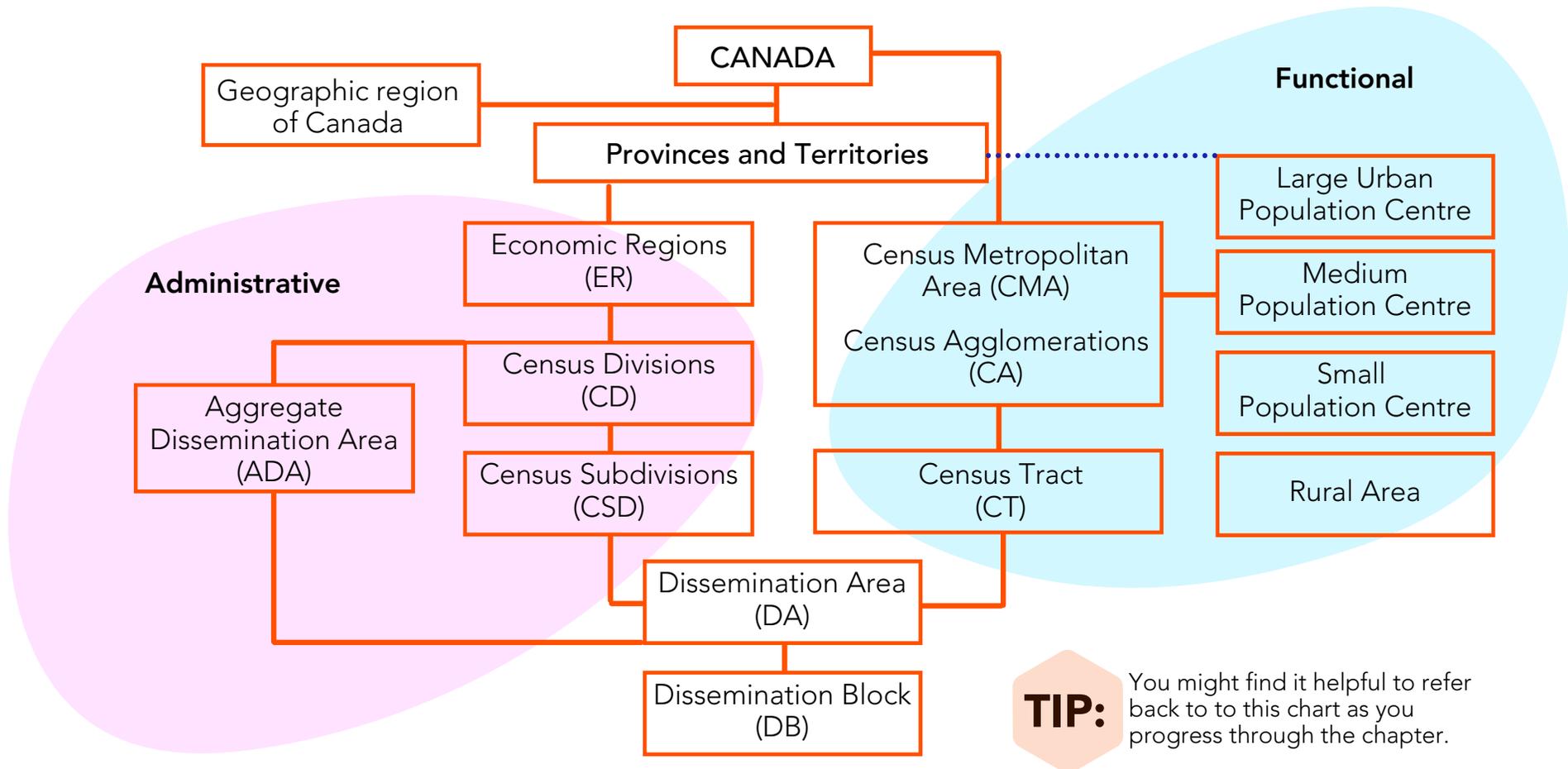
The geographic areas on the administrative side of the chart have boundaries designated either by law or through agreements between provinces and territories and Statistics Canada. Administrative geographic areas tend to be very stable.

Data on the Administrative side of the chart tends to be standard census data.

The geographic areas on the Functional side of the chart have boundaries determined by population and density measures. These geographic areas are a little more dynamic and can change over time as populations change, grow, or shrink.

The functional side of the chart includes census data as well, but may also include more distinct, detailed, data. On this side of the chart you may find interesting, experimental data that's very specific and not available for all geographic areas.

Example: Real Time Local Business Condition Index dataset (updated weekly for select cities).

CANADA

Geographic region of Canada

Functional

Provines and Territories

Administrative

Economic Regions (ER)

Large Urban Population Centre

Census Metropolitan Area (CMA)

Census Agglomerations (CA)

Medium Population Centre

Aggregate Dissemination Area (ADA)

Census Divisions (CD)

Small Population Centre

Census Subdivisions (CSD)

Census Tract (CT)

Rural Area

Dissemination Area (DA)

Dissemination Block (DB)

TIP: You might find it helpful to refer back to to this chart as you progress through the chapter.

Population Centres

Large Urban, Medium, and Small Population Centres and Rural Areas

Practically speaking, population centres and rural areas are not commonly used geographic areas for data collection but serve an important contextual purpose.

This section of the hierarchy chart is interesting because, when taken together, all population centres and rural areas cover the entirety of Canada. Every square inch of Canada is defined as one of these four geographic area types.

While not much data is available specifically at this level, knowing the geographic makeup of an area being studied, in terms of population centres and rural areas, can provide some useful and interesting context for analysis.

Large Urban Population Centre
Medium Population Centre
Small Population Centre
Rural Area
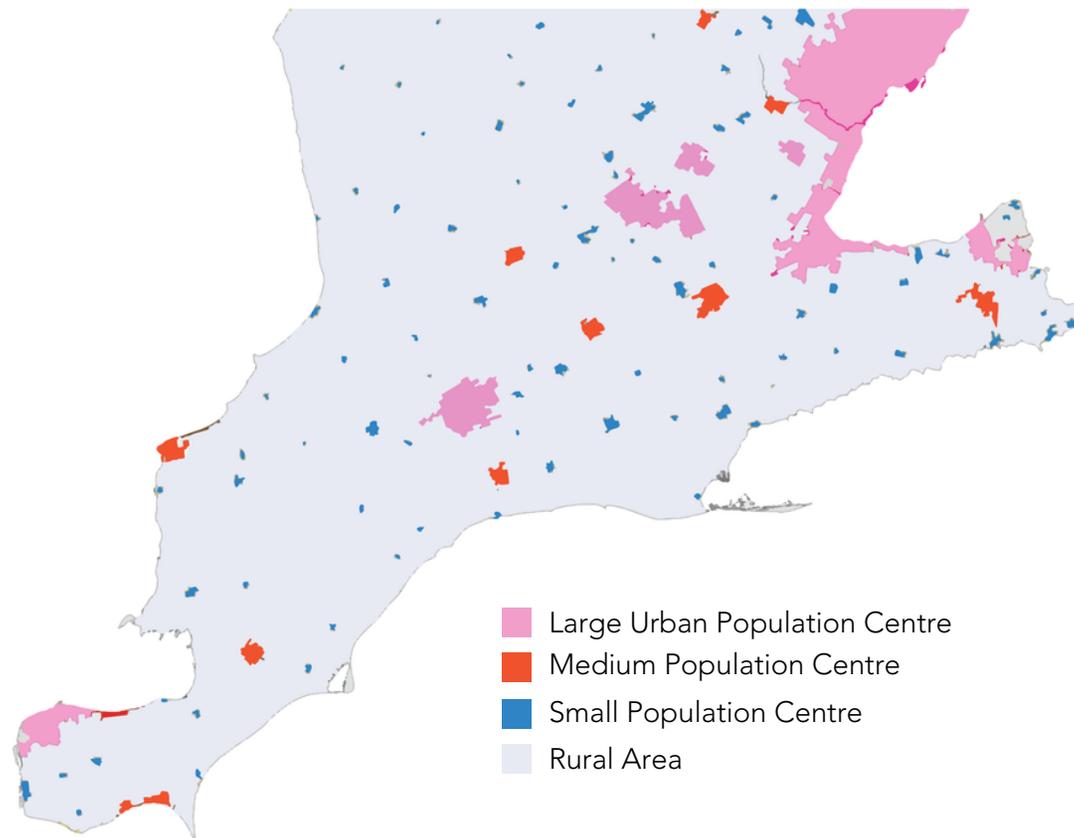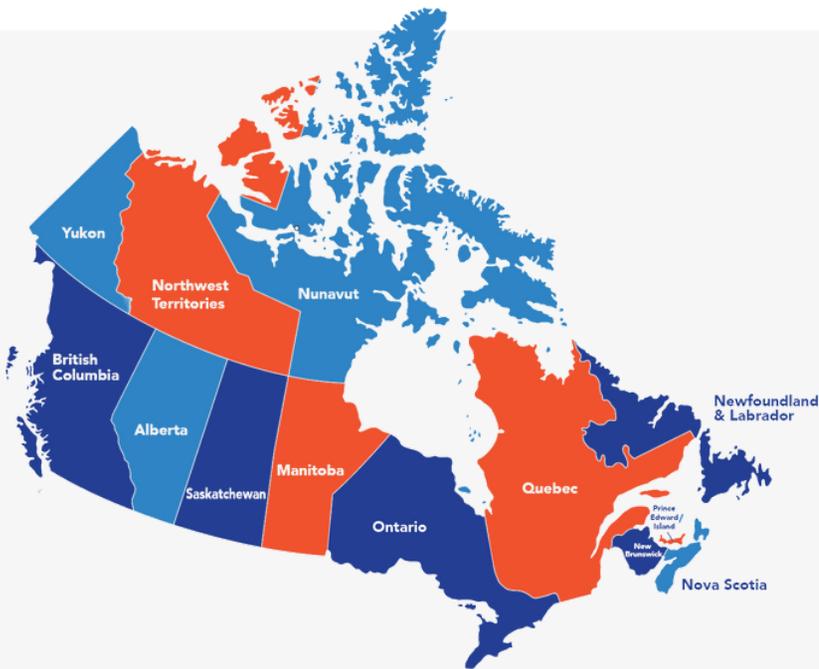
Geographic Regions of Canada

Canada

The largest geographic area is Canada as a single land mass. Data at this level would include the entire population or land mass, from coast to coast.

Canada is broken down into six geographical regions. Some regions, like the Atlantic Region or the Territories are made up of more than one province or territory, while other larger provinces, like Quebec and British Columbia, are geographical regions on their own.

Geographic Regions

Territories

British Columbia

Prairies

Quebec

Ontario

Atlantic

Provinces

Yukon

Northwest Territories

Nunavut

British Columbia

Alberta

Saskatchewan

Manitoba

Quebec

Ontario

Newfoundland & Labrador

Prince Edward Island

New Brunswick

Nova Scotia
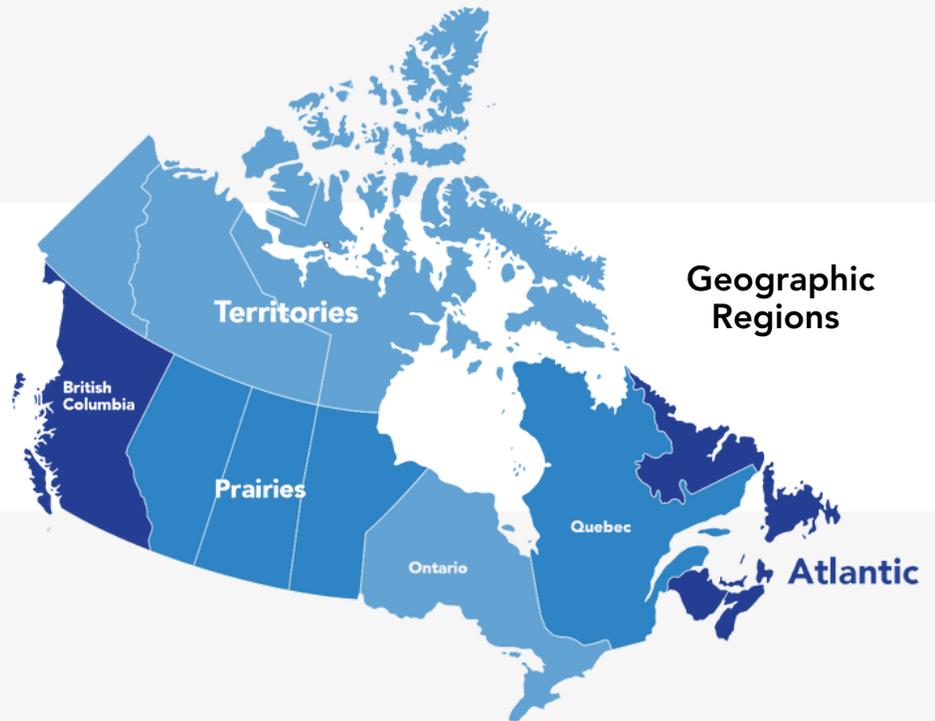
Canada is also broken down further into the Provinces and Territories.

Economic Regions

Economic Regions are groupings of Census Divisions (see next page). They are the standard geographic unit for analyzing regional economic activity.

Most provinces are broken down into several Economic Regions, for example British Columbia has 8. Others, like Prince Edward Island, and each of the three territories are a single Economic Region. Newfoundland and Labrador does not have an Economic Region.

In terms of data availability, these larger scale areas of geography–the national and provincial levels–are where high-level data is found. For example, population and demographic data, economic accounts data, GDP, migration, and import/export data. Data at this level is great for conducting macro-level analysis, such as provincial or national comparisons.

Economic Regions of British Columbia.

- Vancouver Island/Coast
- South Coast
- Cariboo Chilcotin Coast
- Thompson Nicola
- Okanagan
- Kootenay
- Omencia Skeena
- Peace
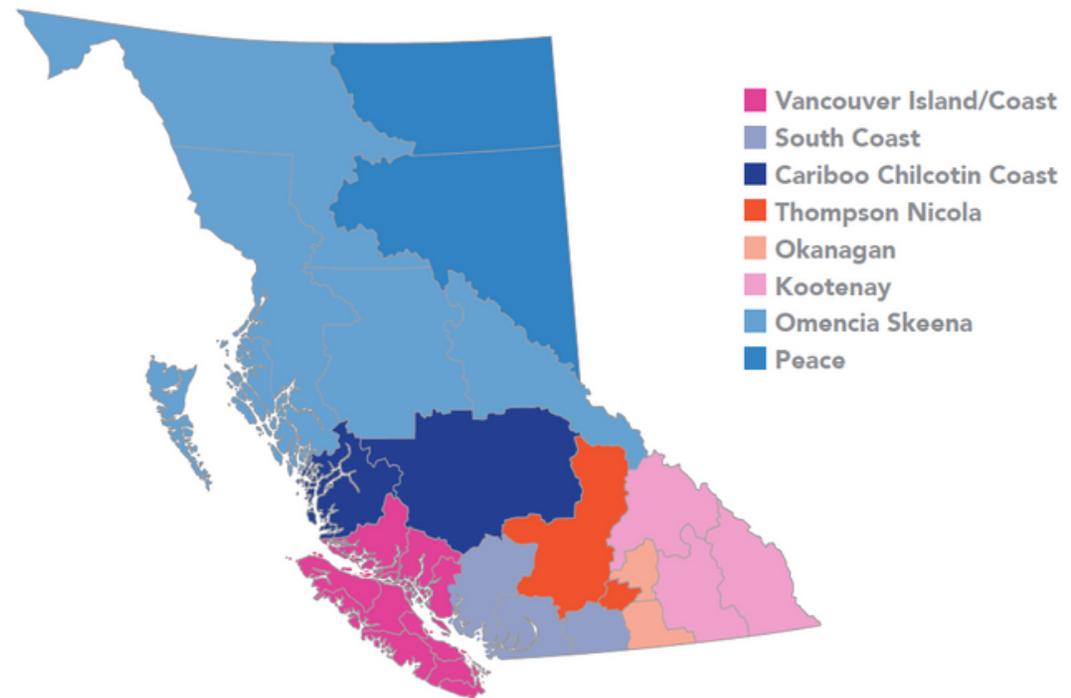
It is important to note that a lot of baseline census data can be found at all levels of geography, but the smaller and more detailed the geographic area gets, the less data will be available due to confidentiality measures.

Census Divisions

Census Divisions (CDs) are the building blocks of Economic Regions. A Census Division is a group of municipalities joined together for the purposes of regional planning and managing common services (such as police or ambulance services). Census Divisions are established in the provincial and territorial legislation.

Some provinces and territories, like Newfoundland and Labrador, Alberta, and the Northwest Territories, do not have these geographic areas established in their legislation. In these cases, Statistics Canada has entered into agreements with those provinces and territories, to establish Census Division equivalents.

Next to Provinces and Territories, Census Divisions are the most stable geographic areas. Because of this stability, Census Divisions can be a good level of geography to use for long-term data collection and analysis.

Census Subdivisions

Census Subdivisions (CSDs) are the building blocks of Census Divisions. Census Subdivisions are Municipalities or areas treated as municipal equivalents.

CDs and CSDs are the geographic levels where detailed census data becomes available. Here you may find data on education, training, language, income, for example. Additionally, this data can be broken down by age and sex, making demographic analysis possible within a single area, as well as cross comparative analysis between two or more areas.

Census Divisions
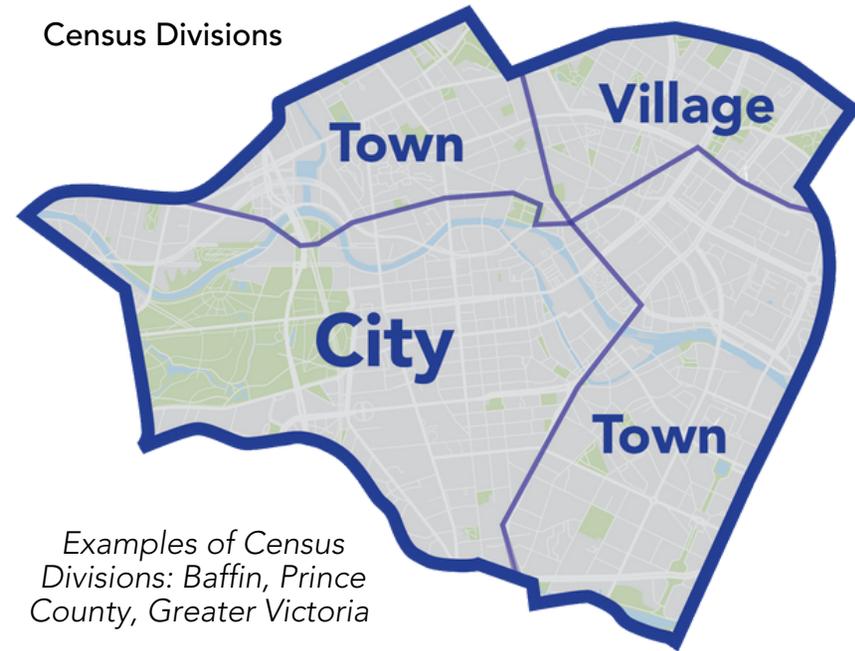
Examples of Census Divisions: Baffin, Prince County, Greater Victoria

Census Subdivisions
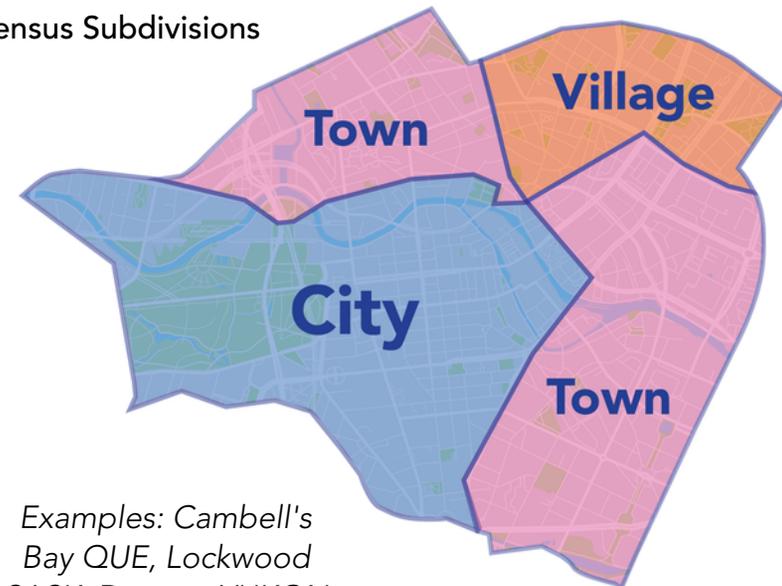
Examples: Cambell's Bay QUE, Lockwood SASK, Dawson YUKON

Census Metropolitan Area

Population: 100,000+
Core: 50,000+

Census Metropolitan Areas (CMAs) are made up of one or more adjacent municipalities centred around a population centre (called the core).

The CMA level is the lowest geographic level for which data from the Labour Force Survey is available. This survey is a particularly useful source of data; it includes information about labour market activities such as employment status (full time, part time, unemployed), employment by industry and occupation, hours worked, reason for unemployment, and more.

Census Agglomeration

Population: 100,000+
Core: 10,000+

Under CMAs, you will find Census Agglomeration (CA) which is one or more adjacent municipalities centred on a core. A CA must have a core population of at least 10,000.

It's at this CA level where you can access municipal level data on, for example, the labour market or housing market, which can be useful for municipal planning purposes.

CMA
100,000+

Core

50,000+
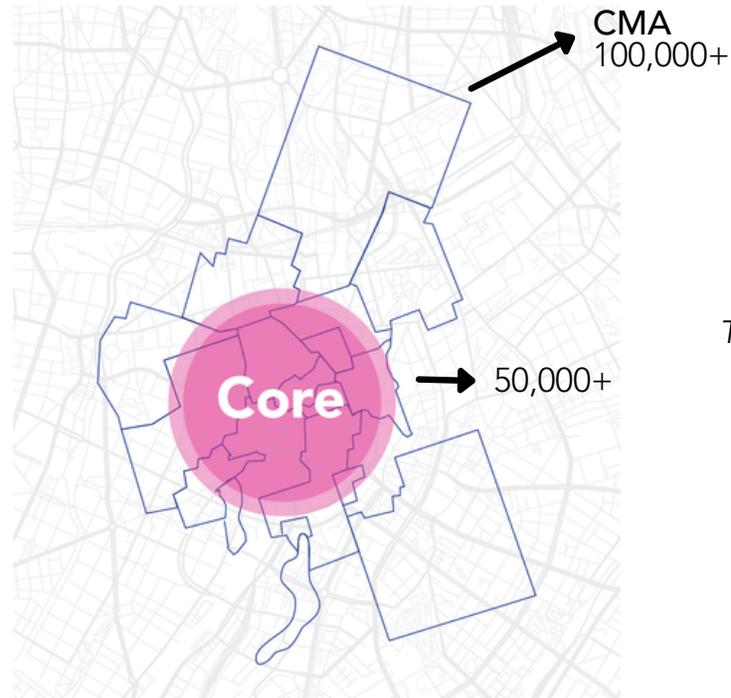
The three biggest CMAs in Canada are Toronto, Montreal, and Vancouver. Smaller examples are Guelph, Halifax, Winnipeg


CA
100,000+
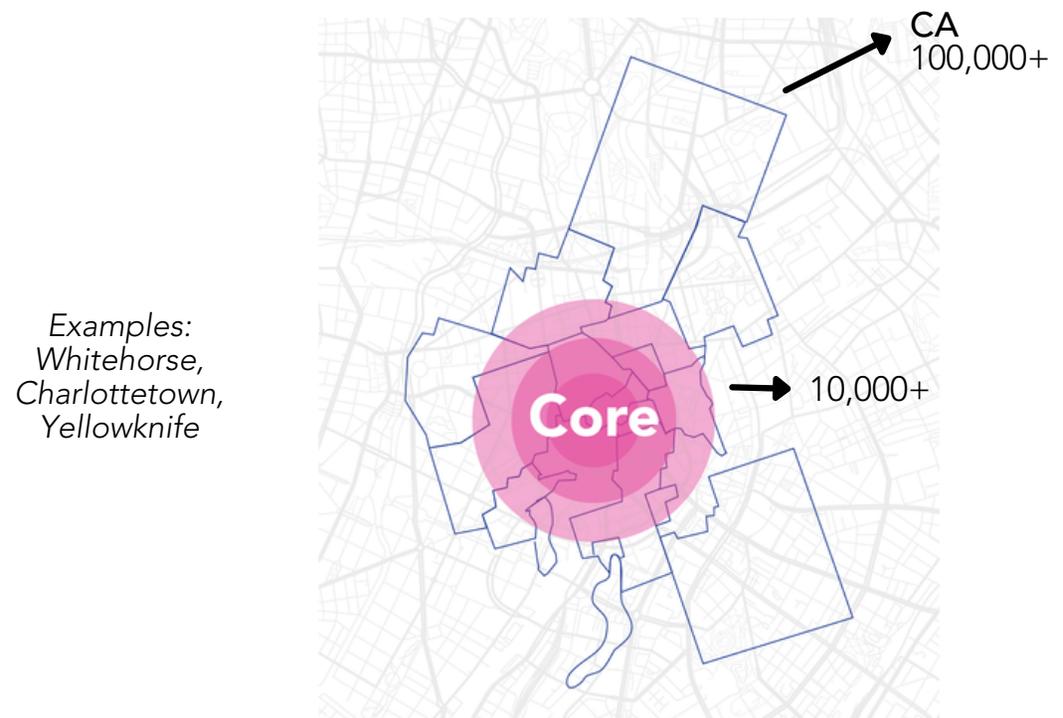
Examples: Whitehorse, Charlottetown, Yellowknife

Core

10,000+

Census Tracts

Population < 10,000

Census Tracts are small geographic areas with a population of less than 10,000 persons. They are located in CMAs and in CAs.

Census Tracts are where sub-municipal data is found. Some examples of data that can be found at this level are income and family characteristic data.
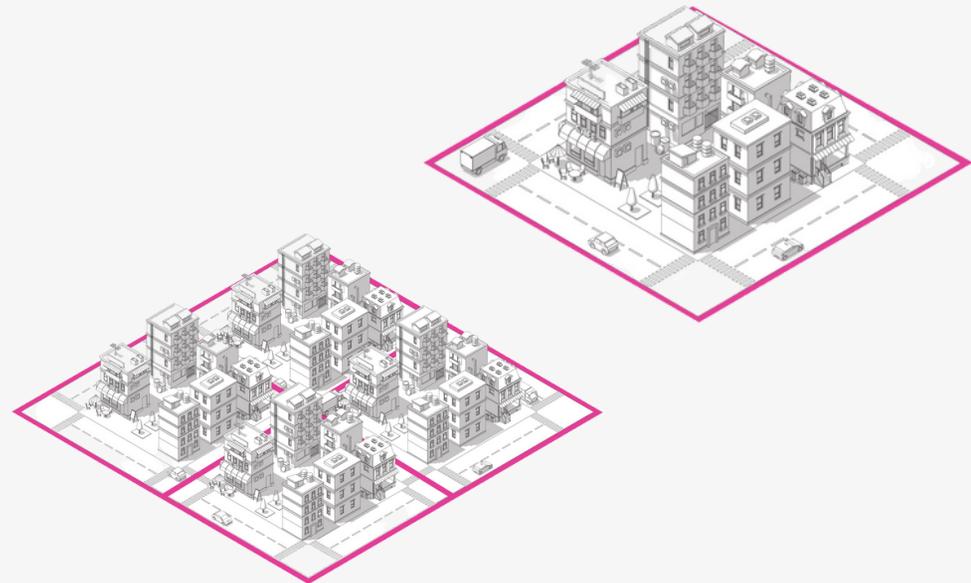

Census Metropolitan Area

City

Census tract
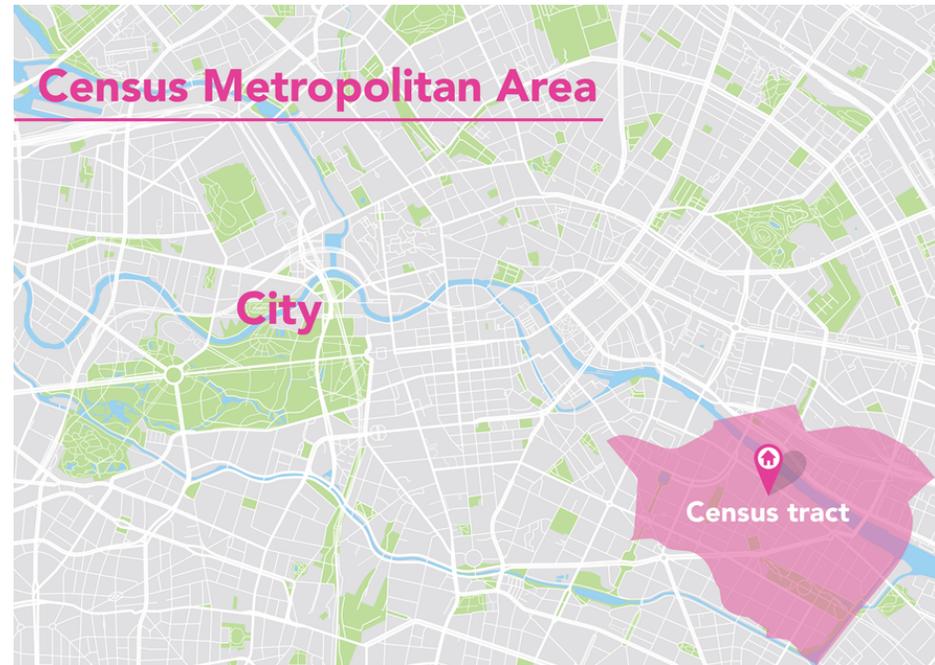
Dissemination Blocks and Areas

Population < 700

Finally, the smallest geographic areas for which data is available are dissemination blocks and areas. These are areas bounded by roads or boundaries of standard geographic areas that have an average population of less than 700 people. These are the smallest geographic areas for which population, dwelling, and census data are disseminated.

Aggregate Dissemination Area (ADA) are a new geography created for the 2016 Census. Population between 5,000 and 15,000. Aggregate Dissemination Areas are created from existing dissemination areas.

Definitions

Geographical Area	Definition	Examples
Geographical Region of Canada	Groupings of provinces for statistical reporting.	Atlantic, Quebec, Ontario, Prairies, BC, Territories
Provinces and Territories	Major political units of Canada. Ten provinces and three territories.	Manitoba, Yukon, Quebec
Economic Region (ER)	Groupings of complete census divisions.	Annapolis Valley, Red Deer
Census Division (CD)	General term for provincially legislated areas (such as country or regional district). A group of neighboring municipalities joined together for the purposes of regional planning and managing common services (such as police or ambulance services).	Baffin, Census Division No. 2: Newfoundland and Labrador (Burin Peninsula - Marystown)
Census Subdivision (CSD)	Municipalities or areas treated as municipal equivalents for strategic purposes.	Kinkora, Arctic Bay, Langford
Census Metropolitan Area (CMA)	Formed by one or more adjacent municipalities centered on a population centre (known as the core). A CMA must have a total population of at least 100,000 of which 50,000 or more must live in the core based on adjusted data from the previous Census of Population Program.	Regina, Windsor, Moncton, St. John's, Sherbrook, Winnipeg
Census Agglomeration (CA)	Formed by one or more adjacent municipalities centered on a population centre (known as the core). A CA must have a total population of at least 10,000 also based on data from the previous Census of Population Program.	Bay Roberts, Charlottetown, Saint-Georges, Moosejaw, Yellowknife, Whitehorse
Census Tract (CT)	Small, relatively stable geographic areas that usually have a population of less than 10,000 persons, based on data from the previous Census of Population Program. They are located in census metropolitan areas and in census agglomerations that had a core population of 50,000 or more in the previous census.	Numerical ID Code

Geographical Area	Definition	Examples
Aggregate Dissemination Area (ADA)	A new dissemination geography created for the 2016 Census that, where possible, has a population between 5,000 and 15,000 based on the previous census population counts. ADAs are created from existing dissemination geographic areas and are formed from census tracts (CTs), census subdivisions (CSDs) or dissemination areas (DAs).	Numerical ID Code
Dissemination Area (DA)	A small geographic unit composed of one or more adjacent dissemination blocks with an average population of 400 to 700 persons based on data from the previous Census of Population Program. It is the smallest standard geographic area for which all census data are disseminated	Numerical ID Code
Dissemination Block (DB)	An area bounded on all sides by roads and/or boundaries of standard geographic areas. The dissemination block is the smallest geographic area for which all census data are disseminated.	Numerical ID Code
Large Urban Population Centre	A population of 100,000 or more and a population density of 400 persons or more per square kilometre, based on population counts from the current Census of Population.	Barrie, Victoria, Quebec, Calgary, Saskatoon
Medium Population Centre	A population between 30,000 and 99,999 and a population density of 400 persons or more per square kilometre, based on population counts from the current Census of Population.	Medicine Hat, Thunder Bay, Kamloops, Joliette, Châteauguay
Small Population Centre	A population between 1,000 and 29,999 and a population density of 400 persons or more per square kilometre, based on population counts from the current Census of Population.	Amherst, Banff, Cape Breton - Sydney, Jasper, Saint-Rémi
Rural Area	All areas outside population centres are classified as rural areas.	Rural areas of CMAs and CAs, agricultural land, undeveloped land, wilderness areas
Health Regions	Legislated administrative areas defined by provincial ministries of health. These administrative areas represent geographic areas of responsibility for hospital boards or regional health authorities.	Winnipeg Regional Health Authority, East Kootenay Health Service Delivery Area

Resources

Below are links to access maps at various geographic levels.

Click here for a map of all the census metropolitan areas and census agglomerations in the country

Click here for a map of all the census divisions in the country

Click here for maps of census divisions by province

Click here for census tract maps, by census metropolitan areas or aensus agglomerations

Note: Depending on the area size, links to inset maps may be available on the page as well to provide greater visibility of more congested areas.

Other Resources

- Illustrated Glossary of Geographic Areas (Statistics Canada)

- Open Data Portal (Statistics Canada)

- Statistic Canada Learning Catalogue

Chapter Summary

Data to Decisions:
Data by Geographical Areas

- Understanding the breadth and depth of data availability, geographically, can lead to powerful evidence-based analysis and storytelling from the national level to the local level and everywhere in between.

- Data is available via Statistics Canada at levels ranging from country-wide to dissemination block. Choosing the appropriate geographic area depends on your specific data and analysis needs.

- The sheer volume of data available is overwhelming. Identifying the geographic context for the analysis can provide clarity. Focus on one box or section of the Hierarchy chart, rather than the whole thing.