Metadata Documentation

Canada Emergency Wage Subsidy Regional and Community-level Database
(Version 1.0)

Metadata document: concepts, methodology and data quality

Covering March 15th, 2020 to October 24th, 2020

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User Information

Symbols

The following standard symbols are used in Statistics Canada publications:

.	not available for any reference period
..	not available for a specific reference period
...	not applicable
0	true zero or a value rounded to zero
0^s	value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
^{p}	preliminary
^{r}	revised
x	suppressed to meet the confidentiality requirements of the Statistics Act
^{E}	use with caution
F	too unreliable to be published
*	significantly different from reference category ($p < 0.05$)

Acronyms & Abbreviations

CEWS	Canada Emergency Wage Subsidy
CRA	Canada Revenue Agency
StatCan	Statistics Canada
BR	Business Register
BN	Business Number
OEN	Operating Entity Number
SGC	Standard Geographical Classification
CMA/CA	Census Metropolitan Area/Census Agglomeration
CSD	Census Subdivision
NAICS	North American Industry Classification System

Table of Contents

1   Overview

1.1   What is the Canada Emergency Wage Subsidy?

The Canada Emergency Wage Subsidy (CEWS) is a wage subsidy program that was implemented by the Government of Canada in response to the COVID-19 global pandemic. It was initially available for a period of twelve weeks, from March 15, 2020 to June 6, 2020, and provided a subsidy of up to 75% of eligible remuneration, paid by an eligible entity (eligible employer) that qualifies, to each eligible employee – up to a maximum of $847 per week. As of the date of release of this document, the Government of Canada had extended the CEWS program until June 30, 2021. The program is administered by the Canada Revenue Agency (CRA).[1]

1.2   What is the Canada Emergency Wage Subsidy Regional and Community-level Database?

The Canada Emergency Wage Subsidy Regional and Community-level Database (the database) is a custom dataset constructed with CEWS microdata and other administrative data sources available at Statistics Canada. In terms of geographic levels, the database provides values for Canada, province/territory, rural and urban breakdowns by province/territory, census metropolitan area (CMA), census agglomeration (CA), and census subdivision (CSD). These values are provided at the total industry level and by 2- and 3-digit North American Industry Classification System (NAICS) industries. The main variables included in the database are total CEWS supported employment and total CEWS claim dollar amounts. To generate this regional and community-level database, CEWS microdata were first aggregated to the business enterprise level, and subsequently allocated to the business locations of the enterprise.

2   Data sources

2.1   Canada Revenue Agency CEWS microdata

The file containing all approved CEWS claims as of January 4th, 2021 was the primary data source for the database. The records in the file are for CEWS claims which have approved status at the time when the file is produced. CEWS applications undergoing reassessment are excluded in subsequent files pending final approval status. It is possible for a business to claim CEWS up to 180 days after the four-week claim period concludes. As a result, the total number of CEWS-approved claims for a given reference period contained in the CRA source files can fluctuate.

In order to select which CEWS periods to include in this database, the January 4th, 2021 CRA source data file was compared with the more up-to-date published totals on the CEWS statistics website.[2] This analysis showed a difference of more than 20% in the variable values for the ninth and tenth four-week CEWS claim periods between the two. Differences for earlier periods were smaller, with the earliest periods showing the smallest differences. The reasons for these differences were explained earlier in this section. As a result, only the first eight four-week periods contained in the CEWS January 4th, 2021 source data file are included in the database.

The database contains records on Canadian employers approved for CEWS. Details on employer eligibility

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[1] For more information, see Canada Revenue Agency's Canada Emergency Wage Subsidy (CEWS) Frequently asked questions website.
[2] Specifically the data produced on January 11, 2021, available from Canada Revenue Agency source systems as of January 10, 2021 11:59:59PM. The latest tabulations are available on Canada Revenue Agency's Canada Emergency Wage Subsidy (CEWS) Statistics website.

are provided on the CRA's website.[3]

2.2 Statistics Canada's Business Register

The Business Register (BR) contains a comprehensive and up-to-date list of businesses in Canada. It contains business information such as address, business number (BN), a unique operating entity number (OEN), among many other variables.[4] This information was used for allocating CEWS variables to business locations, and assigning census subdivision geographies and NAICS industry codes.

3 Reference period of database

This release of the database includes eight four-week claim periods, beginning March 15th, 2020 and ending October 24th, 2020. These eight periods are identified with a separate variable within the database. A CEWS claim period is the four-week period for which an eligible employer can claim the wage subsidy for remuneration paid to eligible employees.[5]

4 Compilation methodology

This section provides an overview of the processing done to compile the database from the CRA source data files.

4.1 Data linkage

The first processing step consisted of linking the CEWS microdata to the Business Register in order to identify each business' industry and geography classification. Each record in the CEWS microdata data file contained the unique business number (BN) associated with a business. Within the BR, BNs are mapped one-to-one with unique operating entity numbers (OENs).[6] BNs from the CRA source data file were thus deterministically mapped using the BN-to-OEN link on the BR.

4.2 Aggregation and allocation of variables

In order to provide granular data at the census subdivision (CSD) level and by NAICS, the CEWS source file required: (i) aggregation to the business enterprise level; and, for complex businesses with multiple locations, (ii) allocation to the business locations which are associated with the enterprise.

In cases where a business enterprise reported only one location, the allocation was straightforward. However, some records were for multi-location businesses, e.g., a head office with at least one other (branch) location. Multi-location businesses represented approximately one-fifth of locations and one-third of the CEWS subsidy approved over the eight periods covered in this database. The allocation of CEWS data to individual locations was done in order to reflect the use of CEWS by multi-location businesses more accurately.

The Business Register's Factor Allocation Table was used for the allocation process. Imagine an enterprise which reports its revenue and expenses to a head office from all of its many branches. The head office then reports the revenue and expenses for the entire business enterprise to the CRA. By using allocation factors,

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[3] For more information, see Canada Revenue Agency's Canada Emergency Wage Subsidy (CEWS) Frequently asked questions – Eligibility website.

[4] For more information, see Statistics Canada's Definitions and Concepts used in Business Register website.

[5] For more information, see Canada Revenue Agency's Canada Emergency Wage Subsidy (CEWS) Frequently asked questions – Overview website.

[6] An OEN is a unique identifier assigned by Statistics Canada's Business Register in order to identify statistical entities (such as enterprises and locations).

data analysts are able to allocate the business enterprise aggregations, i.e., revenue and expenses from head office, back down to the local branches. This can provide a more granular picture of the business enterprise's operations, as well as provide insight into how local communities throughout the country are performing.

The Factor Allocation Table provides two sets of factors: revenue factors and employment factors. They show, respectively, the share of the enterprise's total revenue or employment belonging to each of its operating entities.[7]

4.2.1 Allocation of CEWS claim amount and supported employees

For the database, preference was given to using employment allocation factors when allocating aggregated multi-location business variables to each business location. Using employment allocation factors intuitively aligned with CEWS given it is a program that targets employment support via a wage subsidy.

When employment allocation factors were not present in the BR's Factor Allocation Table for a multi-location business, or when the sum of its employment allocation factors did not sum to 100%, then revenue allocation factors were used instead.[8] This derivation was required in only a small number of cases.

4.2.2 Allocating the indicator of retroactive rehire

The indicator of retroactive rehire variable, like all other variables drawn from the CRA source data file, was only available at the payroll number level for each business. As a result, these values were also aggregated to the business enterprise level, before being allocated down to the business location level.

However, it was not possible to allocate this down to the business location level precisely, given that the allocation process using the Factor Allocation Table of the BR does not lend itself well for this purpose. Note that, in general, there is no one-to-one correspondence between payroll numbers and business locations (for complex businesses). As a result, this indicator only denotes that the business has rehired one or more employees who had been previously furloughed somewhere in their business structure. In the case of multi-location businesses, e.g., a business with a head office and at least one other separate branch location, this rehire flag would only be reported for whichever branch processed that payroll account. It would not specify, exactly, which business location(s) the retroactive rehire indicator is associated with; i.e., the exact business/branch location in which previously furloughed employees were rehired.

In order to allocate this indicator to the business location level, the following rule was applied: whenever the rehire flag was equal to 1 (i.e., indicating a rehire took place) in a given CEWS reporting period for any business enterprise associated with a multi-location business, e.g., a head office location, then all locations associated with that enterprise for that CEWS reporting period were also coded as rehire equal to 1.

4.3 Allocation of data to geographic units

The Standard Geographical Classification 2016 (SGC) was used for geographic allocation of CEWS variable values based on business location. SGC provides a systematic classification structure that categorizes all of the geographic areas of Canada.[9] The SGC comprises a hierarchical coding system that provides a unique identifier for each level within the geographic hierarchy. The geographic levels used in the database are: Canada, provinces and territories, census metropolitan areas/census agglomerations (CMA/CAs), and census subdivisions (CSDs).

A rural and urban breakdown at the Canada and provincial/territorial levels was also created. CSDs outside

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[7] Ibid.

[8] Derived allocation then was a function of both employment and revenue allocation factors. Overall, more than 90% of the businesses which required allocation (i.e., multi-location businesses) were allocated from the enterprise to location level using employment allocation factors, the remainder utilized revenue allocation factors.

[9] For more information, see Statistics Canada's Standard Geographical Classification (SGC) 2016 website.

CMA/CAs were classified as "rural", while those inside CMA/CAs, as "urban". Based on whether a business location's CSD in the BR was rural or urban, it was aggregated into one of these categories.

The Business Register contains the location data associated with every business in Canada. Once the link between the CEWS source data file and the BR was established, a unique SGC was derived for each business location using the geo-coordinates of the business location recorded on the BR. In a few instances, no location data was present within the BR. Manual search was performed to assign locations to these businesses.

4.4 North American Industry Classification Standard assignment

The North American Industry Classification System (NAICS) is used to classify businesses into industry sectors.[10] The database provides data at both the 2- and 3-digit NAICS levels. At the 2-digit NAICS codes, industry sectors are defined, whereas at the 3-digit NAICS codes, industry subsectors are defined.

NAICS codes were assigned to each business location as they were listed in the Business Register. If a NAICS code was not present for a business location in the 2020 version of the BR, the 2019 BR was then examined to see if a NAICS was assigned for that business location. This process was done iteratively for previous years until a NAICS code is found.

Nevertheless, it was not possible to find the NAICS codes for a small number of businesses, which were assigned the 2-digit NAICS code '99 - Unknown'. In addition, to reduce the potential suppressions for NAICS with small counts, two additional 2-digit NAICS code were merged with "99 – Unknown". These are: NAICS 81 "Other Services (except Public Administration)", and 91 "Public Administration".

4.5 Protecting confidentiality

Given the high level of granularity provided by the database (geographic and industry), data suppression was implemented to preserve confidentiality using a hierarchy-aware confidentiality program developed by Statistics Canada (G-Confid).

In general, there are two reasons why a value may be suppressed to protect confidentiality:

1. Primary suppression
   a. There are few businesses contributing to the value of a cell; or,
   b. A cell value is dominated by one or a few businesses.

2. Secondary suppression: another cell is suppressed to protect the value of a primary suppressed cell so a higher-level aggregate can be published. For example, if the value of a variable for only one CSD in a particular province and industry is suppressed for confidentiality reasons, a second CSD will also have this value suppressed in order to prevent the suppressed value from being derived from the provincial total.

5 Database contents

As indicated earlier, the database is organized as follows:

1. Main variables: Start date of period, Total basic CEWS subsidy, Total number of CEWS supported employees, Number of business locations claiming CEWS, and Number of business locations indicating retroactive employee rehire;

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[10] For more information, see Statistics Canada's Introduction to the North American Industry Classification System (NAICS) Canada 2017 Version 3.0 website.

2. Geography levels: Canada, province/territory, rural and urban parts of a province/territory, census metropolitan area (CMA), census agglomeration (CA), and census subdivision (CSD); and
3. Industry levels: industry sector (2-digit NAICS) and subsector (3-digit NAICS).

See the data dictionary in section 6 for details on the variables.

6 Data dictionary

This data dictionary below describes the variables of the database.

Variable – Start date of period	
Name	Start_date_of_CEWS_period
Format	String
Source	Canada Revenue Agency – Canada Emergency Wage Subsidy microdata
Description	Start date of Period covered by the claim. The eligible periods are as follows: Period 1: March 15, 2020 to April 11, 2020 Period 2: April 12, 2020 to May 9, 2020 Period 3: May 10, 2020 to June 6, 2020 Period 4: June 7, 2020 to July 4, 2020 Period 5: July 5, 2020 to August 1, 2020 Period 6: August 2, 2020 to August 29, 2020 Period 7: August 30, 2020 to September 26, 2020 Period 8: September 27, 2020 to October 24, 2020

Variable – Region Code	
Name	RegionCode
Format	String
Source	Derived from Statistics Canada's Business Register and business location allocation factors
Description	RegionCode is derived from the business location in Statistics Canada's Business Register and is based on Statistics Canada's Standard Geographical Classification (SGC) 2016. Region codes provided in this database include national urban and rural codes, province and territory codes, census metropolitan area (CMA) codes, census agglomeration (CA) codes, provincial/territorial rural (i.e., non-CMA/CA) codes, and provincial/territorial urban codes (i.e., CMA/CA). The most granular geography level is the census subdivision (CSD) level. 9. For more information, see Statistics Canada's Standard Geographical Classification (SGC) 2016 website.

Variable – Region Name	
Name	RegionName
Format	String
Source	Derived from Statistics Canada's Business Register and business location allocation factors
Description	RegionName is derived from the business location in Statistics Canada's Business Register and is based on Statistics Canada's Standard Geographical Classification (SGC) 2016. Region names provided in this database include: Canada, province and territory names, urban and rural breakdowns for Canada and provinces/territories, census metropolitan areas (CMAs), census agglomerations (CAs), and census subdivisions (CSDs). For more information, see Statistics Canada's Standard Geographical Classification (SGC) 2016 website.

Variable – Rural Urban Flag	
Name	RuralUrbanFlag
Format	String
Source	Derived from Statistics Canada's Business Register and business location allocation factors
Description	RuralUrbanFlag is derived from the business location in Statistics Canada's Business Register and is based on Statistics Canada's Standard Geographical Classification (SGC) 2016. All regions and regional aggregates outside census metropolitan areas/census agglomerations were coded as RURAL. All regions within census metropolitan areas/census agglomerations and regional aggregates were coded as URBAN. For more information, see Statistics Canada's Standard Geographical Classification (SGC) 2016 website.

Variable – CMA/CA Flag	
Name	CMACAFlag
Format	String
Source	Derived from Statistics Canada's Business Register and business location allocation factors
Description	CMACAFlag is derived from the business location in Statistics Canada's Business Register and is based on Statistics Canada's Standard Geographical Classification (SGC) 2016. Census Metropolitan Areas (CMA) and Census Agglomerations (CA) geographies are identified as "CMA" and "CA", respectively, while non-CMA/CA geography levels are identified as "Not applicable". For more information, see Statistics Canada's Standard Geographical Classification (SGC) 2016 website.

Variable – Industry Code	
Name	IndustryCode
Format	String
Source	Derived from Statistics Canada's Business Register and business location allocation factors
Description	North American Industry Classification Standard (NAICS) is derived from Statistics Canada's Business Register. Industry sectors are represented by 2-digit codes, while industry subsectors are represented by 3-digit codes. For more information see Statistics Canada's Introduction to the North American Industry Classification System (NAICS) Canada 2017 Version 3.0 website.

Variable – Industry Name	
Name	IndustryName
Format	String
Source	Derived from Statistics Canada's Business Register and business location allocation factors
Description	North American Industry Classification Standard (NAICS) is derived from Statistics Canada's Business Register. Industry sector and industry subsector names are those associated with the 2-digit and 3-digit NAICS codes. For more information see Statistics Canada's Introduction to the North American Industry Classification System (NAICS) Canada 2017 Version 3.0 website.

Variable – Number of business locations claiming CEWS (rounded to base 5)	
Name	Number_business_locations
Format	Integer
Source	Derived from Statistics Canada's Business Register and business location allocation factors
Description	Estimate of the total number of business locations claiming a Canadian Emergency Wage Subsidy (rounded to base 5).

Variable – Total basic CEWS subsidy (in dollars rounded to thousands)	
Name	Subsidy_amount
Format	Integer
Source	Derived from Statistics Canada's business location allocation factors by utilizing Canada Revenue Agency – Canada Emergency Wage Subsidy microdata
Description	Basic Canada Emergency Wage Subsidy. See the Canada Emergency Wage Subsidy Application Guide.

Variable – Total number of CEWS supported employees	
Name	Supported_employees
Format	Integer
Source	Derived from Statistics Canada's business location allocation factors by utilizing Canada Revenue Agency – Canada Emergency Wage Subsidy microdata
Description	Sum of Number of Eligible Employees (Line A) + Number of Eligible Employees on Leave with Pay (Line AA). Line A + Line AA = Number of Employees Supported by the Program. See the Canada Emergency Wage Subsidy Application Guide.

Variable – Number of business locations indicating retroactive employee rehire	
Name	CEWS_rehire_count
Format	Integer
Source	Derived from Statistics Canada's business location allocation factors by utilizing Canada Revenue Agency – Canada Emergency Wage Subsidy microdata
Description	Estimate of the total number of business locations having an indicator of retroactive rehire of one or more employees during the period. See the Canada Emergency Wage Subsidy Application Guide.

7 Possible future updates and revision strategy

As indicated earlier, by virtue of the fact that claimants are able to retroactively apply for CEWS (generally up to 180 days after the end of a claim period), the subsidy amounts and supported employees can continue to change as more applications are received and approved, or reassessed and not approved by the CRA.[11] For this reason, future updates of the database are likely to result in revisions to earlier periods of data. In turn, users should be aware that these revisions might limit the release of parts of an updated dataset, due to confidentiality considerations.

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[11] As of November 2020, the deadline to apply for CEWS is up to 180 days after the end of the claim period. For more information, see the Canada Revenue Agency's Canada Emergency Wage Subsidy (CEWS) - What the changes are website.