



Assignment Program User Guide for the 2021 Canadian Deprivation Index

KNOWLEDGE TRANSFER

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TABLE DES MATIÈRES

1	INTRODUCTION	4
2	CONVERSION TABLES FROM THE POSTAL CODE CONVERSION FILE (PCCF)	5
3	OTHER TABLE	6
4	MACRO « INDEXASSIGNMENT_CAN2021_EN ».....	7

1 INTRODUCTION

The 2021 deprivation index's assignment program is a SAS program with conversion tables and a macro named "Assignment2021". This program can assign a deprivation index to any SAS file containing a six-digit postal code (mandatory) and a municipal/census subdivision code (optional). An index is assigned by linking these codes to a dissemination area (DA), which is the geographical unit of the census that the deprivation index is based on. Please note that this program is updated annually to allow the addition of new postal codes and municipality codes over time.

Four versions of the deprivation index can be assigned on a Canada-wide scale: a national version, a regional version where Canada is divided into five major regions (Atlantic, Québec, Ontario, Prairies, British Columbia), a metropolitan version where the three largest census metropolitan areas (CMAs) (Montréal, Toronto, and Vancouver) are considered separately, and a version for geographic zones where the major CMAs, other CMAs, census agglomerations (CAs), and rural communities each form one group. The program can also assign different standardized territories that may be worth considering when studying deprivation such as the province or the territory, the geographic zone and the territories associated with the classification of Statistics Canada statistical area classification (SAC).

2 CONVERSION TABLES FROM THE POSTAL CODE CONVERSION FILE (PCCF)

PCCFINDEXUNIQ: This table contains unique postal codes (linked to one DA only), to which the corresponding deprivation index was added.

PCF: This table contains certain non-unique postal codes (linked to several DAs) and a weight variable that reflects the proportion of the postal code population that lives within each DA associated with it. In PCF, the deprivation index is also added.

PCCFINDEXDOUBLE: This table contains non-unique postal codes (linked to several DAs) for which the population distribution is unknown. Therefore, this distribution is assumed to be equal. In PCCFINDEXDOUBLE, the deprivation index is also added.

3 OTHER TABLE

MUNIC2021: This table links the municipal (census subdivisions) codes from 1991, 1996, 2001, 2006, 2011, 2016, and 2021 so that an index can be accurately assigned even if the input file contains old municipal codes.

4 MACRO << ASSIGNATION2021 >>

1. In the program, the user must first define the file path of the directory where the four previously listed tables were saved. To do this, the directory of the following statement must be changed:

```
%let repertory = D:\Projects;
```

For example, if the four tables were saved on the D drive in the INDEX folder, ASSIGNMENT subfolder, the statement would become:

```
%let repertory = D:\Index\Assignment;
```

It is important to keep the semicolon.

2. While still in the program, the user must define four parameters: 1) the input file (IN) they want to assign the deprivation index to (must be a SAS file), 2) the name of the six-digit postal code variable (PCODE; mandatory), and if necessary, the name of the five- or seven-digit municipal code variable (MUNIC). 3) the name of the output file (OUT).

To do this, the following four statements must be changed:

```
%let in = input_file;
```

```
%let pcode = postalcode;
```

```
%let munic = 0;
```

```
%let out = output_file;
```

For example, if the file name is DEATH, the output file name is DEATH_INDEX, the name of the postal code variable is PCODE and the name of the municipal code variable is MUNIC, the four statements would become:

```
%let in = death;
```

```
%let pcode = pcode;
```

```
%let munic = munic;
```

```
%let out = death_index;
```

Important notes:

- When the municipal code is not used, the name of the municipal code variable must be set to 0 (zero). For example: *%Assignment2021* (in= death, pcode=pcode, **munic=0**, out= death_index);
- The rest of the program must not be changed;
- The output file will contain the same variables as the input file in addition to the variables linked to the 2021 deprivation index that are listed and described below.

3. Once the directory has been modified and the parameters have been defined, the macro can be launched. It simply runs the rest of the program, as summarized below:
 - It reads the input file and creates a unique identification number and a random number between 0 and 1 for each of the file's entries. This random number is required if the postal code is associated with more than one deprivation index.
 - If the municipal code is part of the matching key, and therefore the parameter is not 0, the index is assigned according to the following steps:
 - a) Matching is done with the PCCFINDEXUNIQ table using a key made up of the postal code and municipal code.
 - b) For cases not matched in step a), matching is done with the PCF table using a matching key made up of the postal code and municipal code. If there is more than one valid index for the "Postal code – Municipal code" combination, one of the national, regional, or local indexes is assigned at random based on the proportion of the population that uses that postal code and municipal code.
 - c) For cases not matched in step b), matching is done with the PCCFINDEXDOUBLE table using a key made up of the postal code and municipal code. If there is more than one national, regional, or local index for the "Postal code – Municipal code" combination, one of these indexes (which all have the same probability of being selected) is assigned at random.
 - If the municipal code is not part of the matching key and the parameter = 0, or if the municipal code is part of the matching key and there are still unmatched cases, the program assigns indexes as follows
 - a) Matching is done with the PCCFINDEXUNIQ table using the postal code.
 - b) For cases not matched in step a), matching is done with the PCF table using a key made up of the postal code alone. If there is more than one national, regional, or local index for the postal code, one of these indexes is assigned at random based on the proportion of the population that uses that postal code.
 - c) For cases not matched in step b), matching is done with the PCCFINDEXDOUBLE table using the postal code. If there is more than one valid index for a given postal code, a national, regional, or local index (which all have the same probability of being selected) is assigned at random.

Notes:

- Unmatched cases, including postal codes that are invalid, incorrect, or that are not part of the PCCF, are assigned index values of 0.
- Cases matched to a DA with no deprivation index will be assigned missing values as a deprivation index.

As mentioned above, the output file will be the same as the input file to which the following variables will be added:

- quintmat and quintsoc: the quintiles (1 to 5) of the national index's material and social components (1 being the most privileged quintile, 5 being the least privileged).
- quintmatCR and quintsocCR: the quintiles (1 to 5) of the Canadian regional index's material and social components (1 being the most privileged quintile, 5 being the least privileged) for the Atlantic, Québec, Ontario, Prairies and British Colombia regions separately.
- quintmatZONE and quintsocZONE: the quintiles (1 to 5) of the material and social components (1 being the most privileged quintile, 5 being the least privileged) of the index for 4 geographic zones (three largest CMAs (Montréal, Toronto, Vancouver), other CMAs, Census agglomerations, rural communities) separately.
- quintmatCMA and quintsocCMA: the quintiles (1 to 5) of the metropolitan index's material and social components (1 being the most privileged quintile, 5 being the least privileged) for the Montréal, Toronto and Vancouver CMAs separately.
- Pr: province code
 - 10 - Newfoundland and Labrador
 - 11 - Prince-Edward Island
 - 12 - Nova Scotia
 - 13 - New Brunswick
 - 24 - Québec
 - 35 - Ontario
 - 46 - Manitoba
 - 47 - Saskatchewan
 - 48 - Alberta
 - 59 - British-Colombia
 - 60 - Yukon
 - 61 - North-West Territories
 - 62 - Nunavut
- Zone: geographical zone
 - 1. Three largest CMAs (Toronto, Montréal and Vancouver)
 - 2. All other CMAs including Québec, Trois-Rivières, Ottawa-Gatineau, Hamilton, Edmonton, Regina, etc. (> 100 000 inhabitants)
 - 3. All census agglomerations (between 10 000 and 100 000 inhabitants)
 - 4. Small towns and rural regions (< de 10 000 inhabitants)
- SAC: statistical area classification
 - 1. Census Metropolitan Area
 - 2. Census agglomerations (CAs) with census tracts

3. CAs with no census tract
 4. Strong metropolitan influenced zone
 5. Moderate metropolitan influenced zone
 6. Weak metropolitan influenced zone
 7. No metropolitan influenced zone
 8. Territories (Yukon, the Northwest Territories and Nunavut, except CAs of Whitehorse and Yellowknife)
- CR: Canadian region
 - Atlantic, Québec, Ontario, Prairies, British Columbia
 - CMA¹: census metropolitan area code
 - 001 - St. John's
 - 205 - Halifax
 - 305 - Moncton
 - 310 - Saint John
 - 320 - Fredericton
 - 408 - Saguenay
 - 421 - Québec
 - 433 - Sherbrooke
 - 442 - Trois-Rivières
 - 447 - Drummondville
 - 462 - Montréal
 - 505 - Ottawa - Gatineau
 - 521 - Kingston
 - 522 - Belleville - Quinte West
 - 529 - Peterborough
 - 532 - Oshawa
 - 535 - Toronto
 - 537 - Hamilton
 - 539 - St. Catharines - Niagara
 - 541 - Kitchener - Cambridge – Waterloo
 - 543 – Brantford
 - 550 - Guelph
 - 555 - London
 - 559 - Windsor
 - 568 - Barrie
 - 580 - Greater Sudbury
 - 595 - Thunder Bay
 - 602 - Winnipeg

¹ Only the list of the most populated CMAs (> 100,000 inhabitants) is indicated in this table. To find a match for a specific geographic code, please consult the [Statistics Canada web page](#).

705 - Regina
725 - Saskatoon
810 - Lethbridge
825 - Calgary
830 - Red Deer
835 - Edmonton
915 - Kelowna
925 - Kamloops
930 - Chilliwack
932 - Abbotsford - Mission
933 - Vancouver
935 - Victoria
938 - Nanaimo

- Base: indicates with which file the index was assigned
 1. File of unique postal codes: PCCFINDEXUNIQ
 2. Weighted conversion file: PCF
 3. File of non-unique postal codes: PCCFINDEXDOUBLE
- Date: variable that makes it possible to determine the version of the assignment program