

Catalogue no. 91F0015M  
ISSN 1205-996X  
ISBN 978-0-660-79157-9

## Demographic Documents

# Non-permanent Residents Missed in the 2021 Census

by Janm Mehta and Julien Bérard-Chagnon

Release date: November 26, 2025



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## Acknowledgments

The authors would like to thank several Statistics Canada employees for their contribution to this project. First, they would like to thank Mélanie Meunier and Martin St-Pierre for their assistance in preparing the data used in the project. The first versions of this document also benefitted from the comments of Ivelina Delahousse, Rose Evra, Laurent Martel, Mélanie Meunier, Athanase Barayandema, Kathryn Spence and Martin St-Pierre.

## Table of contents

|   |           |
|---|-----------|
| <b>Acknowledgments</b> .....  | <b>3</b>  |
| <b>Summary</b> .....  | <b>5</b>  |
| <b>Highlights</b> .....   | <b>5</b>  |
| <b>Acronym list</b> .....   | <b>6</b>  |
| <b>Introduction</b> .....   | <b>7</b>  |
| <b>1 Data Sources</b> .....   | <b>7</b>  |
| 1.1 Census Undercoverage Study.....                                       | 7         |
| 1.2 Immigration, Refugees and Citizenship Canada administrative data..... | 8         |
| <b>2 Results</b> .....  | <b>8</b>  |
| <b>Conclusion</b> .....   | <b>12</b> |
| <b>Appendix</b> .....   | <b>13</b> |
| <b>References</b> .....   | <b>14</b> |

# Non-permanent Residents Missed in the 2021 Census

By **Janm Mehta** and **Julien Bérard-Chagnon**

## Summary

This article examines the missed rates for non-permanent residents (NPRs) using data from the 2021 Census; the 2021 Census Undercoverage Study (CUS); and administrative data from Immigration, Refugees and Citizenship Canada. The study finds that the NPR missed rate in the 2021 Census decreased compared with the previous census and that certain characteristics of NPRs are correlated with being missed.

## Highlights

- In 2021, the missed rate for non-permanent residents (NPRs) was 38%. This represents a statistically significant reduction of seven percentage points compared with the rate in 2016 (45%).
- All sociodemographic characteristics considered in the study were correlated with the missed rates, except gender.
  - Ontario had a missed rate of 45%, which was much higher than the rates in other provinces, particularly Quebec (22%).
  - NPRs aged 30 to 34 (27%) and 35 years or older (25%) were less likely to be missed than those aged 20 to 24 (49%).
  - There was a difference of 15 percentage points between the missed rate of married or common-law persons (27%) and that of single, separated, divorced or widowed persons (42%).
- The characteristics of NPRs on Census Day were also correlated with the probability of being missed in the 2021 Census.
  - Asylum claimants, protected persons and related groups (26%) were the least likely to be missed, while study permit holders had a higher missed rate (45%) than work permit holders (37%).
  - The permit length before the census was not significantly related to the likelihood of being missed in the 2021 Census.
  - NPRs whose permit was valid for less than six months after the census had a missed rate of 60%, which was the highest rate in the study.
  - After the census, NPRs who became permanent residents had a lower missed rate (33%) than NPRs whose permit was valid for two years or more (40%).

## Acronym list

DCS = Dwelling Classification Survey

CUS = Census Undercoverage Study

WHI = Whole Household Imputation

IRCC = Immigration, Refugees and Citizenship Canada

NPR = Non-permanent resident

CNU = Census Net Undercoverage

## Introduction

The number of non-permanent residents (NPRs) living in Canada has significantly increased since the end of the COVID-19 pandemic. This historic increase has led to growing interest in data on NPRs from many data users. NPRs are made up of two groups: (1) asylum claimants, protected persons and individuals in related groups and (2) work and study permit holders, including family members living with them.

Census data are often used to describe the demographic and socioeconomic situation of NPRs (Tuey and Bastien, 2023; Jupia Consultants Inc., 2023; Simonova, 2017). Censuses provide reliable data for smaller subpopulations, local geographic levels and various demographic and socioeconomic characteristics of interest.

The Canadian census aims to enumerate the entire population of Canada at their usual place of residence on Census Day and has a very high level of coverage (Statistics Canada, 2024a). However, despite considerable efforts in the field, some demographic groups are less likely to be enumerated. This issue, known as undercoverage, affects all censuses worldwide (United Nations, 2017, § 3.210). It can affect the quality of census data and potentially reduce or limit the scope of certain studies that use those data at granular and detailed levels.

After each census, Statistics Canada conducts coverage studies to assess census undercoverage and overcoverage. A 2019 study by Statistics Canada based on the 2011 Census coverage studies found that NPRs had higher missed rates than the rest of the population (Bérard Chagnon et al., 2019). Missed rates are the main factor used to calculate census undercoverage.

This analysis updates the 2019 study by examining the missed rates of NPRs in the 2021 Census, using data from the Census Undercoverage Study (CUS) and administrative data from Immigration, Refugees and Citizenship Canada (IRCC). This methodological document aligns with Statistics Canada's efforts to help users interpret the census data correctly.

The following sections respectively present the data used in this study and the NPR omission rates according to various characteristics.

## 1 Data Sources

This section describes the data used in the study, i.e., data from the CUS and IRCC.

### 1.1 Census Undercoverage Study

Statistics Canada has been measuring coverage for each census since 1961 (Dolson, 2010). The results of coverage studies are published on the agency's website just over two years after each census. In addition to providing valuable information on the level of census coverage, the results of these studies are directly used to calculate Statistics Canada's demographic estimates (Statistics Canada, 2024b).

The methodology of the CUS is described in detail in the *Coverage Technical Report, Census of Population, 2021* (Statistics Canada, 2024a). The rest of this section provides an overview of that methodology.

The CUS is a survey whose sample is drawn from six different sampling frames. Together, these frames provide a sample that is independent of the 2021 Census, but also almost entirely reproduces the census universe. The CUS then categorizes the sampled persons based on whether they were enumerated, missed (included in the census target population and have not been enumerated) or out of scope<sup>1</sup> in the 2021 Census. This is done (1) through record linkages between the CUS databases, the census and various administrative data sources, such as death data from vital statistics, and (2) through field collection to trace and interview sampled persons who have not been matched.

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1. Out of scope persons represent those who were not in the census universe on Census Day. This can happen, for example, for persons who have died or emigrated.

The NPR frame was one of the six frames used for this study and includes NPRs whose permit was valid on the day of the 2021 Census, according to IRCC data. In total, the frame includes 2,009 enumerated NPRs and 630 missed NPRs and covers most of the NPRs in the CUS<sup>2</sup> (88%).

The missed rates for NPRs were calculated by dividing the number of missed NPRs by the total number of NPRs estimated by the CUS. NPRs classified as out of scope, such as those who left Canada before Census Day, are excluded from this analysis since they were no longer part of the census universe on Census Day.

### 1.1.1 Differences between missed rates and undercoverage rates

For this study, it is important to remember that the concept of missed persons differs from the concept of undercoverage. According to the CUS, a person is missed if they are part of the census target population and have not been enumerated. However, undercoverage is calculated by subtracting the number of persons imputed by the Dwelling Classification Survey (DCS)<sup>3</sup> and the number of incompletely enumerated<sup>4</sup> cases from the number of missed persons. Therefore, the number of missed persons is a factor used to calculate undercoverage. For example, a missed person who was imputed has no direct effect on undercoverage.

As a result, missed rates cannot be interpreted as a certain number of individuals who should be added to the census figures. This would require examining census net undercoverage (CNU), i.e., the difference between undercoverage (missed rates being a factor in undercoverage) and overcoverage. Although NPRs are included in the CUS total estimates, specific estimates for NPRs were not available at the time of this analysis.

## 1.2 Immigration, Refugees and Citizenship Canada administrative data

IRCC, along with other government departments, collect and process the administrative files of asylum claimants. IRCC also collects and processes the administrative files of the holders of work, study and temporary resident permits in Canada. IRCC subsequently sends monthly files to Statistics Canada, which are used in the calculation of demographic estimates<sup>5</sup>. As previously mentioned, these data are also directly used to create the NPR frame for the CUS.

The IRCC data include some relevant information for this study, in particular the types and duration of work and study permits, and asylum claims.

Some NPRs in the sample have more than one valid permit on Census Day. In these cases, and after considering the effect on the sample size used in this study, the type of NPR is determined by the following hierarchy: (1) asylum claimants, protected persons and related groups; (2) work permit holders; and (3) study permit or temporary resident permit holders.

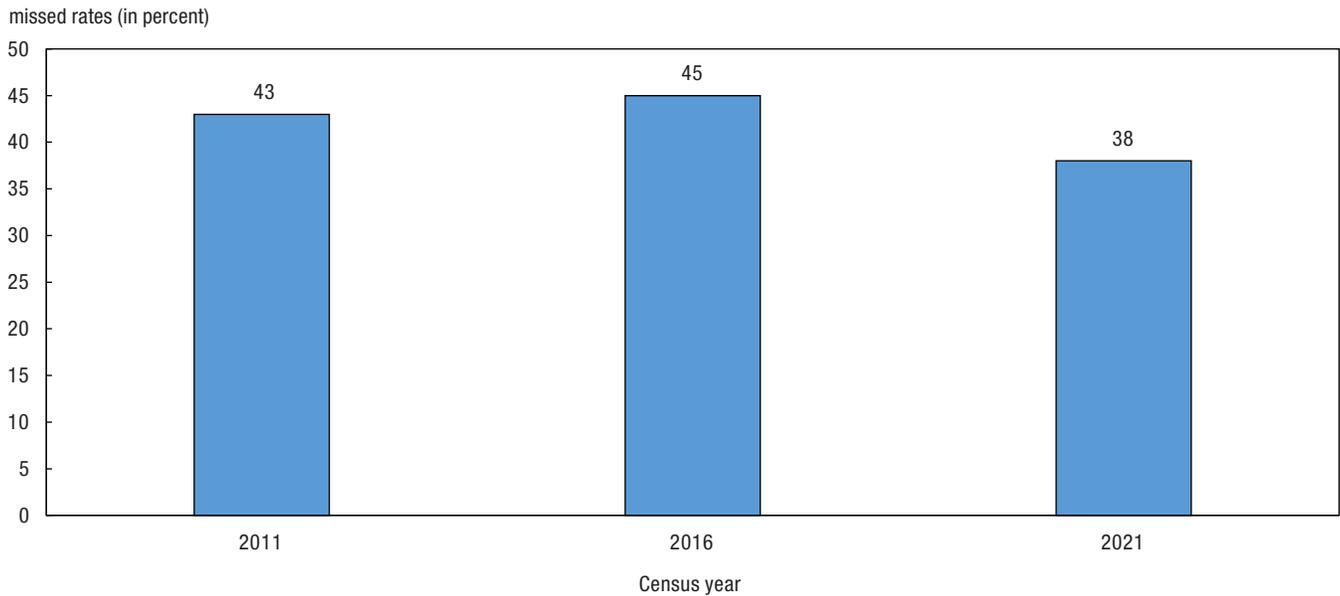
## 2 Results

This section presents the results of the analysis of the missed rates for NPRs.

The following chart shows the evolution of the missed rates for NPRs from the 2011 to 2021 censuses.

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2. Some NPRs who have been in the country for at least five years are sampled from the previous census frame and the missed person frame. This helps avoid overlap between multiple NPR frames.
  3. The DCS estimates the number of non respondent dwellings that were occupied on Census Day. Following this survey, census data are adjusted for non respondent dwellings and for occupied dwellings incorrectly classified as unoccupied using whole household imputation (WHI). Persons added through this statistical operation are omitted since they did not complete the census questionnaire but are not undercovered because of the correction made by the WHI.
  4. These enumerations are considered too incomplete to be used by the CUS because the survey needs basic information, such as date of birth, from the sampled persons to trace them through linkage or field collection.
  5. Statistics Canada applies various methodological adjustments to IRCC data, notably from the linkage of census and IRCC data, to produce estimates of the number of NPRs.

**Chart 1**  
**Missed rate of non-permanent resident frame for the Census Undercoverage Study, Canada, 2011 to 2021**



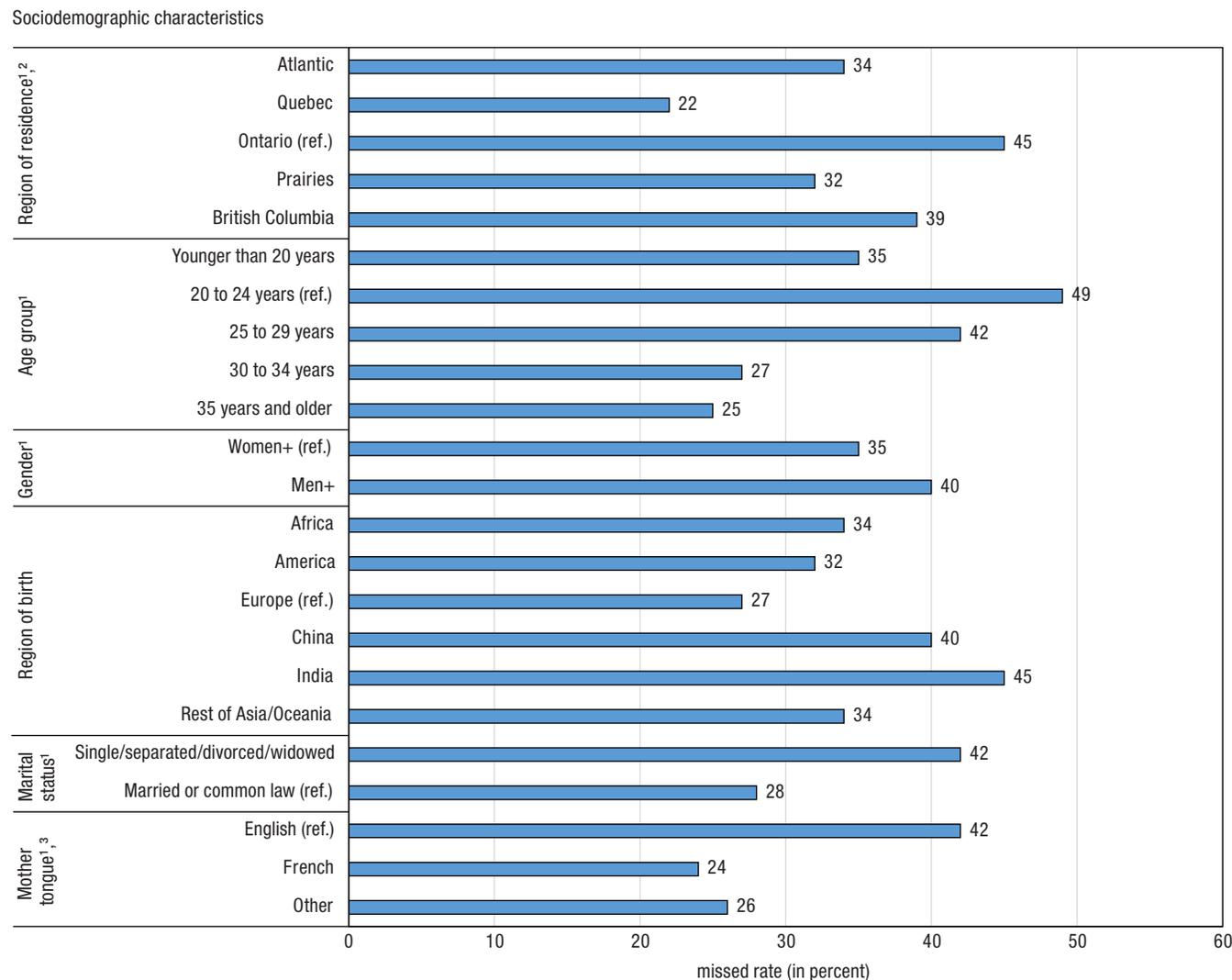
**Sources:** 2021 Census Undercoverage Study and 2011 and 2016 Reverse Record Check.

In 2021, the missed rate for persons on the NPR frame was 38%. This represents a statistically significant reduction of seven percentage points compared with the rate in 2016 (45%).

The next chart provides missed rates for the 2021 Census by various characteristics of NPRs<sup>6</sup>. Only statistically significant differences are discussed in the analysis that follows.

6. The missed rates, NPR characteristics, and their statistical significance are provided in Appendix 1.

**Chart 2**  
**Missed rate by sociodemographic characteristics for non-permanent residents, 2021**



1. Characteristics on Census Day (May 11, 2021).  
 2. The Census Undercoverage Study non-permanent resident (NPR) frame does not contain any NPRs in the territories.  
 3. Because of the small sample size, respondents whose mother tongue was English and a non-official language or French and a non-official language were combined with English or French mother tongue respondents, respectively. In addition, respondents whose mother tongues were English and French (with or without another mother tongue) were combined with English mother tongue respondents.  
**Sources:** Statistics Canada, 2021 Census; 2021 Census Undercoverage Study; and Immigration, Refugees and Citizenship Canada administrative data files.

Although the overall missed rate for NPRs was 38% in 2021, there were statistically significant differences in missed rates across different sociodemographic characteristics.

Ontario’s missed rate, estimated at 45%, was higher than that of other regions of the country, except for British Columbia.

The age group of the person also had a noticeable impact on the likelihood of being missed. Older NPRs aged 30 to 34 years (27%) and 35 years or older (25%) were less likely to be missed compared with those aged 20 to 24 years (49%).

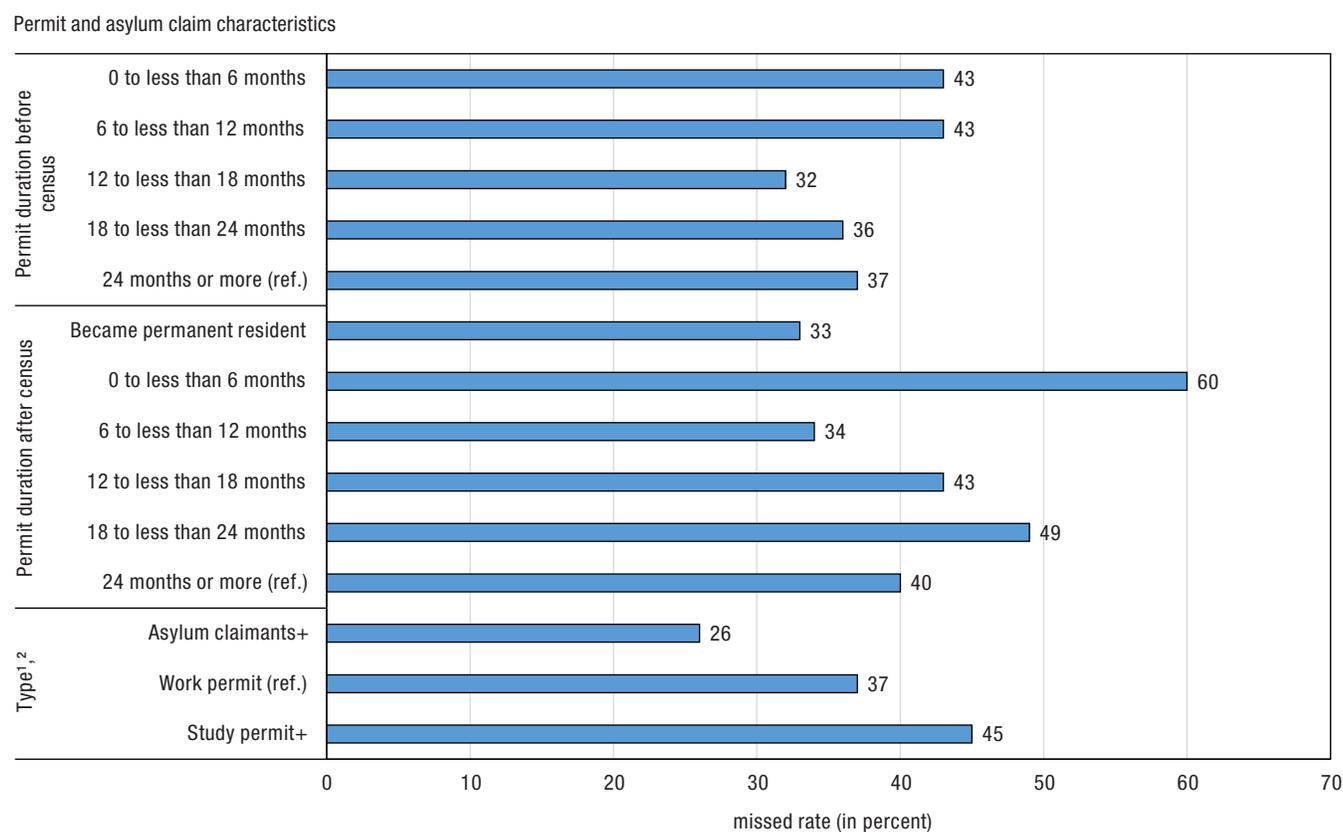
For the region of birth, NPRs who were born in India (45%) had a higher missed rate compared with those who were born in Europe (27%).

Upon examining the missing rates by marital status on Census Day, there was a 15 percentage point difference between NPRs who were married or in a common-law relationship (27%) and those who were single, separated, divorced or widowed (42%).

The missed rate for those who had English as their mother tongue (42%) was higher than that for individuals whose mother tongue was French (24%) or a language other than the two official languages of Canada (26%).

Next, Chart 3 provides the missed rates by NPR characteristics on Census Day. There are two important points to keep in mind for the permit length variable. First, the permit length before and after Census Day is calculated based on the dates for which the permit(s) were valid, or the asylum claim was being processed. Second, the study considers continuous permit length over multiple permits if the consecutive permits were obtained within the prescribed processing times published by IRCC. For consecutive permits that exceed the processing times published, only the last continuous permit length counting by Census Day is used for calculation<sup>7</sup>.

**Chart 3**  
Missed rate by permit and asylum claim characteristics for non-permanent residents, 2021



1. Characteristics on Census Day (May 11, 2021).  
 2. The category "Asylum claimants+" refers to asylum claimants, protected persons and individuals in related groups. The category "Study permit+" refers to study permit holders and temporary resident permit holders. The latter group has been combined with study permit holders because of the small sample size.  
**Sources:** Statistics Canada, 2021 Census; 2021 Census Undercoverage Study; and Immigration, Refugees and Citizenship Canada administrative data files.

The NPR type on Census Day was correlated with the likelihood of being missed in the 2021 Census. Asylum claimants, protected persons and related groups (26%) had the lowest likelihood of being missed, whereas study permit holders had a higher missed rate of 45% compared with work permit holders (37%).

7. For example, consider a NPR whose first permit was a study permit valid from January 1, 2018 to January 1, 2020, and who later obtained a work permit valid from January 1, 2021 to January 1, 2023. Given the time between the two permit exceeds the delay in processing time as published by IRCC (115 days as of January 2020). The study only considers the second permit for calculation of pre- and post-census permit duration. In other words, the pre-census duration (including Census Day) would be 131 days and post-census duration would be 600 days if this person did not become a permanent resident within 2 years after census.

For those who did not become permanent residents, a shorter permit length of less than six months after Census Day had a missing rate of 60%, which is the highest rate reported in this study. A potential reason for this could be that these persons may not fill out the census questionnaire since they plan to leave the country soon. After the census, those who became permanent residents had a lower missed rate of 33% compared with those whose permit was valid for two or more years (40%). A plausible explanation could be that those who intend to become permanent residents have stronger ties to Canada.

The patterns observed in 2021 for socio-demographic characteristics as well as permit and asylum claim characteristics are largely consistent with those observed in the 2011 Census by Bérard-Chagnon et al. (2019).

## Conclusion

Censuses are one of the main sources of reliable statistics on NPRs. This study sought to examine the factors associated with NPRs being missed in the 2021 Census using data from the CUS and IRCC.

According to the CUS, 38% of NPRs were missed in the 2021 Census. This represents a statistically significant decrease from the missed rate observed in 2016. Note that missed rates cannot be directly interpreted as a certain number of individuals who should be added to the census figures because the concept of being missed differs from the concept of net undercoverage.

Some characteristics of NPRs were associated with a higher probability of being missed.

NPRs living in Ontario, those aged 20 to 24, and those who were single, separated, divorced, or widowed were more likely to be missed. Study permit holders and NPRs permit duration after the census was less than six months also had higher missed rates.

In contrast, some groups were less likely to be missed: asylum claimants, protected persons and related groups; NPRs who were living in Quebec; and those who became permanent residents after the census.

The results of this study have certain analytical and methodological implications.

First, they serve as a reminder that census coverage issues—which are not unique to Canada—must be considered when interpreting data on NPRs. In this respect, census coverage studies provide valuable information. The results of these studies are also integrated into Statistics Canada’s demographic estimates after each census.

The results of this study also indicate that the periods of arrival and departure are thought to be correlates for being missed in the census. This may be partly because the fact that NPRs may not know right away that they should enumerate themselves. The field follow up takes place in the weeks after Census Day, these NPRs may have already left the country if they had an expiring permit. Initiatives are, therefore, underway to find better ways to communicate with and reach this important demographic group and ensure that in the future they understand the importance of participating in the census.

Statistics Canada continues to make significant efforts to improve the coverage of NPRs in the census. Given their high quality, administrative data from IRCC have great potential to contribute. In addition, record linkages were used to derive immigrant status, the year of immigration and the type of NPR using IRCC administrative data for the 2021 Census (Statistics Canada, 2023; Spence and Barayandema, 2024). Demographic estimates, which are also based on the census IRCC data, use proven methods to estimate the number of NPRs living in Canada each quarter (Statistics Canada, 2024b). In this context, it is appropriate to ask how all parts of the census process could make further use of IRCC administrative data to increase the coverage of NPRs in future censuses, and this is under evaluation and consideration.

## Appendix

**Table 1**  
Missed rates, distribution by NPR characteristics, and statistical significance, 2021

|  | Distribution | Missed rate |
|--|--------------|-------------|
|  | percent      |             |
| <b>Region of residence<sup>1,2</sup></b> |              |             |
| Atlantic                                 | 5            | 34*         |
| Quebec                                   | 19           | 22*         |
| Ontario (ref.)                           | 47           | 45          |
| Prairies                                 | 11           | 32**        |
| British Columbia                         | 19           | 39          |
| <b>Age group<sup>1</sup></b>             |              |             |
| Younger than 20 years                    | 12           | 35*         |
| 20 to 24 years (ref.)                    | 31           | 49          |
| 25 to 29 years                           | 23           | 42          |
| 30 to 34 years                           | 13           | 27*         |
| 35 years and older                       | 21           | 25*         |
| <b>Gender<sup>1</sup></b>                |              |             |
| Women+ (ref.)                            | 45           | 35          |
| Men+                                     | 55           | 40          |
| <b>Region of birth</b>                   |              |             |
| Africa                                   | 11           | 34          |
| Americas                                 | 14           | 32          |
| Europe (ref.)                            | 8            | 27          |
| China                                    | 9            | 40          |
| India                                    | 39           | 45*         |
| Rest of Asia/Oceania                     | 19           | 34          |
| <b>Marital status<sup>1</sup></b>        |              |             |
| Single/separated/divorced/widowed        | 70           | 42*         |
| Married or common law (ref.)             | 30           | 28          |
| <b>Mother tongue<sup>1,3</sup></b>       |              |             |
| English (ref.)                           | 74           | 42          |
| French                                   | 18           | 24*         |
| Other                                    | 8            | 26*         |
| <b>Permit duration before census</b>     |              |             |
| 0 to less than 6 months                  | 15           | 43          |
| 6 to less than 12 months                 | 8            | 43          |
| 12 to less than 18 months                | 13           | 32          |
| 18 to less than 24 months                | 20           | 36          |
| 24 months or more (ref.)                 | 44           | 37          |
| <b>Permit duration after census</b>      |              |             |
| Became permanent resident                | 51           | 33*         |
| 0 to less than 6 months                  | 3            | 60**        |
| 6 to less than 12 months                 | 4            | 34          |
| 12 to less than 18 months                | 5            | 43          |
| 18 to less than 24 months                | 7            | 49          |
| 24 months or more (ref.)                 | 31           | 40          |
| <b>Type<sup>1,4</sup></b>                |              |             |
| Asylum claimants+                        | 14           | 26          |
| Work permit (ref.)                       | 55           | 37*         |
| Study permit+                            | 32           | 45*         |

\* significantly different from reference category ( $p < 0.05$ )

\*\* significantly different from reference category ( $p < 0.10$ )

1. Characteristics on Census Day (May 11, 2021).

2. The Census Undercoverage Study non-permanent resident (NPR) frame does not contain any NPRs in the territories.

3. Because of the small sample size, respondents whose mother tongue was English and a non-official language or French and a non-official language were combined with English or French mother tongue respondents, respectively. In addition, respondents whose mother tongues were English and French (with or without another mother tongue) were combined with English mother tongue respondents.

4. The category "Asylum claimants+" refers to asylum claimants, protected persons and related groups. The category "Study permit+" refers to study permit holders and temporary resident permit holders. The latter group has been combined with study permit holders because of the small sample size.

Source: Statistics Canada, 2021 Census; 2021 Census Undercoverage Study; and Immigration, Refugees and Citizenship Canada administrative data files.

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