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2021

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Notice to readers

The estimates released in this publication are based on 2016 Census counts adjusted for census net undercoverage (CNU) and incompletely enumerated Indian reserves (IEIR), to which are added the population growth estimates for the period from May 10, 2016 to the date of the estimate.

These estimates are not to be confused with the 2021 Census population counts which will be released on February 9, 2022. Total population estimates based on the 2021 Census counts, adjusted for census net undercoverage and incompletely enumerated Indian reserves, will be available in September 2023.

The analysis in this publication is based on preliminary data. These data will be revised over the coming year, and it is possible that some trends described in this publication will change as a result of these revisions. Therefore, this analysis should be interpreted with caution.

Most of the components, used to produce preliminary population estimates, are estimated using demographic models or based on data sources less complete or reliable, albeit more timely, than those used for updated or final estimates.

Some of the estimation methods usually used were adjusted to account for the impact of the COVID-19 pandemic (deaths and the components of emigration). As the adjustments closely follow what was done in the second quarter of 2020, please refer to the *Technical Supplement: Production of Demographic Estimates for the Second Quarter of 2020 in the Context of COVID-19* for more details.

Acknowledgements

The completion of this publication and the dissemination of the annual demographic estimates rests on the assiduous and meticulous work of the members of the Population Estimates Section of the Centre for Demography.

The contribution of editorial, communications, translation and dissemination services staff of Statistics Canada was essential to the project's achievement and is appreciated.

Table of contents

Statistical tables

Demographic estimates, annual and by age and sex, for Canada, the provinces and the territories are available in Tables 17-10-0005-01, 17-10-0006-01, 17-10-0008-01, 17-10-0014-01, 17-10-0015-01, 17-10-0016-01, 17-10-0021-01 and 17-10-0022-01.

Highlights

Total population, July 1, 2021

- Canada's population continued to grow despite the impact of the COVID-19 pandemic, though at a slower rate, to reach an estimated 38,246,108 on July 1, 2021.
- The population increased by 208,904 between July 1, 2020 and July 1, 2021, corresponding to a growth rate of +0.5%. This increase was the smallest figure since 1945, and the slowest rate of growth since 1916, two periods when Canada was at war. By comparison, the population grew by 536,146 (+1.4%) between 2018 and 2019, before the pandemic.
- Reduced international migration due to border restrictions put in place due to the pandemic and mortality caused by COVID-19 were the main factors leading to the slower growth observed for 2020/2021.
- Population growth due to international migratory flows in 2020/2021 (+156,503) was at its lowest since 1998/1999 (+135,427). It was less than half the level seen in 2019/2020 (+362,558), the year that saw the beginning of the pandemic.
- Even at this lower level, international migratory flows still accounted for 74.9% of Canada's growth in 2020/2021, down from 83.2% in 2019/2020.
- Lower levels of growth due to international migratory flows were due in part to a net loss of non-permanent residents (-42,884 in 2020/2021) where Canada usually sees gains (+76,349 in 2019/2020 and +168,501 in 2018/2019). Losses were particularly important between July and December 2020 (-70,203) with some recovery happening between January and June 2021 (+27,319) due to an increase in work permit holders.
- The number of immigrants in 2020/2021 (+226,203) was lower than what was seen before the pandemic (+313,601 in 2018/2019) which also contributed to the reduced growth from international migration.
- With a large number of Canadians abroad having already returned to the country by July 2020, the number of returning emigrants in 2020/2021 (+8,256) was lower than pre-pandemic levels (+39,091 in 2018/2019) and the lowest since at least 1971/1972.
- Natural increase (births minus deaths) was at the lowest level (+52,401) since at least 1971/1972, where comparable records are available. Population aging and mortality caused by the COVID-19 pandemic resulted in 2020/2021 seeing the highest number of deaths recorded for the same period (307,132 deaths, of which 17,688 were due to COVID-19).
- All provinces and territories had more deaths in 2020/2021 than in 2019/2020, except for Prince Edward Island (16 fewer deaths, -1.1%) and Quebec (3,473 fewer deaths, -4.8%).
- For the 2020/2021 period, population growth rate was the highest in Yukon (+1.9%) and Prince Edward Island (+1.8%), and lowest in Saskatchewan (+0.0%) and Newfoundland and Labrador (-0.2%).
- Most provinces and territories saw their rate of growth decrease for a second year in a row, except for Newfoundland and Labrador (-0.2%).
- Interprovincial migration trends from recent years have remained or accelerated. Ontario (-17,085), Manitoba (-9,685), Saskatchewan (-9,410) and Alberta (-11,831) each have seen significant net losses to other provinces, while British Columbia (+34,277), Nova Scotia (+9,949) and New Brunswick (+3,887) each saw important gains.

Population by age and sex

- Although the COVID-19 pandemic resulted in excess mortality among those 80 and older and a drop in the number of international migrants, these changes did not significantly affect the age and sex structure of the population throughout the year 2020/2021.
- Population aging continues, a result of fertility being below the replacement level since the early 1970s and an almost continuous increase in life expectancy. The advancing age of baby boomers—large cohorts of those born between 1946 and 1965—is accelerating this demographic aging. On July 1, 2021, more than one in two older persons (59.8%) were baby boomers.
- On July 1, 2021, 18.5% of Canadians (7,081,792 people) were at least 65 years of age. The gap is widening between this age group and the number of children aged 0 to 14 years, which was 6,018,084 (15.7%).
- In 2021, the average age of Canadians was 41.7. The average age has increased by 4.2 years since 2001, when it was 37.5 years.
- At the provincial and territorial level, Newfoundland and Labrador was the province with the highest average age (45.2 years), while the lowest average age was recorded in Nunavut (28.9 years).
- On July 1, 2021, for every 100 people of working age, Canada had 52.1 people aged 0 to 14 or 65 and older. The demographic dependency ratio has been rising steadily since 2009 (44.1).
- Particularly because of the increase in life expectancy, the number of centenarians more than tripled from 2001 to 2021, increasing from 3,522 to 12,822 people. For a fair comparison, for every 100,000 people, there were 11 centenarians in 2001—now 34 in 2021.

Analysis: Total population

The estimates in this publication are based on 2016 Census counts, adjusted for census net undercoverage and incompletely enumerated Indian reserves, plus the estimated population growth for the period from May 10, 2016, to the date of the estimate. The analysis in this publication is based on preliminary data. These data will be revised over the coming years, and some trends described in this publication could change as a result of these revisions. Therefore, this publication should be interpreted with caution.

The analyses in this document focus on the period July 1, 2020 to June 30, 2021. The estimates for some demographic components were adjusted to take into account the effect of the global COVID-19 pandemic on the population of Canada.

For an explanation of how the population estimates have taken COVID-19 into account, please see: *Technical Supplement: Production of Demographic Estimates for the Second Quarter of 2020 in the Context of COVID-19*.

This section presents the population estimates for Canada, the provinces and territories on July 1, 2021, along with a concise analysis of the various components of population growth between July 1, 2020 and July 1, 2021.

Canada's population reaches 38.2 million

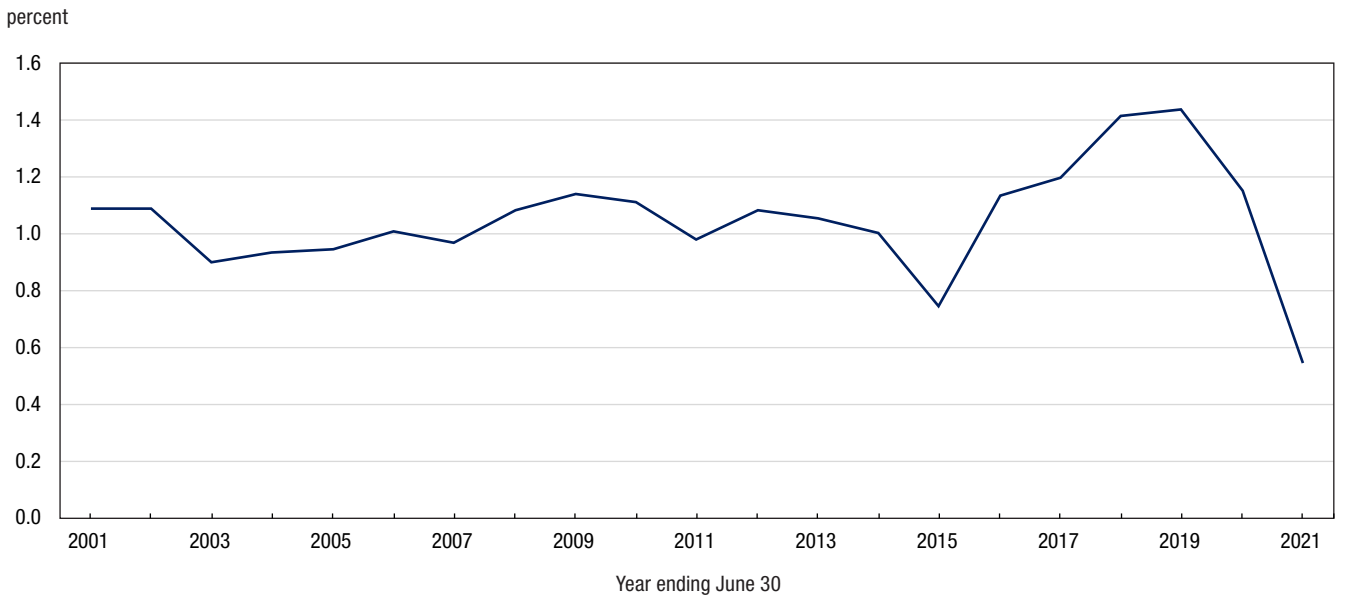
On July 1, 2021, Canada's population was estimated at 38,246,108, up 208,904 from July 1, 2020 (+0.5%). This growth is lower than what had been seen in recent years with a growth rate of 1.4% in 2018/2019 and 1.2% in 2019/2020. The slower growth seen in 2020/2021 results mainly from the impact of the COVID-19 pandemic, both due to the increased number of deaths and the restrictions placed on international borders that led to a significant reduction in international migration.

Record-low peacetime population growth

Prior to this year, the third quarter of 2019 had the highest growth (+210,169, +0.6%) ever recorded for any quarter since the beginning of the period covered by the current demographic accounting system (July 1971). Conversely, the third quarter of 2020 had the lowest growth ever recorded for any quarter, showing a net loss of population for the first time since at least 1971 (-4,190, -0.0%).

Unlike 2019/2020 where only the last few months were affected by the mortality due to COVID-19 and the impact of the restrictions placed on international borders, the ongoing pandemic affected the whole of 2020/2021. With international migration reduced and additional deaths, Canada's population grew by only 208,904 (+0.5%) people in 2020/2021. This corresponds to the smallest number of people gained since 1944/1945 and the lowest rate of growth since 1915/1916, both periods when Canada was at war. The second half of 2020 was particularly affected with population increasing by only 31,668 between July and December. The first and second quarters of 2021 showed some signs of recovery with population increasing by 177,236 between January and June 2021. This is an increase compared to the same period in 2020 (128,605) although it was still below the levels seen in 2019 over the same period (275,995) before the pandemic.

Chart 1.1
Population growth rate, 2000/2001 to 2020/2021, Canada



Source: Statistics Canada, Centre for Demography.

Border restrictions upend trends in immigration

Following the implementation of international border restrictions in March 2020, international migration[1] levels dropped significantly. Most of these measures have remained in place over the 2020/2021 period, impacting both immigrants and non-permanent residents. In fact, population increase through international migration for 2020/2021 was at 156,503, a two thirds reduction compared to the all-time high of 446,169 recorded in 2018/2019, the last year unaffected by the pandemic.

Migration patterns changed over the year with the third quarter of 2020 seeing net losses to international migration of 27,841, the highest losses of any quarter.[2] The situation improved in the following quarters with the fourth quarter of 2020 and first and second quarters of 2021 showing net gains of 33,143, 76,117 and 75,084, respectively. Although borders were subject to the same restrictions, this increase can be explained in part by the 2021 immigration plan and the Government of Canada's intention to grant "*permanent status to temporary workers and international graduates who are already in Canada and who possess the skills and experience we need to fight the pandemic and accelerate our economic recovery*". Nevertheless, this recovery remained only partial with the second quarter of 2021 showing gains around half the levels seen in the same quarter before the pandemic (second quarter of 2019).

Looking more closely at the components of international migration, we see that the number of new immigrants to Canada in 2020/2021 was 226,203, down from 284,157 the year prior. We have to go back to 2002/2003 to find a lower number of immigrants (199,170). The admission of non-permanent residents was also impacted with a net loss of 42,884 in 2020/2021, the highest losses since 1992/1993, and significantly less than the gains of 76,349 recorded the preceding year. In particular, the third quarter of 2020 saw net losses of 66,762 non-permanent residents, the biggest of any quarter. The number of non-permanent residents recovered partially over the rest of 2020/2021 to show gains of 14,760 and 12,559 during the first and second quarters of 2021, respectively. This recovery was mainly due to an increase in work permit holders.

1. International migration is the sum of immigrants, non-permanent residents, and returning emigrants, minus emigrants and net temporary emigrants.
2. Since the beginning of the period covered by the current demographic account system (July 1971).

The components of emigration were also lower in 2020/2021 than the prior year and years before the pandemic, again the result of COVID-19 imposed border restrictions. The number of Canadian citizens or immigrants who have left Canada on a permanent basis, emigrants, was 20% lower in 2020/2021 than in 2019/2020 at 29,677 (down from 36,899). The decrease was mainly due to lower levels of emigration seen in the third and fourth quarter of 2020, with the first and second quarters of 2021 having returned to pre-pandemic levels. The number of returning emigrants, Canadians returning home after living abroad, saw a more dramatic decrease from 54,524 in 2019/2020 to 8,256 in 2020/2021. However, it is important to note that the levels seen in 2019/2020 were the highest on record, with the first and second quarters of 2020 being particularly high after the government asked Canadians abroad to come home at the beginning of the pandemic in March of that year. However, the figure observed in 2020/2021 was still lower than for any year on record prior to the pandemic.

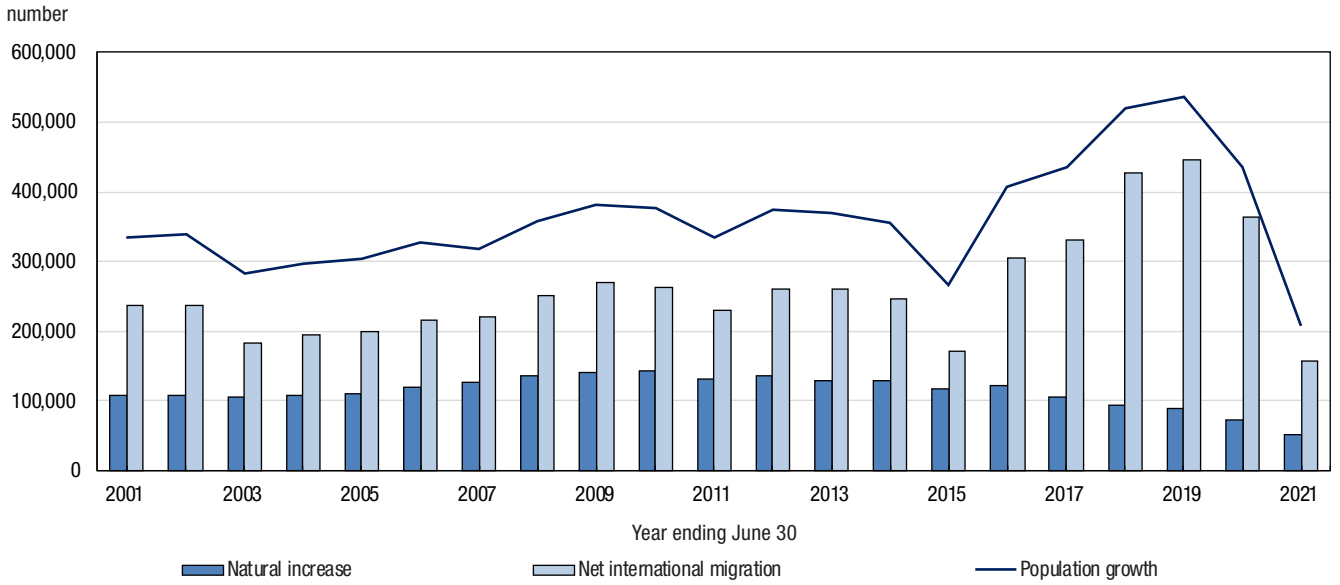
Reduced international migration remains the main driver of population growth

At the national level, population growth is the result of two factors: international migration and natural increase (births minus deaths). Between July 1, 2020 and July 1, 2021, 74.9% of Canada's growth came from international migration, representing a net increase of 156,503 persons. The proportion is less than what was seen the year prior (83.2%) even though international migration was down over 50% (362,558 in 2019/2020). This is due to the other factor of growth, natural increase, also seeing a decrease due to 17,688[3] deaths attributed to COVID-19 over the same period and 10,803 (-2.9%) fewer births compared to the previous year. Combined, Canada saw a natural increase in 2020/2021 of 52,401 persons, a 28.6% decrease from 2019/2020 (73,416), accelerating the downward trend seen over the last decade resulting from population aging.

In total, there were 307,132 deaths recorded in Canada in 2020/2021, a new high and a 3.4% increase compared to 2019/2020. The fourth quarter of 2020 (81,860) saw the highest number of deaths for any quarter since at least 1971, a significant increase from the fourth quarter of 2019 (74,251). Over 2020/2021, mortality due to COVID-19 (17,688 deaths) contributed 5.8% of total deaths. Canada saw 359,533 births over 2020/2021, a decrease from the year prior (370,336). The impact of the pandemic on this decrease remains unclear since the number of births had been trending downwards since 2016/2017 (379,906). While we observed fewer births between July and December 2020 than the year prior (179,043 compared to 190,475 for the same period in 2019), the January to June 2021 period is similar to the same period in 2020 (180,490 to 179,861, respectively). The January to June 2021 period is of particular interest since those births correspond to pregnancies occurring entirely during the pandemic and do not show a decrease as was seen in the prior 6-month period.[4]

3. The Public Health Agency of Canada (PHAC) reports that there were 17,688 deaths due to the COVID-19 pandemic between July 1, 2020 and June 30th, 2021.
4. Due to longer registration delays than is normally observed, the number of births for the last six months of 2020 may be underestimated. It could therefore be revised upwards in September 2022.

Chart 1.2
Factors of population growth, 2000/2001 to 2020/2021, Canada



Note: Until 2016 inclusively, population growth is not equal to the sum of natural increase and international migratory increase because residual deviation must also be considered in the calculation. For further information, please see publication *Population and Family Estimation Methods at Statistics Canada*, Catalogue No. 91-528.
Source: Statistics Canada, Centre for Demography.

International migratory growth lower across Canada

Throughout Canada, every province and territory saw a smaller population increase from international migration in 2020/2021 than the previous year (except for Yukon). Among the most populous provinces, Quebec saw the largest decrease in international migration at 77.8% (52,493 fewer), followed by Alberta at 55.3% (20,065 fewer), Ontario at 54.3% (92,333 fewer) and British Columbia at 49.7% (21,323 fewer).

Border restrictions led to most provinces and territories welcoming fewer new immigrants and non-permanent residents. Among the provinces, Saskatchewan saw the most dramatic decrease in the number of immigrants (-45.2%), while Quebec was the only province to remain at similar levels as were seen in 2019/2020 (+1.1%). The latter is potentially due to Quebec already having experienced the most significant decrease in 2019/2020 (-25.8%).

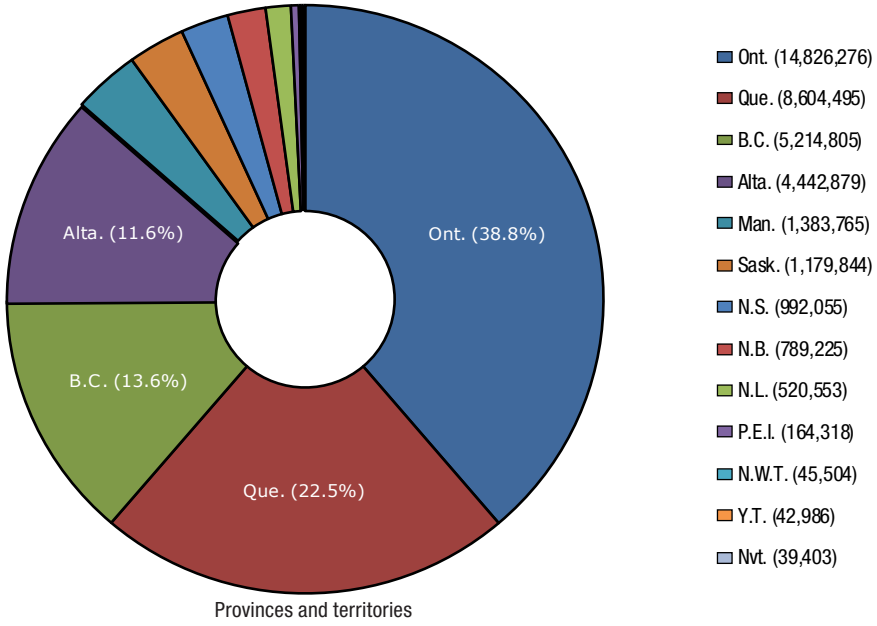
At the provincial and territorial level, only Prince Edward Island (+914), New Brunswick (+1,395), Manitoba (+252) and Yukon (+126) saw net gains in non-permanent residents. With border restrictions making it difficult for those holding non-permanent resident permits to enter the country starting in March 2020, provinces that usually welcome the most non-permanent residents saw the largest losses. Ontario saw net losses of 18,168 non-permanent residents, compared to gains of 71,709 in 2018/2019 before the pandemic. Similarly, Quebec recorded losses of 14,917 non-permanent residents in 2020/2021, while British Columbia lost 7,031. Such losses had not been experienced by these provinces in almost three decades, and not since at least 1971/1972 for British Columbia.

While the annual international migration figures show the considerable impact that the pandemic had on population growth across the country, signs of recovery were visible in the first half of 2021. All provinces and territories welcomed more immigrants between January and June 2021 than they did between July and December 2020. Ontario, Quebec and British Columbia even welcomed similar number of immigrants in the first and second quarters of 2021 as they did in the same quarters of 2019 before the pandemic. While movement of non-permanent residents remained restricted, the first and second quarters of 2021 showed net gains in non-permanent residents (+14,760 and +12,559, respectively), following losses in all previous quarters since the beginning of the pandemic (second quarter of 2020). Among the provinces, only Quebec (-2,302) saw losses during the first quarter of 2021 while Alberta (-1,060) is the only one that saw losses in the second quarter.

Canada's slowly changing geographical population distribution

On July 1, 2021, the four most populous provinces remained: Ontario (14,826,276), Quebec (8,604,495), British Columbia (5,214,805) and Alberta (4,442,879). Together, they were home to 86.5% of Canadians. Ontario alone is home to 38.8% of Canada's population, a figure that has remained relatively stable for two decades. Provinces and territories west of Ontario accounted for 32.3% of total population, ahead of provinces East of Ontario that accounted for 28.9% of population. Migration flows have generally been favourable to provinces and territories west of Ontario, helping them grow their demographic weight for decades, surpassing the combined demographic weight of provinces east of Ontario in 2007.

Chart 1.3
Population distribution by province or territory, July 1, 2021



Source: Statistics Canada, Centre for Demography.

Population growth showing signs of recovery across the country in the first half of 2021

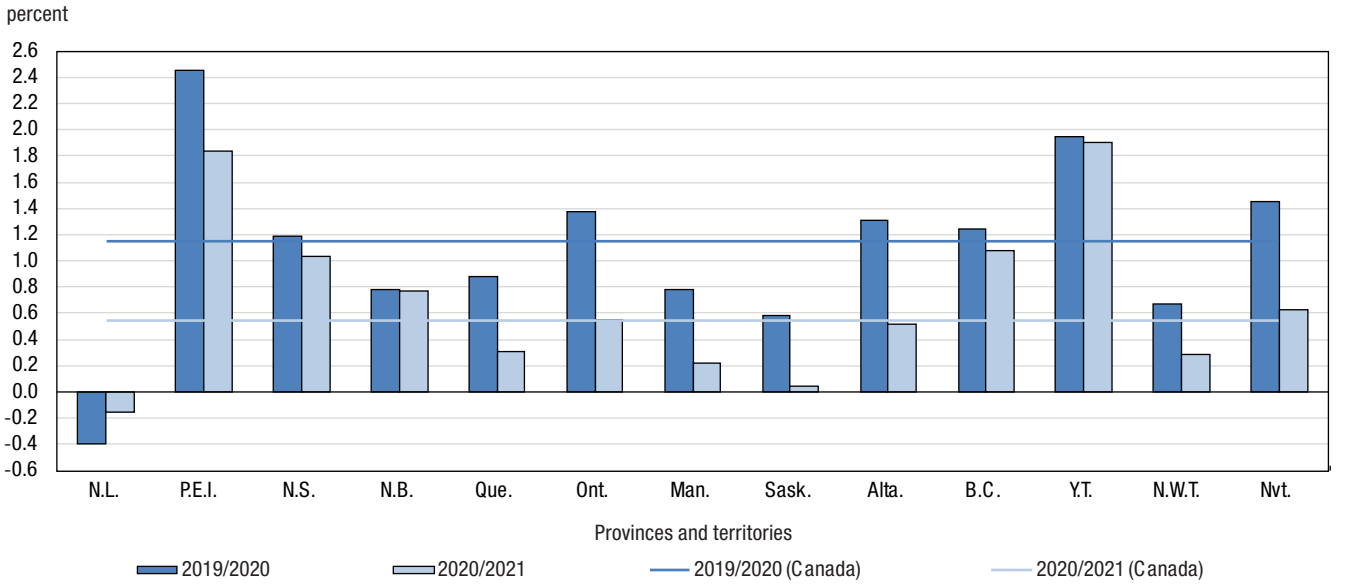
All but one of the provinces and territories experienced a slower growth in 2020/2021 than a year prior. The exception is Newfoundland and Labrador, which saw a small increase between 2019/2020 and 2020/2021 (-0.4% and -0.2%, respectively). Except for Nunavut (+0.6%), the Northwest Territories (+0.3%) and Newfoundland and Labrador (-0.2%), this was the second year in a row for all provinces and territories to experience reduced population growth.

Ontario, Quebec and Alberta are the provinces that saw the largest decrease in population growth. Ontario grew by 80,564 people (+0.5%), 120,447 fewer people than the year before and the smallest growth in four decades. Quebec gained 26,195 people (+0.3%), 48,622 fewer than in 2019/2020. Finally, Alberta grew by 22,850 people (+0.5%), 34,603 fewer than the year before and the smallest growth since 1987/1988. Combined, the lower growth in these three provinces amount to 203,672 fewer people than in 2019/2020 representing 89.7% of the reduction in growth for all of Canada.

While annual figures show broad decrease in growth across the country, the situation is quite different between the second half of 2020 (July to December) and the beginning of 2021 (January to June). As was seen at the national level, provinces gained few people in the second half of 2020 (July to December) with Quebec (1,070), Ontario (13,719) and British Columbia (5,191) seeing an 87.7% to 98.0% reduction in population growth for this period compared to the same in 2019. Things improved significantly in the first and second quarters of 2021 with all provinces and territories making gains. In the first 6 months of 2021, Quebec and Ontario added 25,125 and

66,845 people respectively, around half the gains seen for the same period in 2019 before the pandemic and more than the same period in 2020. British Columbia enjoyed favourable migration patterns leading to a gain of 50,886 people between January and June 2021, above levels seen in 2019 (46,652).

Chart 1.4
Population growth rate, 2019/2020 and 2020/2021, Canada, provinces and territories



Source: Statistics Canada, Centre for Demography.

International migration remains an important driver of population growth in the provinces

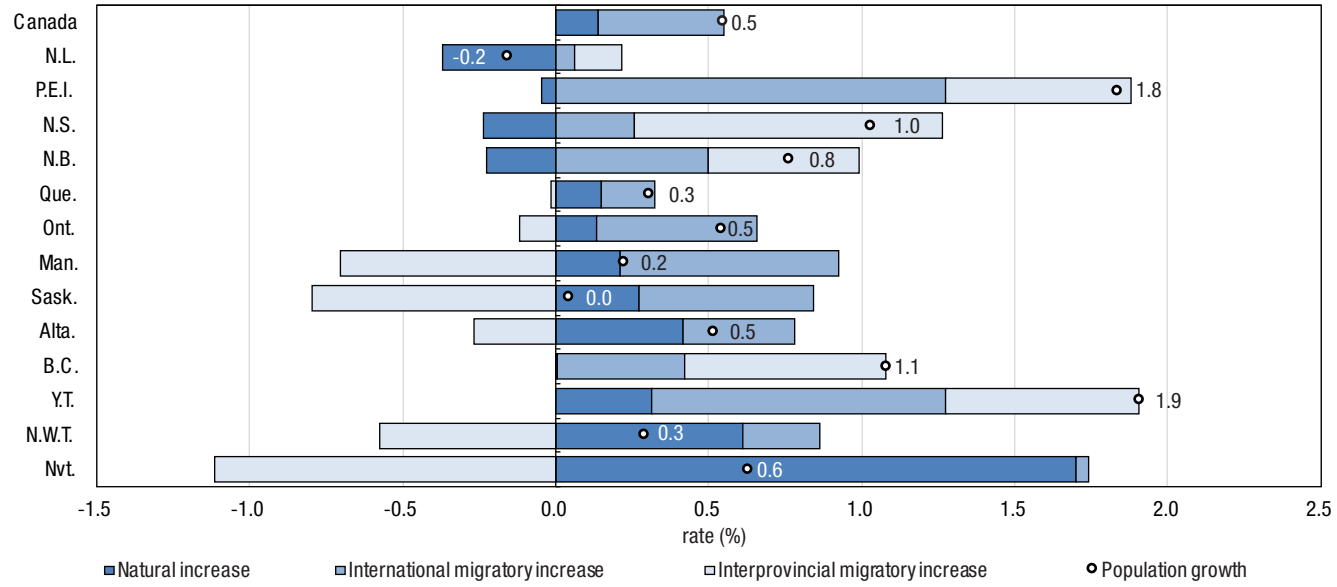
For each of Ontario, Quebec, Saskatchewan, Manitoba and Prince Edward Island, international migration was the main driver behind their positive population growth[5] in 2020/2021. Without it, both Manitoba and Saskatchewan would have seen their population shrink. Although not the main source of gains in other provinces in 2020/2021, international migration remains an important factor of population growth.

All four Atlantic provinces[6] had negative natural increase for a fourth year in a row, meaning that they saw more deaths in 2020/2021 than births. These same four provinces gained population through interprovincial migration, as did British Columbia. Although Newfoundland and Labrador saw gains from interprovincial migration (+785) for the first time since 2015/2016 as well as gains from international migration (+337), they were not enough to compensate for the losses to natural increase (-1,933), resulting in a population decrease for the fifth year in a row.

Natural increase was an important contributor to growth in the Northwest Territories (+278) and Nunavut (+668) where it compensated for losses to other provinces (-260 and -437, respectively). Yukon saw gains in all factors of population growth with 134 from natural increase, 408 from international migration and 270 from migratory exchanges with other provinces and territories. British Columbia is the only other jurisdiction to see gains in all categories in 2020/2021 with a growth of 193 people from natural increase, 21,607 from international migration and 34,277 from interprovincial migration. Similarly to the national level, most gains at the provincial level occurred in the first half of 2021.

5. The three population growth factors at the provincial and territorial level are: natural increase (births minus deaths), international migratory increase (immigrants, net non-permanent residents and returning emigrants minus emigrants and net temporary emigrants), and interprovincial migration.
6. Newfoundland and Labrador, Prince Edward Island, Nova Scotia, and New Brunswick.

Chart 1.5
Factors of population growth, 2020/2021, Canada, provinces and territories



Source: Statistics Canada, Centre for Demography.

Ontario attracts the most immigrants, but also loses the most non-permanent residents

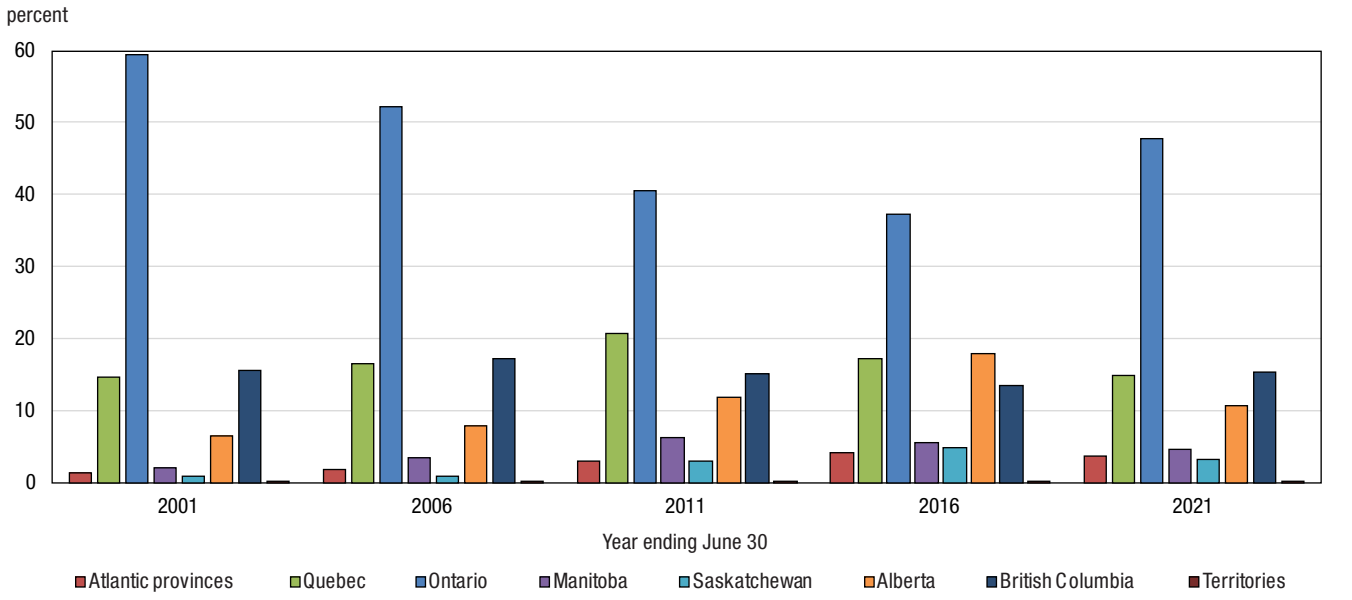
In 2020/2021, 47.7% of all immigrants to Canada settled in Ontario, an increase from the previous year (44.7%) and the highest proportion since 2006/2007. This proportion exceed the demographic weight of the province (38.8%), as it has most year since 1971/1972 (except for the 2013/2014 to 2016/2017 period). The Prairies[7] welcomed 18.3% of immigrants to Canada, a significant decrease from 2019/2020 (22.4%) and the lowest proportion since 2008/2009. All three provinces saw a decrease in the number of immigrants, particularly in the third and fourth quarters of 2020. While British Columbia saw a similar proportion of immigrants as the prior year (15.2% from 15.8% in 2019/2020), Quebec saw an increase to 14.9%, up from 11.7% in 2019/2020 and similar to pre-pandemic levels (14.3% in 2018/2019). Canada's new 2021 immigration plan is in part responsible for the increase in the number of immigrants seen in the first half of 2021.

> The estimated number of immigrants by province and territory is based on their intended province or territory of residence, as collected by Immigration, Refugees and Citizenship Canada (IRCC). This also applies to the calculation of international migratory growth and provincial and territorial population growth.

Most provinces and territories saw considerable losses of non-permanent residents, except for Prince Edward Island (+914), New Brunswick (+1,395), Manitoba (+252) and Yukon (+126) which saw gains greater than in 2019/2020. Ontario experienced the highest losses (-18,168), followed by Quebec (-14,917), British Colombia (-7,031) and Alberta (-4,180). These represented the highest losses in almost three decades for Ontario and Quebec, and the highest on record for British Columbia (since 1971/1972).

7. Manitoba, Saskatchewan, and Alberta.

Chart 1.6
New immigrants distribution by province or territory, 2000/2001 to 2020/2021



Source: Statistics Canada, Centre for Demography.

Strong gains in interprovincial migration for the Atlantic Provinces and British Columbia

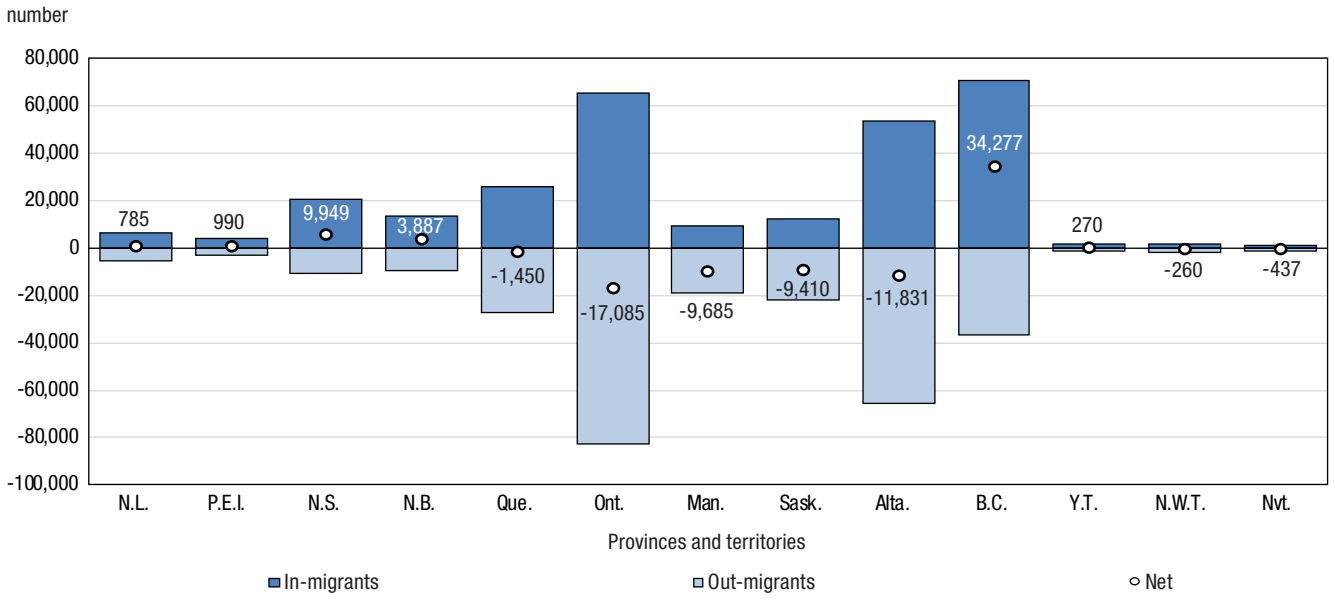
At the provincial and territorial level, population growth is the result of not only natural increase and international migration, but also migratory exchanges between provinces and territories. In 2020/2021, interprovincial migration trends from recent years appear to have accelerated in most regions. The Atlantic provinces saw a substantial increase in the net migratory exchanges with other provinces and territories driven by both lower number of people leaving, as well as more people moving to these provinces. Specifically, Nova Scotia recorded a net gain of 9,949 people from interprovincial migration in 2020/2021, the highest since at least 1971/1972. The previous record was established just a year prior in 2019/2020 with gains of 5,567 following an upward trend that started in 2013/2014. Similarly, New Brunswick gained 3,887 people from other provinces, the most in over four decades. For both provinces, the gains mainly came from exchanges with Ontario and Alberta.

On the other coast, British Columbia also saw a decrease in out-migrants and an increase in in-migrants. For the 2020/2021 period the province gained 34,277 people from migratory exchanges with the rest of Canada, the highest number since 1993/1994 (37,871). Most of the gains seen in British Columbia came from exchanges with Alberta and Ontario. Conversely, Ontario experienced the highest net losses to interprovincial migration in 2020/2021 (-17,085) since 2006/2007 (-20,047) while significant losses were also observed in Alberta (-11,831), Manitoba (-9,685) and Saskatchewan (-9,410). While Alberta regularly sees large year-over-year variations and figures for Manitoba and Saskatchewan are in line with recent trends, the annual change in net interprovincial migration observed in Ontario between 2019/2020 and 2020/2021 (-19,879) was the most drastic since the change from 1987/1988 to 1988/1989 (-25,476).

As with other components of migration, the period of July to December 2020 tells a different story than that of January to June 2021. Across the country, the third and fourth quarter of 2020 saw less interprovincial movement with a decrease in both in-migrants and out-migrants leading to decreased gains and losses from what had been observed in the second quarter of 2020 when the pandemic began. On the other hand, the first and second quarter of 2021 saw increased interprovincial movement leading Ontario, Manitoba and Saskatchewan to see net losses in the second quarter of 2021 that had not been seen in any quarter for decades. Simultaneously, the Atlantic Provinces, Quebec and British Columbia recorded quarterly gains also not seen in decades.

Population and economic growth are often interrelated. For example, Canada's interprovincial migration flows can be either a source or a result of economic conditions, which can affect both employment and unemployment. Notably, Alberta experienced unemployment rates at 7.0% or higher between November 2015 and December 2017, mostly the result of a drop in oil prices which began in the fall of 2014. At the same time, the province registered net interprovincial migration losses over 15,000 during both annual periods 2015/2016 and 2016/2017. Conditions were much improved in Alberta in 2018, as employment rose and the unemployment rate dropped. It follows that, while Alberta still lost population to interprovincial migration in 2017/2018 and 2018/2019, losses had dropped to -3,247 in 2017/2018 and -2,032 in 2018/2019. As the pandemic hit, Alberta saw increased unemployment rates reaching 15.9% in May 2020 and net losses starting in the second quarter of 2020 (-4,051). With unemployment rate remaining above pre-pandemic levels in Alberta for the entire 2020/2021 period, the province saw net losses of 11,831 people to other provinces that year.

Chart 1.7
Interprovincial migration by province or territory, 2020/2021

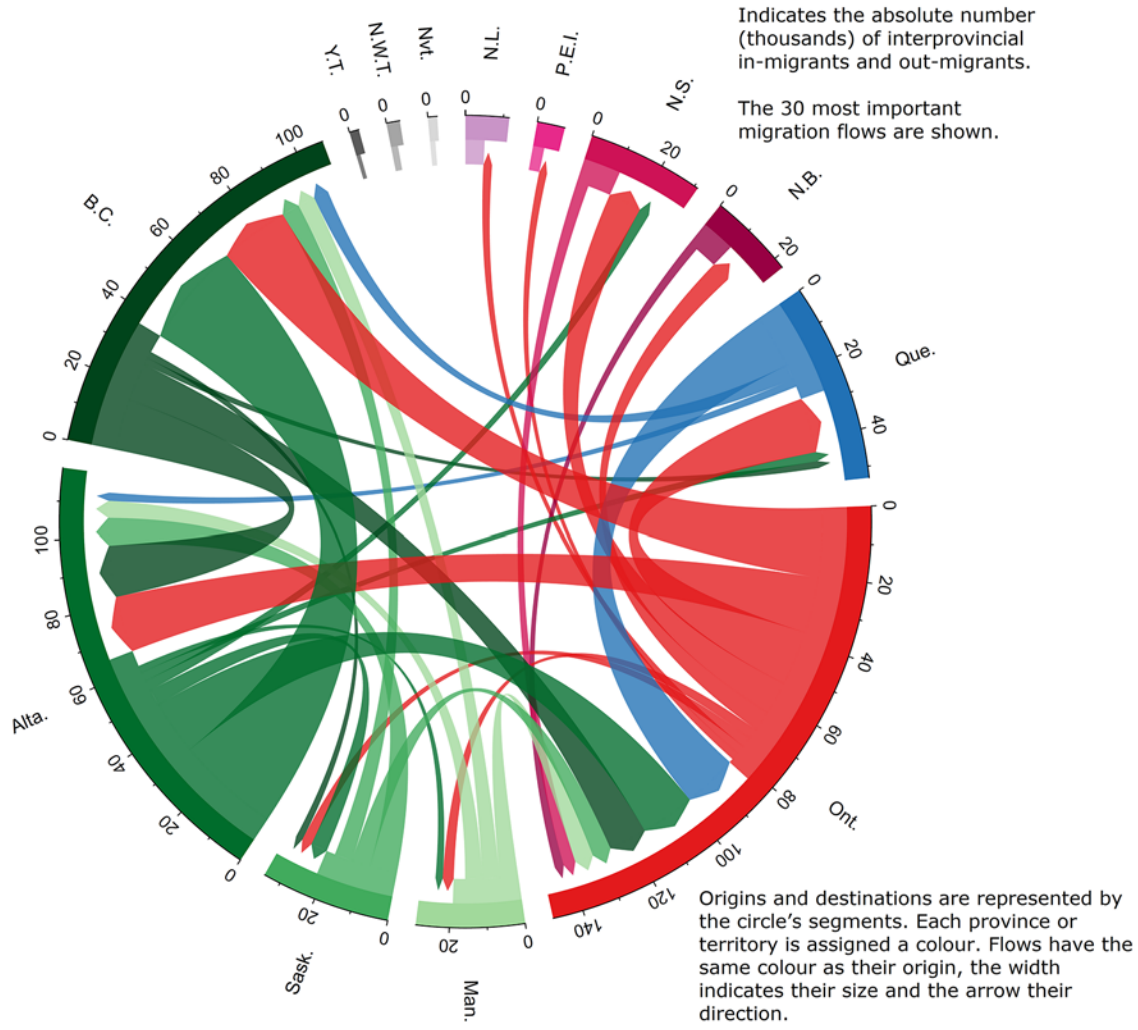


Source: Statistics Canada, Centre for Demography.

The largest migration flows involved exchanges between Ontario, Alberta, British Columbia and Quebec

The 30 largest migration flows are shown in Chart 1.8, in which each province or territory is assigned a colour. Migration origins and destinations are represented by the circle's segments. Flows are the same colour as their origin, the width indicates their size and the arrow their direction.

Chart 1.8
Largest interprovincial migration flows, by province or territory of origin and destination, 2020/2021



Source: Statistics Canada, Centre for Demography.

Over the past year, the largest interprovincial migration flow was from Alberta to British Columbia (31,232). The second largest interprovincial migration flow in Canada was from Ontario to British Columbia (20,728). On the opposite side, 15,376 people moved from British Columbia to Alberta, and 11,497 did the same to Ontario. Combined, British Columbia showed a net gain of 9,231 people from its exchanges with Ontario and gains of 15,856 from Alberta. These figures represent substantial increases from a year prior where British Columbia gained 4,602 and 7,257 people from Ontario and Alberta, respectively.

Alberta's net losses from interprovincial migration (-11,831) resulted in part from an increase in the number of people moving from Alberta to British Columbia (31,232 in 2020/2021 compared to 24,862 in 2019/2020). Compared to 2019/2020, more people moved from Ontario to every other province in 2020/2021 (except Manitoba) while fewer people moved to Ontario from every province (except for Saskatchewan and Alberta). Together, these changes led to Ontario losing 17,085 people to other provinces and territories in 2020/2021 where it had gained 2,794 in 2019/2020.

In relative terms (expressed as rates[8]), the largest interprovincial migration flows among the provinces and territories were from the Northwest Territories to Alberta (1.4%), Nunavut to Ontario (1.2%), Yukon to British Columbia (1.2%), Prince Edward Island to Ontario (0.8%) and Alberta to British Columbia (0.7%).

8. Not shown in Chart 1.8. These rates are based on the averages of the start-of-period and end-of-period populations of the province of origin.

Table 1.1-1
Annual population estimates, July 1, Canada, provinces and territories - Population

	Canada	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
	number													
2016	36,109,487	529,426	146,969	942,790	763,350	8,225,950	13,875,394	1,314,139	1,135,987	4,196,061	4,859,250	38,547	44,649	36,975
2017	36,545,236	528,249	150,402	950,108	766,621	8,302,063	14,070,141	1,334,790	1,150,331	4,241,100	4,929,384	39,610	44,891	37,546
2018	37,065,084	525,560	153,396	958,406	770,301	8,401,738	14,308,697	1,352,825	1,161,767	4,298,275	5,010,476	40,519	44,981	38,143
2019	37,601,230	523,427	157,419	970,243	777,128	8,503,483	14,544,701	1,369,954	1,172,479	4,362,576	5,094,796	41,362	45,070	38,592
2020	38,037,204	521,364	161,329	981,889	783,204	8,578,300	14,745,712	1,380,648	1,179,300	4,420,029	5,158,728	42,174	45,372	39,155
2021	38,246,108	520,553	164,318	992,055	789,225	8,604,495	14,826,276	1,383,765	1,179,844	4,442,879	5,214,805	42,986	45,504	39,403

Note: Estimates are final postcensal from 2016 to 2019, updated postcensal for 2020 and preliminary postcensal for 2021.
Source: Statistics Canada, Centre for Demography.

Table 1.1-2
Annual population estimates, July 1, Canada, provinces and territories - Total growth rates

	Canada	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
	rates per 1,000													
2016/2017	12.00	-2.23	23.09	7.73	4.28	9.21	13.94	15.59	12.55	10.68	14.33	27.20	5.41	15.32
2017/2018	14.12	-5.10	19.71	8.70	4.79	11.93	16.81	13.42	9.89	13.39	16.32	22.69	2.00	15.78
2018/2019	14.36	-4.07	25.89	12.27	8.82	12.04	16.36	12.58	9.18	14.85	16.69	20.59	1.98	11.70
2019/2020	11.53	-3.95	24.53	11.93	7.79	8.76	13.73	7.78	5.80	13.08	12.47	19.44	6.68	14.48
2020/2021	5.48	-1.56	18.36	10.30	7.66	3.05	5.45	2.26	0.46	5.16	10.81	19.07	2.91	6.31

Note: Total growth is final from 2016/2017 to 2018/2019, updated for 2019/2020 and preliminary for 2020/2021.
Source: Statistics Canada, Centre for Demography.

Table 1.1-3
Annual population estimates, July 1, Canada, provinces and territories - Total growth

	Canada	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
	number													
2016/2017	435,749	-1,177	3,433	7,318	3,271	76,113	194,747	20,651	14,344	45,039	70,134	1,063	242	571
2017/2018	519,848	-2,689	2,994	8,298	3,680	99,675	238,556	18,035	11,436	57,175	81,092	909	90	597
2018/2019	536,146	-2,133	4,023	11,837	6,827	101,745	236,004	17,129	10,712	64,301	84,320	843	89	449
2019/2020	435,974	-2,063	3,910	11,646	6,076	74,817	201,011	10,694	6,821	57,453	63,932	812	302	563
2020/2021	208,904	-811	2,989	10,166	6,021	26,195	80,564	3,117	544	22,850	56,077	812	132	248

Note: Total growth is final from 2016/2017 to 2018/2019, updated for 2019/2020 and preliminary for 2020/2021.
Source: Statistics Canada, Centre for Demography.

Table 1.2
Annual population estimates and factors of demographic growth - Canada

	Population at beginning period	Natural increase	Net interprovincial migration	Net international migration	Total net migration	Total growth	Population growth rate
	number						per 1,000
2016/2017	36,109,487	105,643	0	330,106	330,106	435,749	12.00
2017/2018	36,545,236	92,990	0	426,858	426,858	519,848	14.12
2018/2019	37,065,084	89,977	0	446,169	446,169	536,146	14.36
2019/2020	37,601,230	73,416	0	362,558	362,558	435,974	11.53
2020/2021	38,037,204	52,401	0	156,503	156,503	208,904	5.48
2021/2022	38,246,108	…	…	…	…	…	…

… not applicable

Note: See "Data quality, concepts and methodology — Explanatory notes for the tables" section.
Source: Statistics Canada, Centre for Demography.

Table 1.3
Annual estimates of components of demographic growth - Canada

	Natural increase		Interprovincial migration		International migration				
	Births	Deaths	In-migrants	Out-migrants	Immigrants	Emigrants	Returning emigrants	Net temporary emigrants	Net non-permanent residents
					number				
2016/2017	379,906	274,263	260,393	260,393	272,707	58,630	39,756	26,970	103,243
2017/2018	376,750	283,760	260,751	260,751	303,325	50,580	39,117	27,294	162,290
2018/2019	372,868	282,891	254,143	254,143	313,601	47,337	39,091	27,687	168,501
2019/2020	370,336	296,920	284,782	284,782	284,157	36,899	54,524	15,573	76,349
2020/2021	359,533	307,132	286,170	286,170	226,203	29,677	8,256	5,395	-42,884

Note: See "Data quality, concepts and methodology — Explanatory notes for the tables" section.
Source: Statistics Canada, Centre for Demography.

Table 1.4
Annual estimates of interprovincial migrants by province or territory of origin and destination, Canada, July 1, 2020 to June 30, 2021

	Destination												
	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
Origin							number						
N.L.	…	64	853	348	263	1,549	81	86	1,439	590	4	59	48
P.E.I.	89	…	484	533	120	1,240	80	6	273	283	61	0	27
N.S.	572	478	…	1,615	656	3,616	239	282	1,540	1,338	72	90	37
N.B.	278	284	1,979	…	1,917	2,724	125	108	1,366	754	9	29	21
Que.	273	194	856	1,538	…	16,370	528	328	2,433	4,485	61	44	123
Ont.	2,549	2,348	9,970	6,112	16,469	…	3,262	3,040	16,849	20,728	347	471	437
Man.	36	51	479	335	858	5,559	…	1,541	5,051	5,208	32	59	56
Sask.	161	63	394	185	456	5,659	1,310	…	8,235	5,395	65	26	36
Alta.	1,550	469	3,139	1,890	2,733	16,315	2,148	4,946	…	31,232	276	480	162
B.C.	477	204	1,982	762	2,110	11,497	1,585	2,063	15,376	…	283	198	42
Y.T.	0	3	36	11	15	248	50	66	164	493	…	44	3
N.W.T.	78	10	155	107	97	258	35	78	631	286	158	…	11
Nvt.	106	18	157	45	89	462	137	31	152	64	35	144	…
In-migrants	6,169	4,186	20,484	13,481	25,783	65,497	9,580	12,575	53,509	70,856	1,403	1,644	1,003
Out-migrants	5,384	3,196	10,535	9,594	27,233	82,582	19,265	21,985	65,340	36,579	1,133	1,904	1,440
Net	785	990	9,949	3,887	-1,450	-17,085	-9,685	-9,410	-11,831	34,277	270	-260	-437
Total number of migrants:							**286,170**						

... not applicable

Note: Preliminary estimates based on data from the Canada child benefit (CCB) program and $_{jk}$F factors calculated using 2017/2018, 2018/2019 and 2019/2020 tax file data from Canada Revenue Agency.
Source: Statistics Canada, Centre for Demography.

Analysis: Population by age and sex

Impacts of COVID-19 on the age and sex structure of the population

The COVID-19 pandemic had a direct impact on population growth in 2020/2021: Border restrictions have impeded the reception of new immigrants and non-permanent residents, and there have been increased deaths attributable to COVID-19. To understand the potential effects on the age and sex structure of populations, a more in-depth analysis was done of the demographic profile of immigrants and non-permanent residents. The age pyramids of these subpopulations exhibit some marked differences in proportions by age and sex for 2020/2021 compared with recent pre-pandemic years. Although new immigrants aged 0 to 19 (18.1%) and 50 and older (8.7%) are not as numerous as the population aged 20 to 49 years (73.2%), they were proportionately more affected by the decline in the number of immigrants in 2020/2021. In addition, since the number of permanent residents has decreased over the past year compared with the annual gains since 2015/2016, and knowing that most permanent residents are young adults, it is possible that the impact of this decline has been greater among the Canadian population in the same cohorts, particularly those aged 18 to 24.

Special attention was also paid to the population aged 80 and older, given that 61.0% (or 10,793 deaths out of 17,688)[9] of Canadians who died from COVID-19 in 2020/2021 were in this age group.[10] In comparison, 50.6% of deaths estimated in 2020/2021 were aged 80 and older. Despite the excess mortality observed among the very elderly as a result of the pandemic, the estimated population aged 80 and older rose by 44,961 to 1,713,720 on July 1, 2021. This growth is driven by the large number of people aged 79 on July 1, 2020, who were still alive the following year (200,204), considerably exceeding the number of estimated deaths among people aged 80 and older during the same period (155,452). In addition, the average age of those 80 and older has remained stable at 86.1 years for the past five years. Since international migration is less common at these ages, it does not have a strong impact on the growth of the population aged 80 and older. In short, excess mortality because of the COVID-19 pandemic among people 80 and older did not cause a decline in their population. The growth of the cohorts due to aging was greater than the impact of the excess deaths.

Lastly, despite the direct and indirect effects of the COVID-19 pandemic on several factors of the population growth (see the section *Analysis: Total population*), the average age of the Canadian population in 2021 followed the same upward trend in the population aging process.

In short, COVID-19 had a limited impact on the age and sex profile of the population of Canada for the year 2020/2021.

For the purposes of this article, various indicators are used to measure population aging. These include number, proportion and distribution of the population aged 0 to 14 and 65 and older, the demographic dependency ratio and the average age. The average age of a population is the average age of all its members.

This section presents an analysis of the population estimates by age and sex for Canada, the provinces and territories on July 1, 2021, compared with July 1 estimates in previous years.

9. Based on Public Health Agency of Canada data as of July 14, 2021, and internal calculations at Statistics Canada.
10. According to Statistics Canada's "Provisional death counts and excess mortality, January 2020 to May 2021" (accessed August 26, 2021), individuals aged 85 and older were disproportionately affected until January 2021, but this trend has subsequently somewhat decreased. The average age of people who died from COVID-19 decreased from 83 years to 76 years during this period.

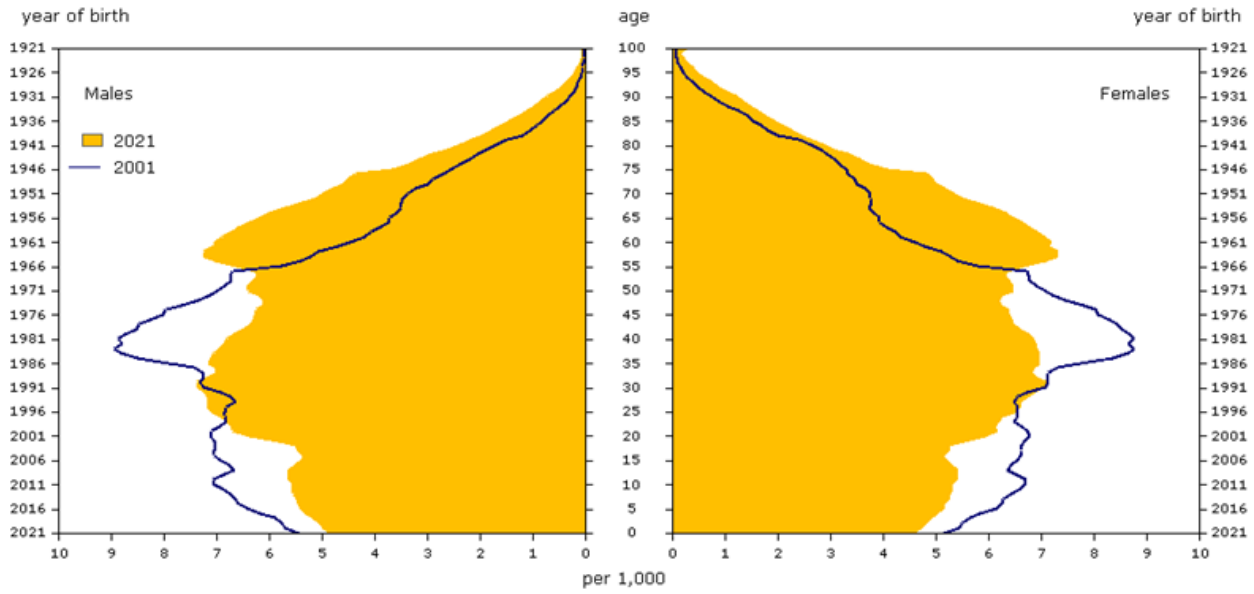
The aging of baby boomers accelerates Canada's population aging

Population aging represents one of the major changes associated with Canada's age and sex structure, and it continues to shape Canada's society and economy. The demographic aging process is currently accelerating as individuals born between 1946 and 1965—larger baby boomer cohorts—reach more advanced ages. This aging process is also explained by the combination of a fertility rate below the replacement level (2.1 children per woman) since 1972[11] and an almost-continuous increase in life expectancy for both males and females.[12]

The age pyramid opposite (Figure 2.1) illustrates the aging of Canada's population in recent decades by comparing the age and sex structure of the population on July 1 in 2001 and 2021.

On July 1, 2001, baby boomers were in their mid 30s to mid 50s, as can be seen in the bulge in the pyramid at these ages. On July 1, 2021, individuals in the baby boomer generation were aged 55 to 75, as illustrated by the upward shift in the largest bulge in the pyramid observed 20 years earlier. Therefore, the number of people aged 55 and older was proportionally higher in 2021 (32.4%) than in 2001 (22.0%). In contrast, the number of younger people, particularly people in their mid 30s and early 50s, as well as individuals aged 0 to 20, has proportionally decreased.

Figure 2.1
Population pyramid estimates as of July 1, 2001 and 2021, Canada



Source: Statistics Canada, Centre for Demography.

The gap widens between children and older persons

Since 2011, baby boomers have contributed significantly to the increase in the number of people aged 65 and older. In fact, people aged 65 and older outnumbered children aged 0 to 14 from July 1, 2015 to July 1, 2016. In the last annual period, the difference between the number of people in these two age groups continued to increase.

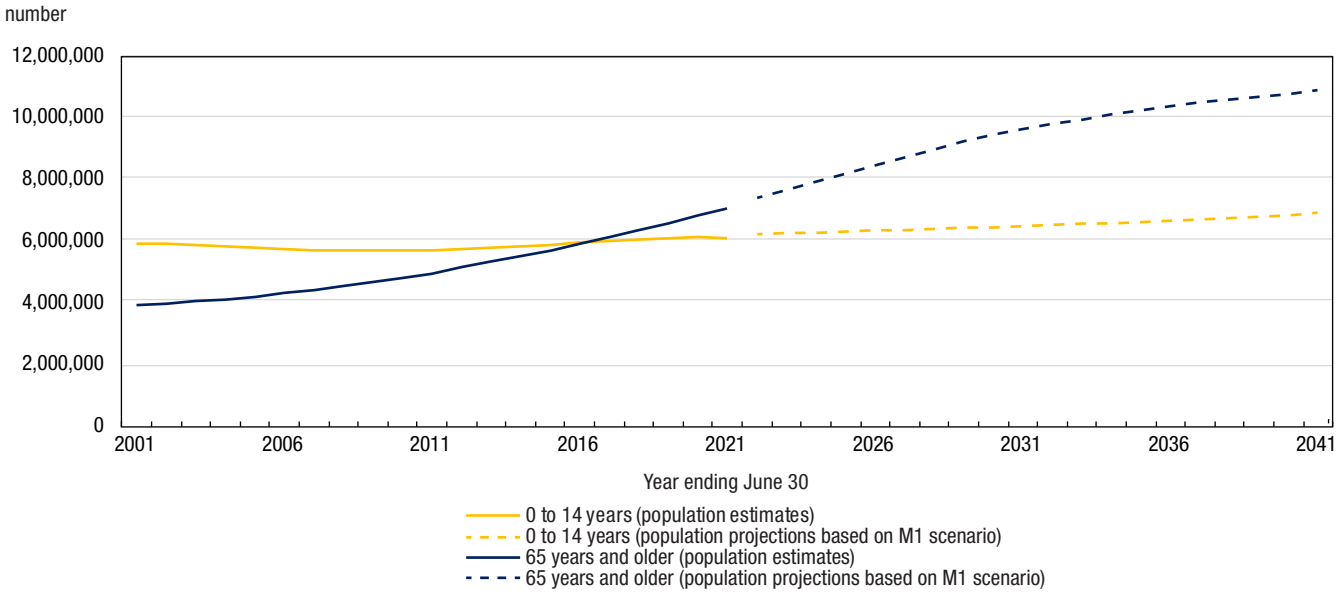
On July 1, 2021, a record number of 7,081,792 Canadians—18.5% of the population—were at least 65 years of age.

In comparison, there were 6,018,084 children aged 0 to 14 (15.7%) in Canada, the first decline in the last 13 years.

Moreover, since the number of older persons is growing faster than the number of children, the demographic weight of children has decreased in recent years. In comparison, there were two to three times more children aged 0 to 14 than people aged 65 and older before 1987. According to the medium growth (M1) scenario in the most recent population projections,[13] the proportion of people 65 and older should exceed 20% between July 1, 2024, and July 1, 2025, and reach 25% in 2058/2059. Meanwhile, the proportion of children aged 0 to 14 should remain relatively stable at around 15% to 16% over the same period.

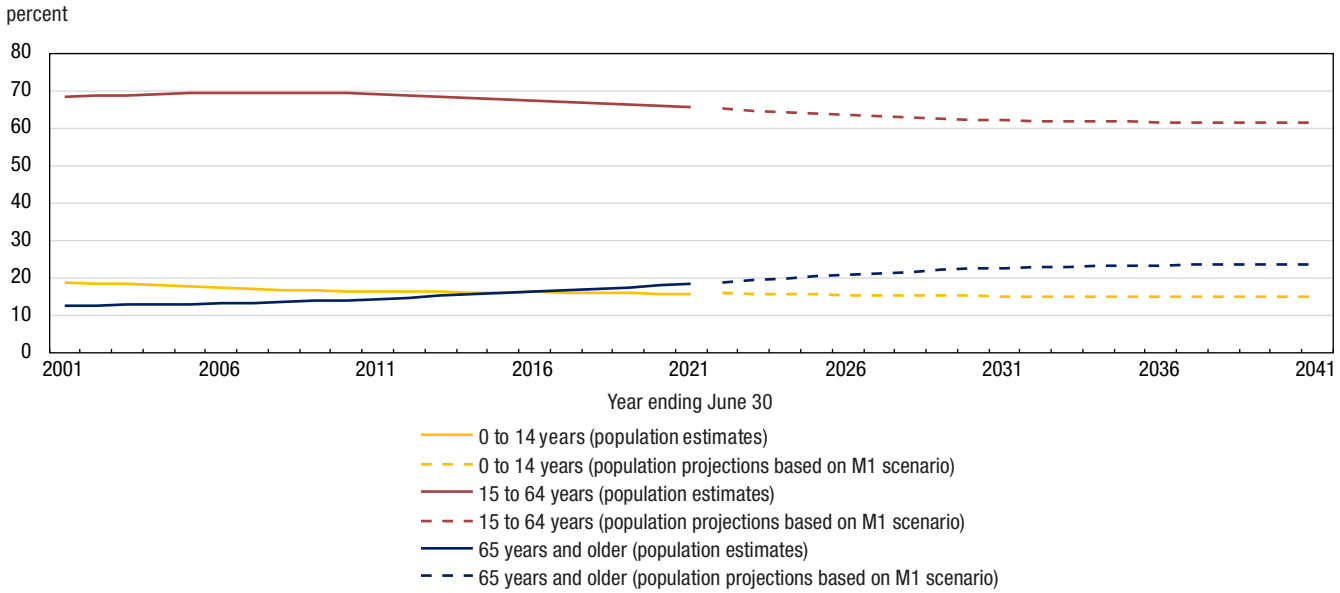
11. Statistics Canada, Fertility: Overview, 2012 to 2016, in the Report on the Demographic Situation in Canada, Catalogue no. 91-209-X.
12. The most recent data show that life expectancy at birth has increased from 75.4 to 82.1 years from 1982 to 2019.
13. Statistics Canada. Table 17-10-0057-01 Projected population, by projection scenario, age and sex, as of July 1 (x 1,000) (accessed August 30, 2021). Calculations made by the author. The M1 medium growth scenario was considered.

Chart 2.1
Population aged 0 to 14 years and 65 years and older, 2001 to 2041, Canada



Note: From 2001 to 2021, population estimates. From 2022 to 2041, *Projected population by scenario, age and sex, as of July 1 (x1,000)*, Table no. 17-10-0057-01.
Source: Statistics Canada, Centre for Demography.

Chart 2.2
Proportion of the population aged 0 to 14 years, 15 to 64 years and 65 years and older, 2001 to 2041, Canada



Note: From 2001 to 2021, population estimates. From 2022 to 2041, *Projected population by scenario, age and sex, as of July 1 (x1,000)*, Table no. 17-10-0057-01.
Source: Statistics Canada, Centre for Demography.

During the last annual period, in the context of the COVID-19 pandemic, the growth rate of the group aged 65 and older was 3.4%, more than six times the growth rate of the population as a whole (0.5%). The growth rate of children aged 0 to 14 years decreased 0.4% over the same annual period, the first decline in 13 years. The decline in new immigrant children in 2020/2021 may have had a downward influence on the already low growth of children aged 0 to 15 in recent years. Since the beginning of the period covered by the current demographic accounting system (July 1971), the population growth rate for children has always remained lower than that of older persons, thereby contributing to population aging.

Children still outnumber older persons in the Prairie provinces and the territories

Population aging affects all regions of the country; however, this process is unfolding at an unequal pace, and certain provinces are aging faster than others. Consequently, the proportion of people aged 65 and older and that of children aged 0 to 14 varies significantly from east to west and from north to south.

In Canada's eastern and central provinces and in British Columbia, the proportion of people 65 years and older was higher than the proportion of children aged 0 to 14 years on July 1, 2021. However, the Prairie provinces and the territories showed the reverse, with higher proportions of children aged 0 to 14 than people 65 years and older. In 2009, Nova Scotia and New Brunswick were the top two provinces where the proportion of people aged 65 and older exceeded that of children aged 0 to 14.

On July 1, 2021, Newfoundland and Labrador had the highest proportion of people aged 65 and older (23.1%). This proportion increased 7.4 percentage points over 10 years, the largest increase among all provinces and territories. In contrast, Alberta (14.4%) had the lowest proportion of people aged 65 and older among the provinces. As for children aged 0 to 14, the highest proportion among the provinces was observed in Saskatchewan (19.4%), and the lowest was in Newfoundland and Labrador (13.2%). Differences in the fertility, immigration and interprovincial migration rates largely explain gaps in the age structure between provinces and territories.

The age structure of the population of the territories differs from that of the provinces. Higher fertility[14] and mortality[15,16], explain why the demographic weight of children is especially larger than that of older persons. In particular, Nunavut stood out with children aged 0 to 14 making up 31.3% of the population and a low proportion of people aged 65 and older (4.1%).

Now nearly one in two baby boomers are aged 65 and older

Like the rest of the population, the baby boomer cohorts are aging. Moreover, 45.6% of baby boomers were 65 and older in 2021, whereas this was the case for 40.6% of them barely a year ago. By 2031, the entire baby boomer cohort, whose youngest members were born in 1965, will have turned 65.

The demographic composition of the group aged 65 and older is changing rapidly. Before 2011, there were no members of the baby boomer generation in this group. Since 2011, as the first baby boomers started turning 65, growth of this group has clearly accelerated. Consequently, on July 1, 2021, baby boomers made up 59.8% of people aged 65 and older. However, their demographic weight within the overall population is decreasing, down to 24.3% in mid 2021, compared with 31.4% in 2001. Given their advancing age, they become more and more at risk of dying.

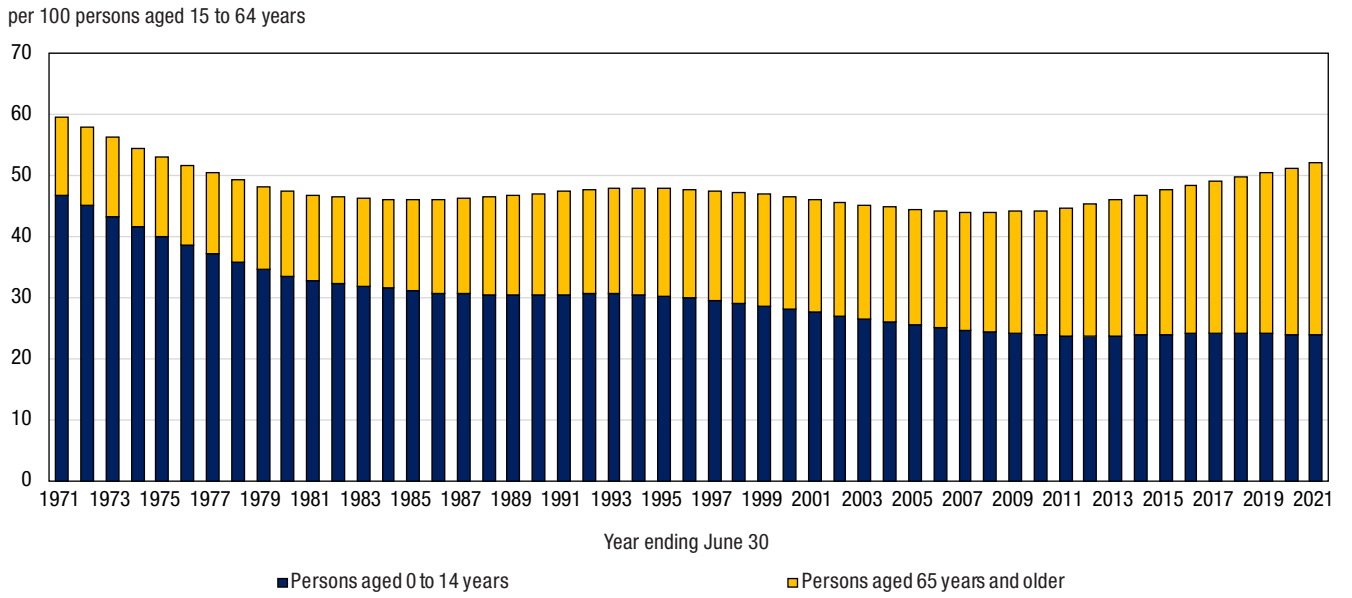
Canada has just over one child or older person for every two working-age people

The demographic dependency ratio represents the number of children (0 to 14 years) and older people (65 years and older) per 100 working-age people (15 to 64 years). On July 1, 2021, the ratio was 52.1. This indicator has been rising steadily since reaching a record low in 2007 and 2008 (44.0 each).

14. Statistics Canada. Table 13-10-0418-01 Crude birth rate, age-specific fertility rates and total fertility rate (live births) (accessed August 27, 2021).
15. Statistics Canada. Table 13-10-0140-01 Life expectancy and other elements of the life table, Prince Edward Island and the territories (accessed August 27, 2021).
16. Statistics Canada. Table 13-10-0114-01 Life expectancy and other elements of the life table, Canada, all provinces except Prince Edward Island (accessed August 27, 2021).

It could continue to rise beyond 2031, when the youngest baby boomers will turn 65. Indeed, according to the medium growth (M1) scenario in the most recent population projections, the demographic dependency ratio should be 61.0 in 2031 and 67.8 in 2068.

Chart 2.3
Demographic dependency ratio, 1971 to 2021, Canada



Source: Statistics Canada, Centre for Demography.

Given their numbers, baby boomers have always had a tangible impact on the demographic dependency ratio. In 1971, the beginning of the period covered by the current demographic accounting system, a good number of baby boomers were still children. At that time, the demographic dependency ratio was 59.5. However, as the baby boomers reached adulthood, that ratio gradually dropped and remained low from 1980 to 2011, while all members of this generation were of working age. The recent increase in the demographic dependency ratio is explained by the baby boomers turning 65.

The number of people aged 55 to 64 compared with youth aged 15 to 24 is increasing

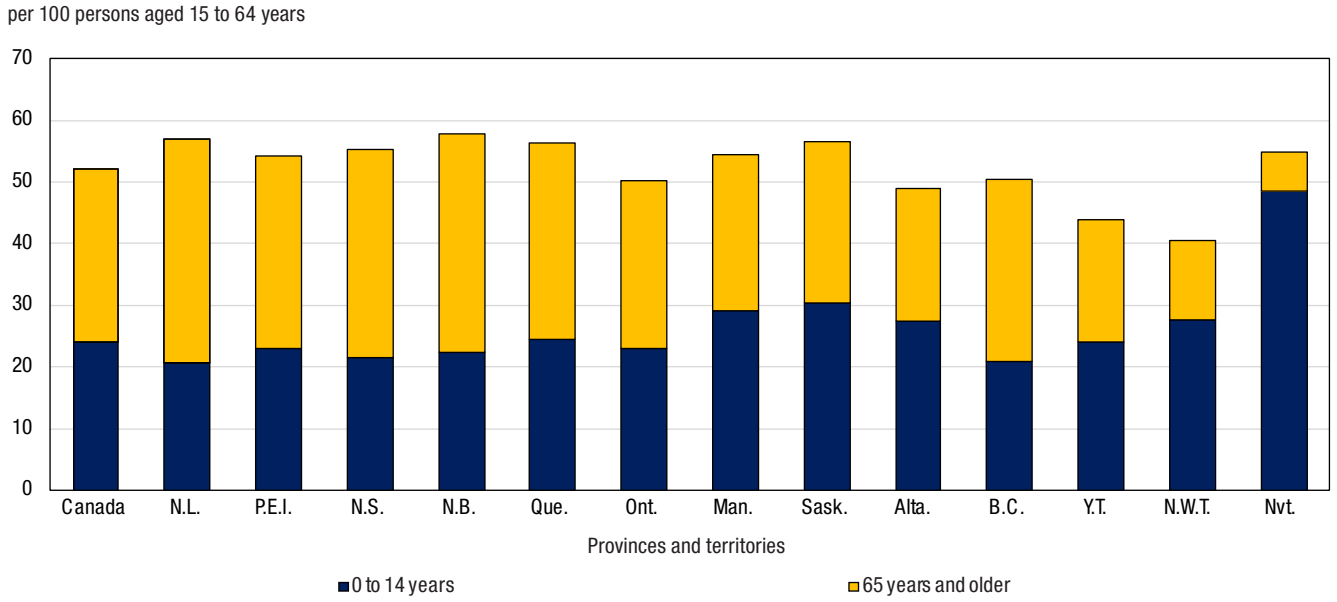
People aged 55 to 64 are often on the cusp of or in retirement. In contrast, individuals aged 15 to 24 generally have recently or are about to enter the labour market for the first time.

On July 1, 2021, there were 118 people potentially leaving the labour market for every 100 potential entrants. Those people aged 55 to 64 years consist of the youngest baby boomers. In 1984, Canada had two people aged 15 to 24 per person aged 55 to 64, which demonstrates the major reversal in Canada over the last four decades. Subsequent years were marked by a steady decrease in this ratio, such that starting in 2013, the number of people potentially leaving began to outnumber the number of those potentially entering the labour market. There may have been an increase in this trend in 2020/2021 because of the decline in the number of non-permanent residents due to restrictions at the Canadian border caused by the COVID-19 pandemic.

The demographic dependency ratio varies from one province and territory to another

In 2021, the Atlantic provinces and Quebec had a higher demographic dependency ratio than Canada (52.1) because of an increasing number of people aged 65 and older. In addition, the demographic dependency ratio was also higher in Manitoba (54.4) and Saskatchewan (56.6) than it was for the country. This situation was mainly because of the slightly higher proportion of children aged 0 to 14 in these provinces. Lastly, Nunavut (54.9) stood out from the other jurisdictions with the highest ratio of children and the lowest ratio of older persons.

Chart 2.4
Demographic dependency ratio, 2021, Canada, provinces and territories



Source: Statistics Canada, Centre for Demography.

Text Table 2.1
Population estimates[1], age distribution, median age and average age as of July 1, 2021, Canada, provinces and territories

	Population	0 to 14 years	15 to 64 years	65 years and older	Median age	Average age
	number	percent			years	
Canada	**38,246,108**	**15.7**	**65.7**	**18.5**	**41.1**	**41.7**
Newfoundland and Labrador	520,553	13.2	63.7	23.1	47.8	45.2
Prince Edward Island	164,318	14.9	64.9	20.2	42.4	42.4
Nova Scotia	992,055	13.8	64.4	21.8	45.0	44.0
New Brunswick	789,225	14.2	63.3	22.5	46.2	44.5
Quebec	8,604,495	15.7	64.0	20.3	43.0	42.8
Ontario	14,826,276	15.3	66.6	18.1	40.7	41.5
Manitoba	1,383,765	18.8	64.8	16.5	37.8	39.3
Saskatchewan	1,179,844	19.4	63.9	16.7	38.1	39.4
Alberta	4,442,879	18.4	67.2	14.4	37.9	38.9
British Columbia	5,214,805	13.8	66.5	19.7	42.3	42.8
Yukon	42,986	16.6	69.5	13.8	39.3	39.7
Northwest Territories	45,504	19.6	71.1	9.3	35.8	36.4
Nunavut	39,403	31.3	64.6	4.1	26.5	28.9

1. Preliminary postcensal estimates.

Note: Figures in percent may not add up to 100% as a result of rounding.
Source: Statistics Canada, Centre for Demography.

The number of centenarians is growing rapidly

On July 1, 2021, preliminary estimates indicate that there were 12,822 centenarians in Canada. The number of centenarians in Canada is constantly growing, mainly because of higher life expectancy.

In the past 20 years (or since 2001),[17] the number of centenarians has more than tripled. In the latest annual period (2020/2021), the growth rate of centenarians rose to 9.0%, or nearly 16 times the population growth rate for the entire population (0.5%), and this in the context of the COVID-19 pandemic. The population growth of centenarians was greater than that of each five-year population age group.

17. 2001 is the first year for which population estimates for centenarians are available.

In relative numbers, there were 34 centenarians per 100,000 population in Canada. In 2001, the proportion was 11 centenarians per 100,000 population.

Higher population aging among females

The main population aging indicators are all higher for females. On July 1, 2021, the proportion of people aged 65 and older was higher among females (19.8%) than among males (17.2%), although the gap has been narrowing since 1998. The average age was also higher for females (42.6 years) than for males (40.8 years). Furthermore, the centenarian group comprised mostly females (80.4%).

These differences are mainly because females, at all ages, have lower mortality levels than males. These mortality levels create a persistent yet narrowing gap in life expectancy in favour of females. The most recent data (2017 to 2019) show that the life expectancy at birth of females was 84.2 years, compared with 80.0 years for males, with females living an average of 4.2 years longer than males. Twenty years earlier, this gap was 5.4 years.[18]

The average age of the Canadian population continues to increase

In 2021, the average age[19] of Canadians was 41.7 years. The average age has increased by 4.2 years since 2001, when it was 37.5 years.

Average age varies considerably from province to province. On July 1, 2021, there was a difference of 6.3 years between the province with the highest average age (45.2 years in Newfoundland and Labrador) and the province with the lowest average age (38.9 years in Alberta). Taking the territories into consideration, Nunavut had the lowest average age at 28.9 years.

In 2001, the differences between the provinces were much smaller, with a gap of 3.2 years. The highest average age was in Nova Scotia (38.6 years), and the lowest was in Alberta (35.4 years).

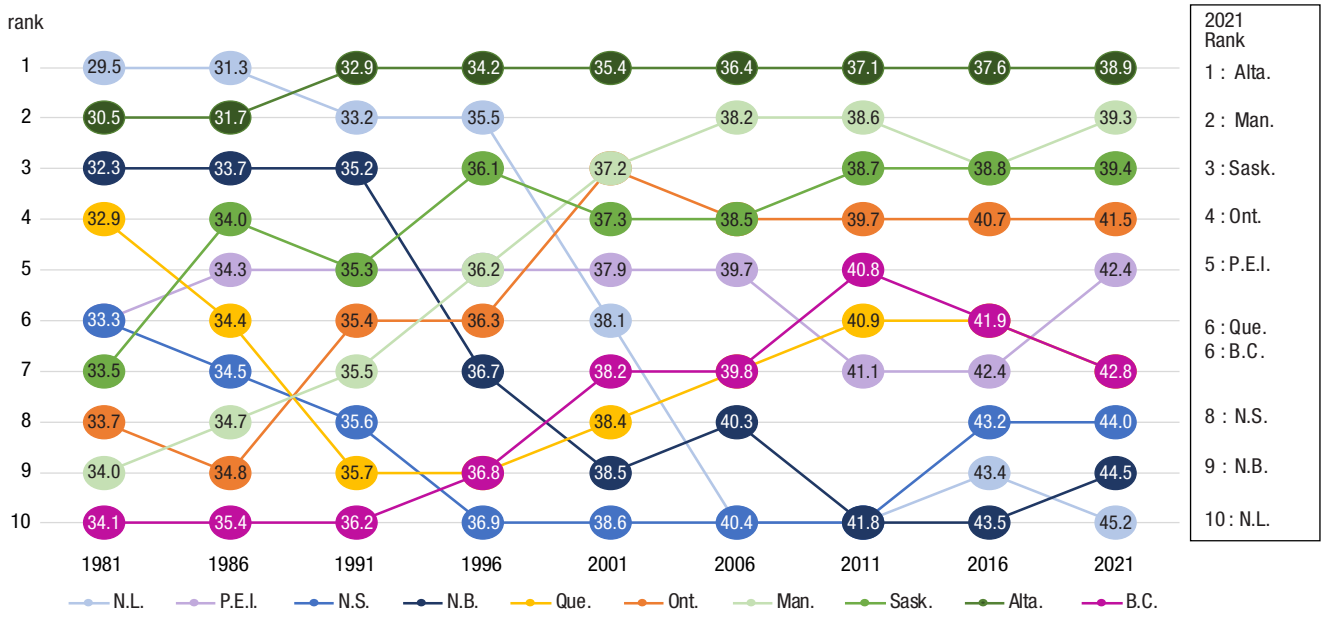
In other words, differences in age structure between provinces and territories have tended to increase over the past 20 years, even though all regions of the country are experiencing a relatively rapid aging of the population.

The situation in Newfoundland and Labrador indicates an especially rapid aging of its population. In just over 15 years, the average age in the province went from the lowest (32.5 in 1989) to the highest (40.4 years in 2006, tied with Nova Scotia) in the country. During most of this period, the province saw negative population growth. The main contributing factors are the departure of many young adults to other provinces and territories, along with lower fertility.

Conversely, the Prairie provinces topped the list of the youngest provinces on July 1, 2021, with an average age of 38.9 years in Alberta, 39.3 years in Manitoba and 39.4 years in Saskatchewan. This is mainly because of a higher proportion of Indigenous populations (Manitoba, Saskatchewan),[20] who are generally younger and with higher fertility rates, as well as a greater migratory inflow of young adults and families from other provinces (Alberta).

18. Statistics Canada. Table 13-10-0114-01 Life expectancy and other elements of the life table, Canada, all provinces except Prince Edward Island (accessed August 27, 2021).
19. The average age of a population is the average age of all its members.
20. Statistics Canada. Aboriginal identity population by both sexes, total – age, 2016 counts, Canada, provinces and territories, 2016 Census – 25% Sample data (accessed August 30, 2021), author's calculations.

Chart 2.5
Average age ranking on July 1, 1981 to 2021 (quinquennial years), Canadian provinces



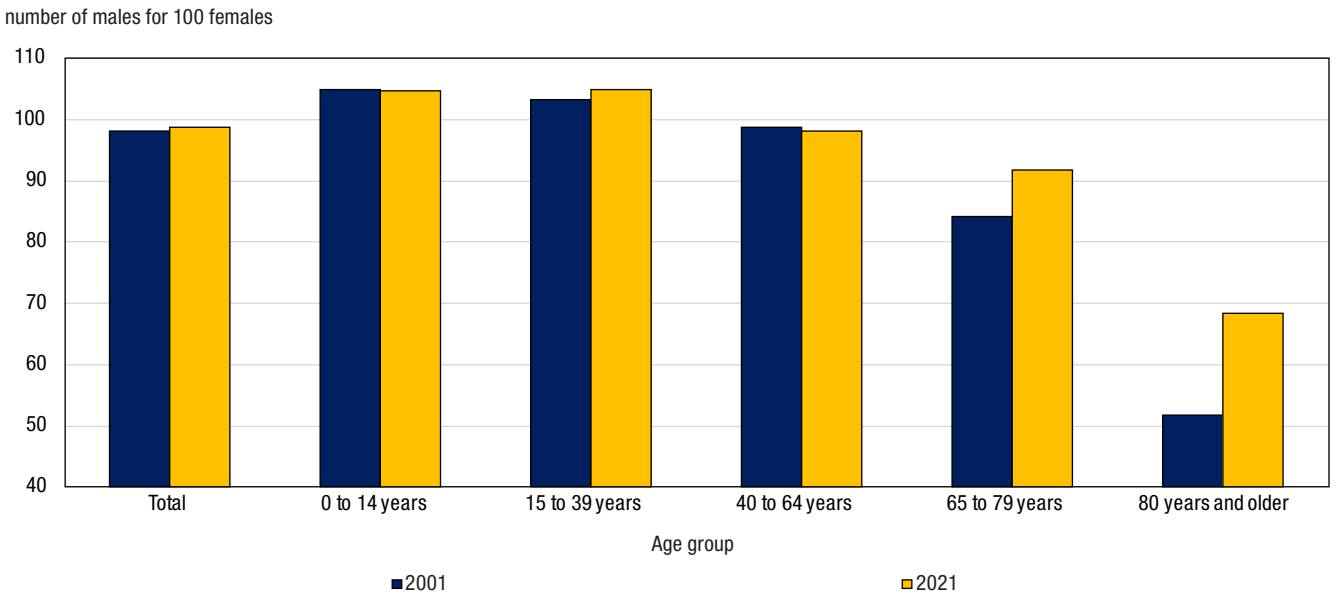
Source: Statistics Canada, Centre for Demography.

Males slightly outnumbered by females

On July 1, 2021, the sex ratio for the entire Canadian population was estimated at 98.8 males per 100 females. This ratio has been rising very slowly since 2000 (98.1). Males outnumber females up to the mid 30s, mainly because of the sex ratio at birth, which averages 105 males per 100 females. When people reach their mid 60s, the number of males starts to fall significantly below the number of females because of excess mortality among males. This gap widens at more advanced ages: among those aged 65 to 79, there were an estimated 91.7 males per 100 females on July 1, 2021.

However, the gap between the sexes seems to be narrowing over time. Thirty years ago, the sex ratio for people aged 65 to 79 was 78.5 males per 100 females. Among those aged 80 and older, there were an estimated 68.5 males per 100 females on July 1, 2021, compared with a sex ratio of 52.2 on July 1, 1991. On July 1, 2021, centenarians were predominantly female, with a ratio of 24.4 males per 100 females. This ratio has been rising since 2001 (17.3).

Chart 2.6
Sex ratio by age group, 2001 and 2021, Canada



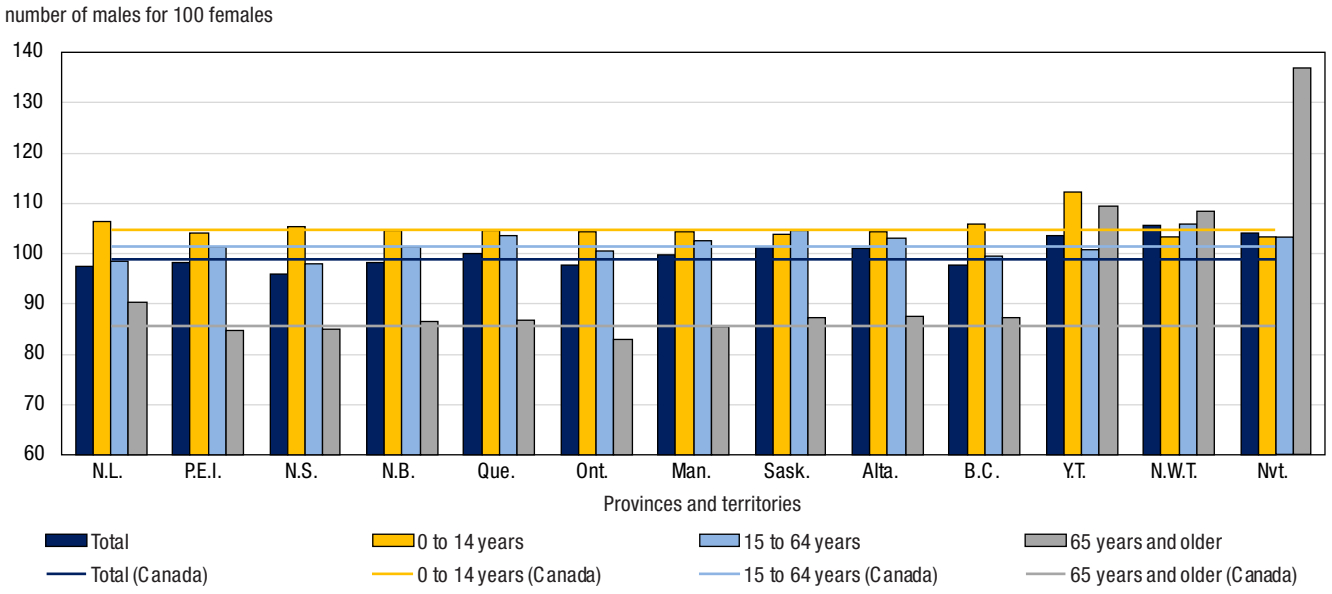
Source: Statistics Canada, Centre for Demography.

The sex ratio is higher in the Prairie provinces and lower in the Atlantic provinces

There are some differences between the provinces in terms of the sex structure of the population. On July 1, 2021, the province with the lowest sex ratio in the country was Nova Scotia (96.0 males per 100 females), and the province with the highest sex ratio was Saskatchewan (101.4 males per 100 females). The sex ratios in the Atlantic provinces were below the national average (98.8 males per 100 females), while they were all higher in the Prairie provinces and in Quebec. Among other factors, this situation can be attributed to differences in the aging of Canada's regions: a younger population is usually slightly more male, and an older population is usually more female.

In 2021, males outnumbered females in all the territories because they are home to younger populations than elsewhere in Canada. The main differences between the sex structure in the territories and in Canada as a whole are at higher ages. For ages 65 and older, Yukon, the Northwest Territories and Nunavut had 103.7, 105.6 and 104.0 males per 100 females, respectively, compared with 85.5 males per 100 females nationally.

Chart 2.7
Sex ratio by age group, 2021, Canada, provinces and territories



Source: Statistics Canada, Centre for Demography.

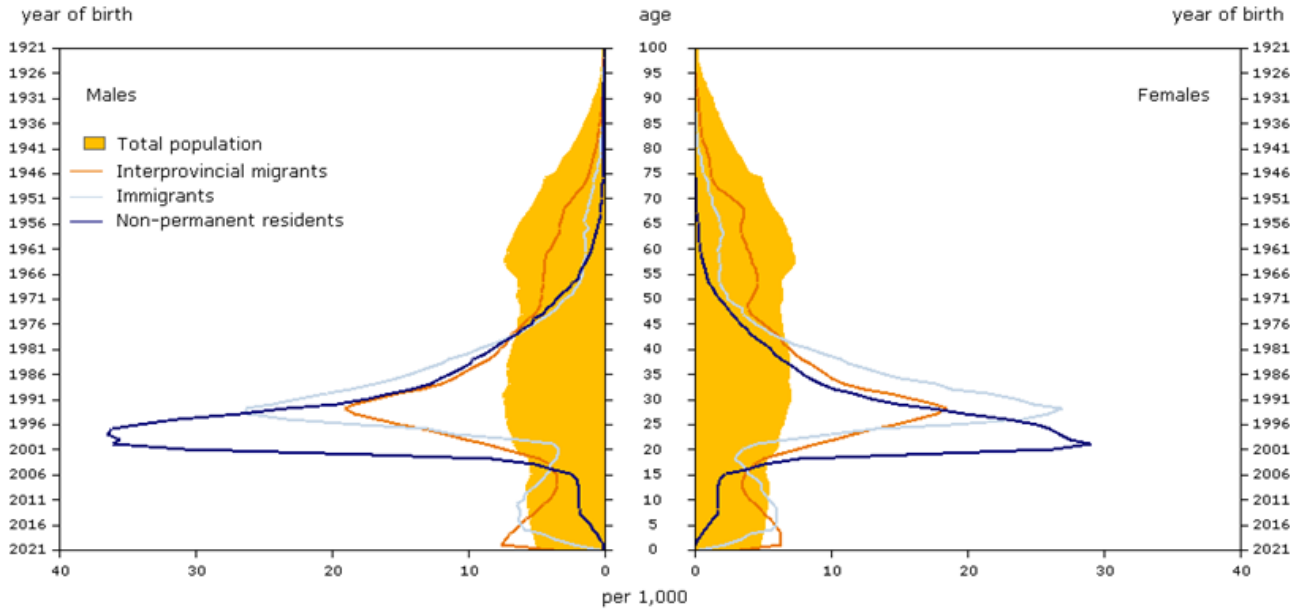
Migrants are much younger than the entire population

The population pyramid opposite highlights the differences in the age and sex structure of interprovincial migrants, new immigrants, non-permanent residents and the total population.[21] On July 1, 2021, the proportion of the working-age population (aged 15 to 64) was considerably higher among immigrants (82.3%), interprovincial migrants (77.9%) and non-permanent residents (95.8%) compared with the total population (65.7%).

These groups also had a high concentration of young adults. A majority of non-permanent residents (71.9%) were between 18 and 34 years of age. In comparison, immigrants were slightly older, and less concentrated in some age groups, with 70.3% aged 20 to 45. Among interprovincial migrants, 61.8% were aged 20 to 50. Similarly, the average ages of interprovincial migrants (33.8 years), non-permanent residents (28.8 years) and immigrants (31.0 years) were lower than the average age of the Canadian population (41.7 years) on July 1, 2021.

21. Interprovincial migrants and immigrants are those who migrated between July 1, 2020 and July 1, 2021, while non-permanent residents and the population are those accounted for on July 1, 2021.

Figure 2.2
Population pyramid of total population, interprovincial migrants, immigrants and non-permanent residents, 2021, Canada



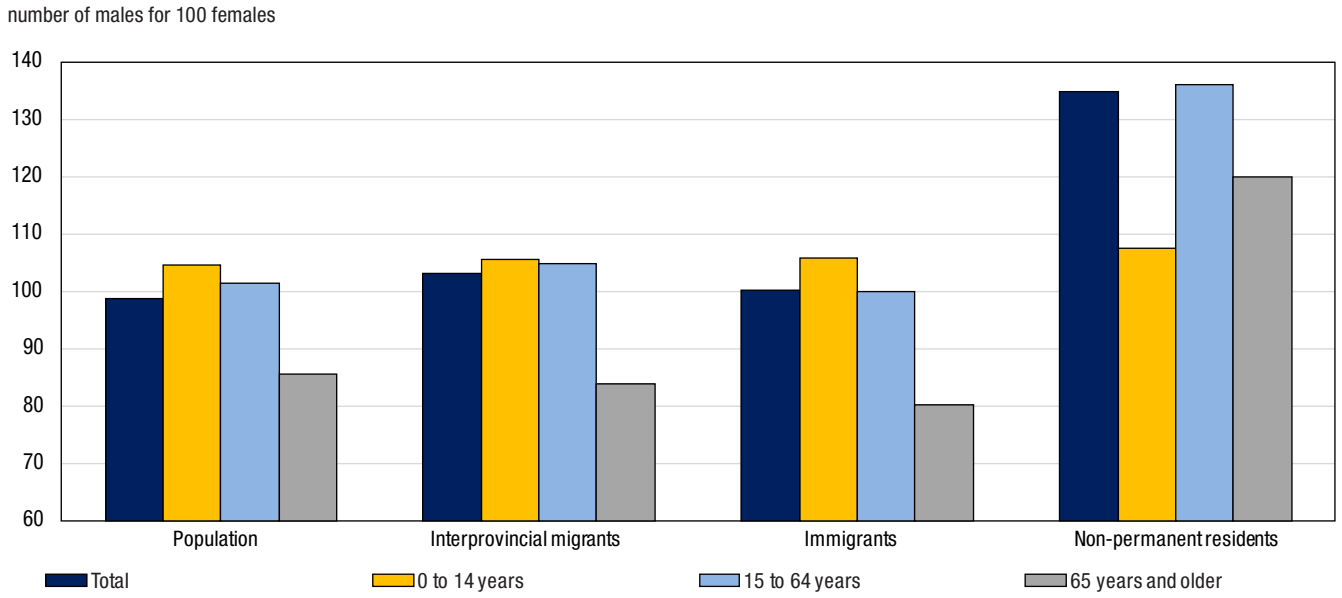
Source: Statistics Canada, Centre for Demography.

Immigrants stood out for having a demographic weight of children aged 0 to 14 (14.5%) similar to the total Canadian population (15.7%), particularly because of family migration. There is also a certain proportion of people aged 65 and older (3.2%), an influx explained specifically by the migration of immigrant parents. In comparison, 3.7% of non-permanent residents were aged 0 to 14 in 2021. Notably, the distinct age structure of non-permanent residents is because those who come to Canada mainly do so for work or to study, and are often young adults with no children. Moreover, interprovincial migration among those 65 and older (7.1%) was partly associated with retirement migrations.

Males outnumber females among non-permanent residents and interprovincial migrants

The sex structure also differs between each of the three subgroups. The number of males per 100 females was close to parity among immigrants (100.1 males per 100 females), slightly higher than that of the Canadian population (98.8 males per 100 females). However, males were overrepresented among non-permanent residents (134.8 males per 100 females) and, to a lesser degree, among interprovincial migrants (103.2 males per 100 females).

Chart 2.8
Sex ratio by age group of the population, interprovincial migrants, immigrants and non-permanent residents, 2021, Canada



Source: Statistics Canada, Centre for Demography.

Table 2.1
Annual population estimates by age group and sex at July 1 - Canada

	2014	2015	2016	2017	2018	2019	2020	2021
	number							
Both sexes	**35,437,435**	**35,702,908**	**36,109,487**	**36,545,236**	**37,065,084**	**37,601,230**	**38,037,204**	**38,246,108**
0 to 4 years	1,927,705	1,928,878	1,942,791	1,941,838	1,940,483	1,932,784	1,919,827	1,882,571
5 to 9 years	1,931,039	1,969,492	2,003,223	2,021,564	2,033,313	2,041,278	2,047,366	2,044,237
10 to 14 years	1,893,264	1,895,463	1,919,810	1,948,681	1,992,389	2,033,308	2,074,540	2,091,276
15 to 19 years	2,118,889	2,092,961	2,083,843	2,090,598	2,106,395	2,114,650	2,102,402	2,057,449
20 to 24 years	2,423,034	2,395,623	2,387,191	2,401,419	2,436,459	2,475,503	2,484,313	2,452,701
25 to 29 years	2,413,496	2,429,557	2,466,106	2,513,657	2,575,089	2,626,204	2,647,713	2,640,110
30 to 34 years	2,447,837	2,460,501	2,488,660	2,515,087	2,553,299	2,605,394	2,664,486	2,697,788
35 to 39 years	2,349,272	2,371,229	2,410,025	2,455,926	2,517,339	2,581,046	2,632,387	2,666,647
40 to 44 years	2,362,412	2,349,922	2,342,178	2,353,730	2,381,576	2,421,889	2,465,574	2,509,664
45 to 49 years	2,503,611	2,445,816	2,431,118	2,418,092	2,407,566	2,398,378	2,392,365	2,384,473
50 to 54 years	2,786,582	2,783,350	2,734,564	2,664,892	2,580,128	2,505,044	2,452,279	2,430,334
55 to 59 years	2,566,359	2,614,668	2,665,850	2,696,684	2,728,010	2,751,672	2,746,773	2,700,181
60 to 64 years	2,171,609	2,243,211	2,313,160	2,388,056	2,457,486	2,514,070	2,561,677	2,606,885
65 to 69 years	1,822,528	1,903,004	1,969,181	1,996,039	2,036,232	2,098,142	2,168,710	2,233,993
70 to 74 years	1,304,022	1,357,712	1,423,187	1,533,338	1,625,616	1,708,613	1,788,124	1,853,536
75 to 79 years	961,547	983,024	1,014,301	1,057,690	1,109,685	1,165,334	1,219,909	1,280,543
80 to 84 years	730,784	735,007	742,579	751,641	766,499	789,039	812,613	842,288
85 to 89 years	457,587	467,165	480,677	493,687	503,776	513,205	519,445	525,176
90 to 94 years	208,837	214,926	223,290	229,678	236,509	243,103	249,861	256,552
95 to 99 years	49,296	53,488	59,110	63,937	67,778	71,993	75,118	76,882
100 years and older	7,725	7,911	8,643	9,002	9,457	10,581	11,722	12,822
Males	**17,581,697**	**17,712,801**	**17,916,496**	**18,136,188**	**18,406,284**	**18,682,725**	**18,900,899**	**19,007,832**
0 to 4 years	986,082	986,676	993,580	994,502	994,268	990,725	984,057	965,385
5 to 9 years	985,043	1,003,138	1,019,960	1,030,316	1,038,162	1,042,811	1,047,225	1,046,126
10 to 14 years	970,398	968,904	978,544	992,477	1,014,167	1,035,393	1,056,546	1,065,941
15 to 19 years	1,094,406	1,080,291	1,074,818	1,076,108	1,082,239	1,083,358	1,075,008	1,049,426
20 to 24 years	1,252,785	1,244,697	1,242,113	1,250,319	1,270,494	1,292,734	1,295,901	1,279,464
25 to 29 years	1,225,550	1,239,356	1,264,270	1,290,055	1,325,044	1,353,906	1,366,739	1,367,482
30 to 34 years	1,222,168	1,230,618	1,249,488	1,266,458	1,289,327	1,319,340	1,351,551	1,371,210
35 to 39 years	1,165,475	1,174,086	1,193,244	1,217,891	1,251,700	1,288,726	1,318,229	1,340,088
40 to 44 years	1,177,103	1,167,211	1,160,414	1,164,184	1,178,063	1,198,647	1,220,668	1,244,626
45 to 49 years	1,252,324	1,220,275	1,210,028	1,202,542	1,196,874	1,191,221	1,186,424	1,181,047
50 to 54 years	1,396,037	1,392,935	1,367,448	1,330,958	1,286,609	1,247,044	1,219,306	1,206,634
55 to 59 years	1,277,271	1,300,456	1,324,747	1,340,429	1,356,011	1,368,379	1,365,800	1,342,592
60 to 64 years	1,069,392	1,102,960	1,135,977	1,172,720	1,208,301	1,236,940	1,260,909	1,283,211
65 to 69 years	888,164	926,287	957,632	969,894	988,509	1,017,464	1,051,300	1,082,592
70 to 74 years	621,283	649,566	682,973	736,099	779,386	818,263	855,213	885,817
75 to 79 years	440,683	452,282	468,088	489,679	515,938	543,578	570,476	599,691
80 to 84 years	313,199	317,644	323,647	329,293	337,168	348,450	360,079	373,517
85 to 89 years	170,273	177,089	185,348	193,048	199,661	205,760	209,743	213,144
90 to 94 years	61,862	64,978	68,987	72,577	76,477	80,537	84,719	87,737
95 to 99 years	10,962	12,084	13,791	15,106	16,251	17,623	18,829	19,590
100 years and older	1,237	1,268	1,399	1,533	1,635	1,826	2,177	2,512

Table 2.1
Annual population estimates by age group and sex at July 1 - Canada

	2014	2015	2016	2017	2018	2019	2020	2021
	number							
Females	**17,855,738**	**17,990,107**	**18,192,991**	**18,409,048**	**18,658,800**	**18,918,505**	**19,136,305**	**19,238,276**
0 to 4 years	941,623	942,202	949,211	947,336	946,215	942,059	935,770	917,186
5 to 9 years	945,996	966,354	983,263	991,248	995,151	998,467	1,000,141	998,111
10 to 14 years	922,866	926,559	941,266	956,204	978,222	997,915	1,017,994	1,025,335
15 to 19 years	1,024,483	1,012,670	1,009,025	1,014,490	1,024,156	1,031,292	1,027,394	1,008,023
20 to 24 years	1,170,249	1,150,926	1,145,078	1,151,100	1,165,965	1,182,769	1,188,412	1,173,237
25 to 29 years	1,187,946	1,190,201	1,201,836	1,223,602	1,250,045	1,272,298	1,280,974	1,272,628
30 to 34 years	1,225,669	1,229,883	1,239,172	1,248,629	1,263,972	1,286,054	1,312,935	1,326,578
35 to 39 years	1,183,797	1,197,143	1,216,781	1,238,035	1,265,639	1,292,320	1,314,158	1,326,559
40 to 44 years	1,185,309	1,182,711	1,181,764	1,189,546	1,203,513	1,223,242	1,244,906	1,265,038
45 to 49 years	1,251,287	1,225,541	1,221,090	1,215,550	1,210,692	1,207,157	1,205,941	1,203,426
50 to 54 years	1,390,545	1,390,415	1,367,116	1,333,934	1,293,519	1,258,000	1,232,973	1,223,700
55 to 59 years	1,289,088	1,314,212	1,341,103	1,356,255	1,371,999	1,383,293	1,380,973	1,357,589
60 to 64 years	1,102,217	1,140,251	1,177,183	1,215,336	1,249,185	1,277,130	1,300,768	1,323,674
65 to 69 years	934,364	976,717	1,011,549	1,026,145	1,047,723	1,080,678	1,117,410	1,151,401
70 to 74 years	682,739	708,146	740,214	797,239	846,230	890,350	932,911	967,719
75 to 79 years	520,864	530,742	546,213	568,011	593,747	621,756	649,433	680,852
80 to 84 years	417,585	417,363	418,932	422,348	429,331	440,589	452,534	468,771
85 to 89 years	287,314	290,076	295,329	300,639	304,115	307,445	309,702	312,032
90 to 94 years	146,975	149,948	154,303	157,101	160,032	162,566	165,142	168,815
95 to 99 years	38,334	41,404	45,319	48,831	51,527	54,370	56,289	57,292
100 years and older	6,488	6,643	7,244	7,469	7,822	8,755	9,545	10,310

Note: Estimates are final intercensal up to 2015, final postcensal from 2016 to 2019, updated postcensal for 2020 and preliminary postcensal for 2021.
Source: Statistics Canada, Centre for Demography.

Table 2.2
Annual population estimates and factors of demographic growth by age group and sex, 2020/2021[1] - Canada

	Natural increase					
	Births	Deaths	Net interprovincial migration	Net international migration	Total net migration	Total growth
	number					
Both sexes	**359,533**	**307,132**	**0**	**156,503**	**156,503**	**208,904**
-1 year	359,533	1,458	0	-74	-74	358,001
0 to 4 years	...	358	0	6,881	6,881	6,523
5 to 9 years	...	132	0	8,990	8,990	8,858
10 to 14 years	...	195	0	6,185	6,185	5,990
15 to 19 years	...	767	0	23,217	23,217	22,450
20 to 24 years	...	1,430	0	17,974	17,974	16,544
25 to 29 years	...	1,887	0	24,326	24,326	22,439
30 to 34 years	...	2,178	0	25,864	25,864	23,686
35 to 39 years	...	2,622	0	18,803	18,803	16,181
40 to 44 years	...	3,111	0	10,619	10,619	7,508
45 to 49 years	...	4,620	0	4,558	4,558	-62
50 to 54 years	...	7,410	0	1,624	1,624	-5,786
55 to 59 years	...	13,149	0	1,443	1,443	-11,706
60 to 64 years	...	19,149	0	2,084	2,084	-17,065
65 to 69 years	...	24,505	0	1,970	1,970	-22,535
70 to 74 years	...	32,475	0	1,301	1,301	-31,174
75 to 79 years	...	36,234	0	529	529	-35,705
80 to 84 years	...	41,432	0	224	224	-41,208
85 to 89 years	...	50,335	0	5	5	-50,330
90 to 94 years	...	41,135	0	-17	-17	-41,152
95 to 99 years	...	18,715	0	-2	-2	-18,717
100 years and older	...	3,835	0	-1	-1	-3,836

Table 2.2
Annual population estimates and factors of demographic growth by age group and sex, 2020/2021[1] - Canada

	Natural increase					
	Births	Deaths	Net interprovincial migration	Net international migration	Total net migration	Total growth
	number					
Males	**184,571**	**160,899**	**0**	**83,261**	**83,261**	**106,933**
-1 year	184,571	813	0	-43	-43	183,715
0 to 4 years	...	202	0	3,568	3,568	3,366
5 to 9 years	...	72	0	4,683	4,683	4,611
10 to 14 years	...	114	0	3,039	3,039	2,925
15 to 19 years	...	523	0	13,169	13,169	12,646
20 to 24 years	...	1,020	0	11,662	11,662	10,642
25 to 29 years	...	1,362	0	12,370	12,370	11,008
30 to 34 years	...	1,509	0	13,446	13,446	11,937
35 to 39 years	...	1,740	0	10,306	10,306	8,566
40 to 44 years	...	1,977	0	5,990	5,990	4,013
45 to 49 years	...	2,873	0	2,508	2,508	-365
50 to 54 years	...	4,570	0	547	547	-4,023
55 to 59 years	...	8,070	0	125	125	-7,945
60 to 64 years	...	11,727	0	415	415	-11,312
65 to 69 years	...	14,844	0	647	647	-14,197
70 to 74 years	...	19,157	0	533	533	-18,624
75 to 79 years	...	20,745	0	201	201	-20,544
80 to 84 years	...	22,309	0	117	117	-22,192
85 to 89 years	...	24,572	0	-13	-13	-24,585
90 to 94 years	...	16,510	0	-8	-8	-16,518
95 to 99 years	...	5,402	0	0	0	-5,402
100 years and older	...	788	0	-1	-1	-789
Females	**174,962**	**146,233**	**0**	**73,242**	**73,242**	**101,971**
-1 year	174,962	645	0	-31	-31	174,286
0 to 4 years	...	156	0	3,313	3,313	3,157
5 to 9 years	...	60	0	4,307	4,307	4,247
10 to 14 years	...	81	0	3,146	3,146	3,065
15 to 19 years	...	244	0	10,048	10,048	9,804
20 to 24 years	...	410	0	6,312	6,312	5,902
25 to 29 years	...	525	0	11,956	11,956	11,431
30 to 34 years	...	669	0	12,418	12,418	11,749
35 to 39 years	...	882	0	8,497	8,497	7,615
40 to 44 years	...	1,134	0	4,629	4,629	3,495
45 to 49 years	...	1,747	0	2,050	2,050	303
50 to 54 years	...	2,840	0	1,077	1,077	-1,763
55 to 59 years	...	5,079	0	1,318	1,318	-3,761
60 to 64 years	...	7,422	0	1,669	1,669	-5,753
65 to 69 years	...	9,661	0	1,323	1,323	-8,338
70 to 74 years	...	13,318	0	768	768	-12,550
75 to 79 years	...	15,489	0	328	328	-15,161
80 to 84 years	...	19,123	0	107	107	-19,016
85 to 89 years	...	25,763	0	18	18	-25,745
90 to 94 years	...	24,625	0	-9	-9	-24,634
95 to 99 years	...	13,313	0	-2	-2	-13,315
100 years and older	...	3,047	0	0	0	-3,047

... not applicable
1. Period from July 1 to June 30.

Note: Preliminary estimates.
Source: Statistics Canada, Centre for Demography.

Table 2.3
Annual estimates of demographic components by age group and sex, 2020/2021[1] — Canada

	Natural increase		Interprovincial migration		International migration				
	Births	Deaths	In-migrants	Out-migrants	Immigrants	Emigrants	Returning emigrants	Net temporary emigrants	Net non-permanent residents
	number								
Both sexes	**359,533**	**307,132**	**286,170**	**286,170**	**226,203**	**29,677**	**8,256**	**5,395**	**-42,884**
-1 year	359,533	1,458	1,984	1,984	97	215	65	38	17
0 to 4 years	...	358	18,744	18,744	9,910	2,089	603	373	-1,170
5 to 9 years	...	132	13,872	13,872	13,678	1,787	458	321	-3,038
10 to 14 years	...	195	10,257	10,257	10,930	1,238	421	213	-3,715
15 to 19 years	...	767	15,149	15,149	7,984	773	553	129	15,582
20 to 24 years	...	1,430	33,653	33,653	23,730	2,465	1,027	458	-3,860
25 to 29 years	...	1,887	50,132	50,132	56,100	4,184	1,069	795	-27,864
30 to 34 years	...	2,178	34,219	34,219	39,083	3,996	784	749	-9,258
35 to 39 years	...	2,622	23,630	23,630	24,482	3,215	611	592	-2,483
40 to 44 years	...	3,111	17,977	17,977	13,949	2,498	562	455	-939
45 to 49 years	...	4,620	13,073	13,073	7,852	1,944	483	350	-1,483
50 to 54 years	...	7,410	12,935	12,935	4,384	1,598	433	281	-1,314
55 to 59 years	...	13,149	12,059	12,059	3,720	1,180	343	203	-1,237
60 to 64 years	...	19,149	9,952	9,952	3,762	827	280	143	-988
65 to 69 years	...	24,505	8,848	8,848	3,108	629	225	115	-619
70 to 74 years	...	32,475	4,499	4,499	1,923	419	157	73	-287
75 to 79 years	...	36,234	2,698	2,698	885	286	102	51	-121
80 to 84 years	...	41,432	1,384	1,384	440	181	60	35	-60
85 to 89 years	...	50,335	772	772	144	108	16	18	-29
90 to 94 years	...	41,135	296	296	37	39	4	3	-16
95 to 99 years	...	18,715	37	37	5	6	0	0	-1
100 years and older	...	3,835	0	0	0	0	0	0	-1
Males	**184,571**	**160,899**	**145,331**	**145,331**	**113,167**	**15,270**	**4,048**	**2,776**	**-15,908**
-1 year	184,571	813	1,058	1,058	51	111	33	20	4
0 to 4 years	...	202	9,857	9,857	5,060	1,067	317	190	-552
5 to 9 years	...	72	6,971	6,971	7,051	911	245	163	-1,539
10 to 14 years	...	114	5,099	5,099	5,634	638	214	110	-2,061
15 to 19 years	...	523	7,381	7,381	4,136	397	270	66	9,226
20 to 24 years	...	1,020	16,877	16,877	11,683	1,289	444	240	1,064
25 to 29 years	...	1,362	25,497	25,497	27,723	2,024	469	382	-13,416
30 to 34 years	...	1,509	17,788	17,788	19,333	1,960	363	364	-3,926
35 to 39 years	...	1,740	12,279	12,279	12,626	1,621	291	300	-690
40 to 44 years	...	1,977	9,570	9,570	7,421	1,331	292	245	-147
45 to 49 years	...	2,873	7,093	7,093	4,165	1,085	269	200	-641
50 to 54 years	...	4,570	6,415	6,415	2,172	891	242	158	-818
55 to 59 years	...	8,070	6,104	6,104	1,641	694	188	121	-889
60 to 64 years	...	11,727	4,927	4,927	1,554	453	146	78	-754
65 to 69 years	...	14,844	4,041	4,041	1,391	314	105	56	-479
70 to 74 years	...	19,157	2,183	2,183	881	205	75	37	-181
75 to 79 years	...	20,745	1,220	1,220	368	132	48	23	-60
80 to 84 years	...	22,309	620	620	217	84	29	16	-29
85 to 89 years	...	24,572	259	259	46	46	8	7	-14
90 to 94 years	...	16,510	85	85	11	16	0	0	-3
95 to 99 years	...	5,402	7	7	3	1	0	0	-2
100 years and older	...	788	0	0	0	0	0	0	-1

Table 2.3
Annual estimates of demographic components by age group and sex, 2020/2021[1] — Canada

	Natural increase		Interprovincial migration		International migration				
	Births	Deaths	In-migrants	Out-migrants	Immigrants	Emigrants	Returning emigrants	Net temporary emigrants	Net non-permanent residents
	number								
Females	**174,962**	**146,233**	**140,839**	**140,839**	**113,036**	**14,407**	**4,208**	**2,619**	**-26,976**
-1 year	174,962	645	926	926	46	104	32	18	13
0 to 4 years	...	156	8,887	8,887	4,850	1,022	286	183	-618
5 to 9 years	...	60	6,901	6,901	6,627	876	213	158	-1,499
10 to 14 years	...	81	5,158	5,158	5,296	600	207	103	-1,654
15 to 19 years	...	244	7,768	7,768	3,848	376	283	63	6,356
20 to 24 years	...	410	16,776	16,776	12,047	1,176	583	218	-4,924
25 to 29 years	...	525	24,635	24,635	28,377	2,160	600	413	-14,448
30 to 34 years	...	669	16,431	16,431	19,750	2,036	421	385	-5,332
35 to 39 years	...	882	11,351	11,351	11,856	1,594	320	292	-1,793
40 to 44 years	...	1,134	8,407	8,407	6,528	1,167	270	210	-792
45 to 49 years	...	1,747	5,980	5,980	3,687	859	214	150	-842
50 to 54 years	...	2,840	6,520	6,520	2,212	707	191	123	-496
55 to 59 years	...	5,079	5,955	5,955	2,079	486	155	82	-348
60 to 64 years	...	7,422	5,025	5,025	2,208	374	134	65	-234
65 to 69 years	...	9,661	4,807	4,807	1,717	315	120	59	-140
70 to 74 years	...	13,318	2,316	2,316	1,042	214	82	36	-106
75 to 79 years	...	15,489	1,478	1,478	517	154	54	28	-61
80 to 84 years	...	19,123	764	764	223	97	31	19	-31
85 to 89 years	...	25,763	513	513	98	62	8	11	-15
90 to 94 years	...	24,625	211	211	26	23	4	3	-13
95 to 99 years	...	13,313	30	30	2	5	0	0	1
100 years and older	...	3,047	0	0	0	0	0	0	0

... not applicable
1. Period from July 1 to June 30.

Note: Preliminary estimates.
Source: Statistics Canada, Centre for Demography.

Methodology

This document describes the concepts, data sources and methodology used to produce the population estimates. Population estimates are produced to measure the population counts according to various characteristics and geographies between two censuses. The demographic estimates are the official population estimates at the national, provincial and territorial levels.

Postcensal estimates are based on the 2016 Census.

Specific information regarding age and sex distributions is provided in boxes.

Population Estimates

Estimates of the total population

Types of estimates

Population estimates can be either intercensal or postcensal. Intercensal estimates are produced using the counts from two consecutive censuses adjusted for census net undercoverage (CNU)[1] and postcensal estimates. The production of intercensal estimates involves updating the postcensal estimates using the counts from a new census adjusted for CNU.[1]

Postcensal estimates are produced using data from the most recent census adjusted for CNU1 and the components of demographic growth. In terms of timeliness, postcensal estimates are more up-to-date than data from the most recent census adjusted for CNU,1 but as they get farther from the date of that census, they become more variable.

Levels of estimates

The production of the population estimates between censuses entails the use of data from administrative files or surveys. The quality of population estimates therefore depends on the availability of a number of administrative data files that are provided to Statistics Canada by Canadian and foreign government departments. Since some components are not available until several months after the reference date, three kinds of postcensal estimates are produced preliminary postcensal (PP), updated postcensal (PR) and final postcensal (PD). The time lag between the reference date and the release date is three months for preliminary estimates and two to three years for final estimates. Though it requires more vigilance on the part of users, the production of three successive series of postcensal estimates is the strategy that best satisfies the need for both timeliness and accuracy of the estimates. All tables indicate the level of the estimates they contain.

Calculation of postcensal population estimates

Population estimates – preliminary, updated and final – are produced by the component method. This method consists of taking the population figures from the most recent census, adjusted for the CNU[1] (census undercoverage minus census overcoverage), and adding or subtracting the number of births, deaths, and components of international and interprovincial migration.

A. Provincial / territorial estimates of total population

Population estimates are produced for the provinces and territories first; then they are summed to obtain an estimate of the population of Canada.

1. In this case, the adjustment for the census net undercoverage also includes the incompletely enumerated Indian reserves (IEIR) and the demographic adjustment (for the estimates by age and sex).

The component-method formula for estimating the total provincial / territorial populations is as follows:

$$P_{(t+i)} = P_{(t)} + B_{(t,t+i)} - D_{(t,t+i)} + I_{(t,t+i)} - \left[E_{(t,t+i)} + \Delta TE_{(t,t+i)} \right] + RE_{(t,t+i)} + \Delta NPR_{(t,t+i)} + \Delta \mathrm{Ninter}_{(t,t+i)} - \mathrm{Resid}_{(t,t+i)}$$

where, for each province and territory:

$(t, t+i)$	=	interval between times t and t+i;
$P_{(t+i)}$	=	estimate of the population at time t+i;
$P_{(t)}$	=	base population at time t (census adjusted for (CNU)[1] or most recent estimate);
B	=	number of births;
D	=	number of deaths;
I	=	number of immigrants;
E	=	number of emigrants;
ΔTE	=	net temporary emigration;
RE	=	number of returning emigrants;
ΔNPR	=	net non-permanent residents;
$\Delta Ninter$	=	net interprovincial migration;
$Resid$	=	residual deviation (for intercensal estimates).

B. Provincial / territorial estimates by age and sex

Population estimates by age and sex are produced by applying the component method to each age-sex cohort in the base population.

At age 0:

$$P^{0}_{(t+1)} = B_{(t,t+1)} - D^{-1}_{(t,t+1)} + I^{-1}_{(t,t+1)} - \left[E^{-1}_{(t,t+1)} + \Delta TE^{-1}_{(t,t+1)} \right] + RE^{-1}_{(t,t+1)} + \Delta NPR^{-1}_{(t,t+1)} + \Delta Ninter^{-1}_{(t,t+1)} - Resid^{-1}_{(t,t+1)}$$

From 1 to 99 years:

$$P^{a+1}_{(t+1)} = P^{a}_{(t)} - D^{a}_{(t,t+1)} + I^{a}_{(t,t+1)} - \left[E^{a}_{(t,t+1)} + \Delta TE^{a}_{(t,t+1)} \right] + RE^{a}_{(t,t+1)} + \Delta NPR^{a}_{(t,t+1)} + \Delta Ninter^{a}_{(t,t+1)} - Resid^{a}_{(t,t+1)}$$

For 100 years and older:

$$P^{100+}_{(t+1)} = P^{99+}_{(t)} - D^{99+}_{(t,t+1)} + I^{99+}_{(t,t+1)} - \left[E^{99+}_{(t,t+1)} + \Delta TE^{99+}_{(t,t+1)} \right] + RE^{99+}_{(t,t+1)} + \Delta NPR^{99+}_{(t,t+1)} + \Delta Ninter^{99+}_{(t,t+1)} - Resid^{99+}_{(t,t+1)}$$

where, for each province and territory:

$(t, t+1)$	=	interval between times t and t+1;
a	=	age;
$P_{(t+1)}$	=	estimate of the population at time t+1;
$P_{(t)}$	=	base population at time t (census adjusted for (CNU)[1], or most recent estimate);
B	=	number of births;
D	=	number of deaths;
I	=	number of immigrants;
E	=	number of emigrants;
ΔTE	=	net temporary emigration;
RE	=	number of returning emigrants;
ΔNPR	=	net non-permanent residents;
$\Delta Ninter$	=	net interprovincial migration;
$Resid$	=	residual deviation (for intercensal estimates).

C. Levels of estimates

The difference between preliminary[2] and final postcensal population estimates lies in the timeliness of the components. When all the components are preliminary, the population estimate is described as preliminary postcensal (PP). When they are all final, the estimate is referred to as final postcensal (PD). Any other combination of levels is referred to as updated postcensal (PR).

Base population and components of demographic growth

A. Base population

The base populations are derived from the quinquennial censuses between 1971 and 2016. The population universe of the 2016[3] Census includes the following groups:

- Canadian citizens (by birth or by naturalization) and immigrants with a usual place of residence in Canada;
- Canadian citizens (by birth or by naturalization) and immigrants who are abroad either on a military base or attached to a diplomatic mission;
- Canadian citizens (by birth or by naturalization) and immigrants at sea or in port aboard merchant vessels under Canadian registry or Canadian government vessels;
- persons with a usual place of residence in Canada who are claiming refugee status and the family members living with them;
- persons with a usual place of residence in Canada who hold study permits and the family members living with them;
- persons with a usual place of residence in Canada who hold work permits and the family members living with them.

2. Unless otherwise noted, the term preliminary include both preliminary and updated estimates.
3. From 1991 to 2001 Census, "persons with a usual place of residence in Canada who hold Minister's permits (including extensions) and members of their families living with them" were included in the census universe.

For census purposes, the last three groups are referred to as non-permanent residents (NPR). They have been included in the census universe since 1991 but foreign residents are not included. Foreign residents are persons who belong to the following groups:

- government representatives of another country attached to the embassy, high commission or other diplomatic body of that country in Canada, and members of their families living with them;
- members of the Armed Forces of another country who are stationed in Canada, and family members living with them;
- residents of another country visiting Canada temporarily (for example, a foreign visitor on vacation or on business, with or without a visitor's permit).

These base populations are adjusted as follows:

- adjustment of the population for CNU;
- addition of independent estimates for incompletely enumerated Indian reserves in 1991, 1996, 2001, 2006, 2011 and 2016;
- adjustment for early enumeration in 1991 and 1996 in parts of Northern Quebec, Newfoundland and Labrador, the Yukon and the Northwest Territories;
- addition of estimates of NPRs in 1971, 1976, 1981 and 1986. Since 1991, NPRs are included in the census universe;
- estimation of the July 1 base population by addition or subtraction of the components of growth between Census Day and June 30;
- demographic adjustment for old age population is an age structure adjustment of censal estimates for 2001, 2006, 2011 and 2016 by sex for each province and territory. An adjustment for the population at age zero is also done for the same period.

Adjustment for the census net undercoverage (CNU)

The adjustment for CNU is important. CNU is the difference between the number of persons who should have been enumerated but were missed (undercoverage) and the number of persons who were enumerated but should not have been or who were counted more than once (overcoverage).

Coverage studies provide undercoverage estimates for the 1991, 1996, 2001, 2006, 2011 and 2016 censuses at the provincial and territorial levels, and for the 1971, 1976, 1981 and 1986 censuses at the provincial level only. Estimates of overcoverage at the provincial and territorial levels are available only for the last six censuses (1991 to 2016). Overcoverage for previous censuses was estimated by assuming that the overcoverage-to-undercoverage ratio for each census between 1971 and 1986 was the same as in 1991. The CNU for the Yukon and the Northwest Territories prior to 1991 was estimated by assuming that the ratio between the CNU for each territory and the 10 provinces for each census between 1971 and 1986 was the same as in 1991.

For consistency, the 1991 Census undercoverage and overcoverage were revised in 1998 to take into account the methodological improvements made in the 1996 Census coverage studies. This revision altered CNU in all censuses between 1971 and 1986. Similarly, the 1996 Census undercoverage and overcoverage were revised in 2003.

Various methods were used to produce the estimates of CNU by age and sex for 1991, 1996, 2001, 2006, 2011 and 2016. First, the national estimates of CNU based on the coverage studies by age and sex were smoothed. Then an Empirical Bayes regression model was used to generate the provincial and territorial estimates of CNU by broad age groups, and a synthetic model produced estimates by single year of age. Lastly, two-way raking[4] was used to ensure that CNU estimates were consistent with the provincial and territorial CNU totals and the national estimates by age and sex.

For the 1971 to 1986 period, CNU estimates by age and sex were simply prorated to the revised CNU estimates for the total population.

Demographic adjustment at age 0

To minimize inconsistencies with vital statistics information, it was decided to adjust the censal population estimates at age 0 to the postcensal estimates at the same age.

Demographic adjustment for very elderly populations

An analysis of the age and sex structure of recent census counts and postcensal population estimates reveals that the very elderly population, particularly people aged 95 and older, can be affected by overestimation or underestimation that coverage studies do not manage to correct. For very elderly populations, the types of errors and their magnitude can vary from one census to another, from misreporting errors (voluntary and involuntary) to data capture and/or process errors.

On 2016 Census Day, postcensal estimates of the number of centenarians, still based on the 2011 Census, were significantly lower than the 2016 Census counts, translating into significant errors of closure. Specifically, among women, the postcensal estimates of the number of centenarians corresponded to only 59% of the 2016 Census counts and, among men, to only 4%. Historically, the enumerated centenarian population has often been overestimated; however, gaps of this size between census counts and postcensal estimates are symptomatic of a defect. This could indicate that the downward adjustment to the 2011 Census counts was too aggressive for the population aged 95 and older, the group that made up the centenarian population in 2016.

When the 2011 Census cycle was rebased, Statistics Canada's Population Estimates Program reviewed its demographic adjustment method for very elderly populations using the extinct cohort method and the survival ratio method. The resulting observations revealed that these approaches, although tested in the scientific literature, are highly sensitive to the choice of certain parameters, such as assumptions on the future evolution of survival rates. This could partially account for the unsatisfactory results recently observed following a comparison of the number of centenarians between the postcensal estimates and the 2016 Census counts.

In light of these findings, the demographic adjustment for very elderly populations for rebasing the 2016 Census cycle used a more holistic strategy to make use of a vast range of available data sources. First, administrative data from the Office of the Chief Actuary of Canada (OCA) as well as from the T1 Family File (T1FF) were considered to compare them with the census counts. Next, we also used the most recent life tables published by Statistics Canada. Using the mortality rates in these tables and deaths, as measured in vital statistics, enabled us to calculate a theoretical population centred on the date of the four most recent censuses. The very elderly populations were also calculated using the extinct cohort method and the survival ratio method, as a point of comparison.

For the entire period from 2001 to 2016, we simulated different scenarios, using the data sources and methods identified in the previous paragraph on their own or combined with others. Next, the age and sex structures produced by each scenario chosen were examined in detail, particularly to detect possible inconsistencies. Special attention was given to evaluating the ratios between men and women, given that the adjustments

4. *Two-way raking* is also referred to as the "Deming method", the "method of iterative proportions", and calibration (see Shryock, Siegel *et al.*, 1976: 547-549).

were calculated independently for each sex. A similar analysis was done on the basis of the probabilities of death calculated for each scenario chosen. Finally, a detailed analysis of errors of closure rounded out the comparative analysis of the scenarios being studied.

For the two most heavily populated provinces in Canada, Ontario and Quebec, the method that performed the best was the one based on the calculation of a theoretical population using data from the life tables and vital statistics. In the other provinces and territories, this method did not perform optimally, likely because the number of observations for deaths in very elderly populations drawn from vital statistics was too limited. The administrative data from OCA helped to produce a more consistent portrait of very elderly populations in terms of their age and sex structure and their death probabilities and generated the biggest error of closure decreases. The universe of these administrative data is more or less the universe of Old Age Security (OAS) program beneficiaries. For Quebec and Ontario, the administrative data from OCA were also used to revise the calculation of potential outliers. The adjusted censal estimate was therefore systematically capped to correspond to the value obtained using administrative data from OCA. This approach is based on the assumption that OCA has very complete data, which are more likely characterized by a very slight overestimation than by underestimation. Similarly, the adjusted censal estimate was systematically replaced by administrative data from the T1FF if the latter were higher than the former. This approach is based on the assumption that the T1FF data are characterized by slightly incomplete coverage, and therefore, constitute a lower limit.

To ensure the best possible consistency of estimates by cohort, the demographic adjustment for very elderly populations was carried out on the 2001, 2006, 2011 and 2016 census populations, by age and sex for each province[5]. These adjustments were performed from age 90 on. The surplus populations were redistributed among the population aged 5 to 74 years, by their relative weight per province or territory and by sex.

The robustness of this new adjustment method will be monitored throughout the 2016 cycle and research to improve its accuracy and coherence will continue.

B. Births and deaths

The numbers of births and deaths are derived directly from the vital statistics database of Statistics Canada's Centre for Population Health Data. Although Statistics Canada manages the National system of vital statistics, the central vital statistics registries of the provinces and territories are responsible for collecting and processing the information from those administrative files. Under provincial / territorial vital statistics statutes (or similar legislation), all live births and all deaths must be registered, and all provinces and territories provide this information to Statistics Canada.

The vital statistics universe applied to the population estimates includes births and deaths occurring in Canada, in which the usual place of residence of either the birth mother or the deceased is Canada. Any death or birth occurring outside of Canada, even if the mother or the deceased is Canadian, is excluded from the vital statistics population.

Vital statistics by province or territory of residence are used to produce our final estimates of births and deaths. However, before 2011, the final estimates may differ from the data released by the Centre for Population Health Data due to the imputation of certain unknown values. In addition, for estimates of deaths, the age represents age at the beginning of the period (July 1st) and not the age at the time of occurrence, as with the Centre for Population Health Data data. The Centre for Population Health Data releases preliminary data that the Centre for Demography will use. However, this data will not be final.

When there are no vital statistics, the number of births is estimated using quarterly fertility rates by the mother's age group. The number of deaths is estimated by using quarterly mortality rates by age group and sex. These methods are used to calculate preliminary[2] estimates.

5. Demographic adjustment was not deemed necessary in the territories.

Special treatment for preliminary[2] estimates for Quebec, British Columbia and Yukon

Quebec, British Columbia and Yukon provide their most recent estimates of births and deaths. The figures are used to produce preliminary[2] estimates. For the final estimates, births and deaths for Quebec and British Columbia are derived from the vital statistics compiled by the Centre for Population Health Data. As of 2017, the total number of births and deaths for Yukon come from their statistical agency.

With regard to the preliminary[2] estimates, the number of births by sex is derived by applying an average proportion by sex for each province and territory to the total births. These proportions are calculated using the births from vital statistics from the past 10 years.

With regard to the preliminary[2] estimates, the number of deaths by age and sex is derived by applying mortality rates by age and sex for each province and territory to the total deaths. These mortality rates are calculated using the deaths from vital statistics from the past 2 final years.

Quebec provides its most recent estimates of births by sex and deaths by age and sex. They are used for the preliminary[2] estimates.

In the absence of births and deaths from vital statistics for Yukon, the 2016 distribution is used to generate births by sex and deaths by age and sex.

Levels of estimates

For information on the differences between preliminary[2] and final estimates, see section **B. Births and Deaths**, above.

C. Immigration

Like the numbers of births and deaths, Canadian immigration statistics must be kept by law. In Canada, immigration is regulated by the *Immigration and Refugee Protection Act* (IRPA) of 2002. This statute superseded the *Immigration Act*, which was passed in 1976 and amended more than 30 times in the years thereafter. Immigration, Refugees and Citizenship Canada (IRCC) collects and processes immigrants' administrative files. It then provides Statistics Canada with information from Global Case Management System (GCMS) files (until December 2010, data come from the Field Operational Support System files (FOSS)). The information is used to estimate the number and characteristics of people granted permanent resident status by the federal government on a given date. For the Centre for Demography, the terms immigrant and permanent resident are equivalent.

An immigrant is a person who is not a Canadian citizen by birth, but has been granted the right to live in Canada permanently by Canadian immigration authorities. The number of immigrants does not include persons born abroad to Canadian parents who are only temporarily outside the country.

Immigrants are usually counted on or after the date on which they are granted permanent resident status or the right to live in Canada.

The estimates of immigrants by age and sex are derived from the Global Case Management System (GCMS).

Levels of estimates

The difference between preliminary[2] and final postcensal estimates lies in the timeliness of the source used to estimate this component. Since the GCMS files are continually being updated, new calculations are carried out each year to update the immigration estimates. Immigration estimates are preliminary the first year and final the second year.

D. Net non-permanent residents

Like the numbers of births and deaths, Canadian immigration statistics must be kept by law. In Canada, the non-permanent residents (NPR) are regulated by the I*mmigration and Refugee Protection Act* (IRPA) of 2002. This statute superseded the *Immigration Act*, which was passed in 1976 and amended more than 30 times in the years thereafter. Immigration, Refugees and Citizenship Canada (IRCC) collects and processes the administrative files of immigrants and NPRs in Canada. It then provides Statistics Canada with information from Global Case Management System (GCMS) files (until June 2011, data come from the Field Operational Support System files (FOSS)). The information is used to estimate the number and characteristics of people granted non-permanent resident status by the federal government.

NPRs are persons who are lawfully in Canada on a temporary basis under the authority of a temporary resident permit, along with members of their family living with them. NPRs include foreign workers, foreign students, the humanitarian population and other temporary residents. The humanitarian population includes refugee claimants and temporary residents who are allowed to remain in Canada on humanitarian grounds and are not categorized as either foreign workers or foreign students. For the Centre for Demography, the terms non-permanent resident and temporary resident are equivalent.

The number of people in IRCC's administrative system is estimated on a specific date in each period of observation. First, the end-of-period number of NPR is estimated, and then the start-of-period number of NPR is subtracted from that estimate. That yields the net NPRs used in the calculation of the population estimates.

Anyone who received non-permanent resident status prior to the observation date is counted. For refugee claimants, the date of their application is used. Permit holders and refugee claimants are excluded from the population if their permit has expired, if they receive permanent resident status, or if they are deported. In addition, refugee claimants are excluded if their file has been inactive for two years.

Since GCMS files are continually being updated, the figures are recalculated each year until the estimates of net NPR are final.

> The estimates of net non-permanent residents by age and sex are derived from the Global Case Management System (GCMS).

Levels of estimates

The difference between preliminary[2] and final estimates lies in the timeliness of the source used to estimate this component. Since the GCMS files are continually being updated, the figures are recalculated each year to update the estimates of the net number of NPRs. Non-permanent resident (NPR) estimates are preliminary the first year and updated the following year. They become final two to three years after the reference year, when all other components are also final.

E. Emigration

The number of emigrants is estimated using data from the Office of Immigration Statistics, U.S. Department of Homeland Security, data collected by the Canada child benefit (CCB) program and data from the T1 Family File (T1FF[6]). The first source is used to estimate emigration to the United States. CCB data are used to estimate emigration to other countries. The estimates of the number of child emigrants have to be adjusted because the CCB is not universal and does not provide direct information on the number of adult emigrants. As a result, four adjustment factors are taken into account:

- incomplete coverage due to a delay in the receipt and processing of the files of children eligible for the CCB. Since it seems to take four years after the reference period for CCB administrative files to become complete, the adjustment is made when the estimates are used before this date. The factor is derived from the two-year ratios of emigrant children based on two versions of the CCB files;

6. The T1 family file (T1FF) is derived from the Canada Revenue Agency (CRA) T1 file by Statistics Canada Centre for Income and Socioeconomic Well-being Statistics.

- the program's partial coverage, that is, people who do not apply for the CCB or who are not eligible. This factor is obtained by comparing the estimated number of children in the population with the number of children in CCB files;
- the differential propensity to emigrate between children who are eligible for the CCB and children who are not. This factor is obtained by comparing the emigration rates of CCB-eligible children with the rates for all children (aged 0 to 17). This factor is calculated for each province and territory and is based on the last three available years of T1FF;[6]
- the differential propensity to emigrate between adults and children. This factor generates the emigration rate for the population aged 18 and over. It is obtained by (1) calculating the average ratio over three years of the adult and child emigration rates based on T1FF[6] data, (2) calculating the average ratio over three years of the adult and child emigration rates based on data from the Office of Immigration Statistics, U.S. Department of Homeland Security, and (3) taking the average of the two rates. This factor is calculated for Canada only.

The adult emigration rate is applied to the adult population. Adult emigration is distributed by province and territory using data from the T1FF[6] file. We calculate a ratio of the number of emigrant adults to the number of emigrant children from the T1FF[6] file. We then apply this ratio to the number of emigrant children from the CCB by province, which yields the number of adult emigrants whose provincial distribution will differ from that of the children.

The number of adult emigrants combined with the number of child emigrants (once adjusted for the coverage and differential emigration factors) generate the number of emigrants for the entire population.

Emigration is disaggregated by province and territory based on the number of child emigrants adjusted for coverage and differential emigration.

Please note that the estimates for the most recent periods are expected to be very similar. In the absence of more up-to-date data sources, the emigration rate of the last available year is applied to the beginning of the year population estimate to be estimated.

The estimates of the emigrants by age and sex are obtained by using the data by five-year age group, sex, province and territory from T1FF[6] files adjusted for the coverage. We distribute these estimates by single year of age using Sprague coefficients.

Levels of estimates

For information on the differences between preliminary[2] and final estimates, see section **E. Emigration**, above.

F. Net temporary emigration

Some people leave Canada to live temporarily in another country while others who were temporarily outside of Canada return. The net result of those departures and returns is the component known as "net temporary emigration". Estimates of the number of departures are derived from the Reverse Record Check (RRC), the most important census coverage study. The RRC provides an estimate of the number of people who left Canada temporarily during an intercensal period and are still out of the country at the end of the period. Estimates of the number of returns are based on two sources: the census and the Centre for Demography estimates of returning emigrants. The census provides the number of people who were outside Canada at the time of the previous census and returned during the intercensal period. That number includes all returning emigrants. Then the Centre for Demography's estimate of the returning emigrants component is subtracted to produce the number of returning temporary emigrants. The estimated numbers of departures (RRC) and returns (census and Centre for Demography) yield an estimate of net temporary emigration.

The five-year net temporary emigration is calculated first at the national level. It is then disaggregated by province or group of provinces based on RRC estimates of temporary emigration. For the Atlantic provinces and the territories, the estimate for the group is disaggregated on the basis of each province / territory's proportion of the group's total population.

This estimate is for the whole intercensal period; it is disaggregated into estimates for each of the five years in the period and then into monthly estimates using a seasonal adjustment that is an average between zero seasonality and the seasonality of emigration.

Net temporary emigration can be estimated only for the intercensal period preceding the most recent census. For the postcensal period, the rate of the last available year (2015/2016) is applied to the beginning of the year population estimate to be estimated.

The age and sex distribution of the net temporary emigration is derived from the emigration age and sex distribution.

Levels of estimates

The difference between preliminary[2] and final estimates lies in the timeliness of the emigration estimate used to calculate the seasonal adjustment for the net temporary emigration. The same estimation method is used.

G. Returning emigrants

A returning emigrant is a person who returns to Canada after having been classified as an emigrant. In a manner similar to the procedure used to calculate the number of emigrants, data from the Canada child benefit (CCB) file from Canada Revenue Agency (CRA) and T1FF[6] file are used to estimate the number of returning emigrants. Adjustment factors are applied to compensate for the fact that the CCB program is not universal, and an adult/child ratio is used to estimate the number of adult returning emigrants. As a result, four adjustment factors are used to take into account:

- incomplete coverage due to a delay in the receipt and processing of the files of children eligible for the CCB. Since it seems to take four years after the reference period for CCB administrative files to become complete, the adjustment is made when the estimates are used before this date. The factor is derived from the two-year ratios of returning emigrant children based on two versions of the CCB files;
- the program's partial coverage, that is, people who do not apply for the CCB or who are not eligible. This factor is obtained by comparing the estimated number of children in the population with the number of children in CCB files;
- the differential propensity to emigrate between children who are eligible for the CCB and children who are not. This factor is obtained by comparing the emigration rates of CCB-eligible children with the rates for all children (aged 0 to 17). This factor is calculated for each province and territory and is based on the last three available years of T1FFs;[6]

1. the adult / child ratio, which is based on the data from the 2016 Census.

Please note that the estimates for the most recent periods are expected to be identical or very similar. In the absence of more up-to-date data sources, the assumption is made that levels remain similar.

The age and sex distribution of returning emigrants is based on the census at the national level. Characteristics of returning emigrants are derived from the census question on location of residence one year ago, after excluding non-permanent residents and immigrants. From 2016/2017, the distribution by age and sex derived from the 2016 Census is used.

Levels of estimates

For information on the differences between preliminary[2] and final estimates, see section **G. Returning emigrants**, above.

H. Interprovincial migration

Interprovincial migration represents movements from one province or territory to another, involving a change in usual place of residence. As is the case for emigration, there is no provision for recording interprovincial migration in Canada. Consequently, such movements have to be estimated using data from the Canada child benefit (CCB) of Canada Revenue Agency (CRA) and T1FF.[6]

Final estimates of interprovincial migration are obtained by comparing addresses indicated on personal income tax returns over two consecutive tax years. However, the migration status of tax filers' dependants has to be imputed. An adjustment is also required to take into account migrants who do not file income tax returns. From 2001/2002 to 2005/2006, the adjustment was slightly modified (for further information, see Wilkinson, 2004). From 2006/2007, this adjustment has been slightly modified (Cyr, 2008 – Internal document).

Since income tax returns are not available at the time preliminary[2] estimates are produced, the estimation of preliminary[2] interprovincial migration is based on CCB administrative files, which provide counts of child migrants (aged 0 to 17) registered to the program. The estimates have to be adjusted later for children who are not registered to the CCB program. Finally, the number of adult migrants is calculated using the number of child migrants and factors derived from the T1FF.[6] As a result, three adjustment factors are used to take into account:

- the program's partial coverage, that is, people who are not registered to the CCB program. This factor is obtained by comparing the estimated number of children in the population with the number of children in CCB files;
- the differential propensity to migrate between children who are registered to the CCB program and children who are not. This factor is obtained by comparing the out-migration rates of children registered to the CCB program with the rates for all children (aged 0 to 17). This factor is calculated for each province and territory and is based on the last available year of T1FF;[6]
- the differential propensity to migrate between adults and children. This factor generates the out-migration rate of the population aged 18 and over for each province / territory of origin and destination. It is obtained by calculating the ratio of the central migration rate for adults to the rate for children. It is estimated using data from the last three available years of T1FF.[6]

The adult migration rate is then applied to the estimated adult population. The number of adult migrants is then added to the number of child migrants to produce the number of interprovincial migrants for the entire population.

Since 2015, the method to estimate the interprovincial migration has been modified. This new method is applied from July 2011 onward. In order to reduce the differences between the preliminary annual series (which was derived from the sum of 12 monthly migration matrices) and the final annual series, CCB microdata have been used. Using microdata is allowing estimating migration for various periods (monthly, quarterly and annually). It also allows improving the comparability between preliminary and final estimates. Final annual estimates (T1FF)[6] are now distributed by quarter on the basis of preliminary[2] quarterly estimates derived from CCB microdata. It is important to note that, as a result of using CCB microdata, it is not possible to add the quarterly interprovincial in-migrants and out-migrants estimates to get the annual estimates. It is however possible to add the quarterly net interprovincial migration estimates to get the annual estimates.

Interprovincial migration by age and sex is derived from T1FF[6] data and counts from the last available census (question on location of residence one year ago). From 2016/2017, the 2016 Census age and sex distribution is used to split the broad age groups of the T1FF[6] file.

Levels of estimates

For information on the differences between preliminary[2] and final estimates of total interprovincial migration, see section **H. Interprovincial migration** above.

Intercensal population estimates

Intercensal estimates – population estimates for reference dates between two censuses – are produced following each census. They reconcile previous postcensal estimates with the new census counts adjusted for the CNU[1].

There are two main steps in the production of intercensal estimates:

- calculation of the error of closure;
- linear distribution of the error of closure.

The error of closure is defined as the difference between the postcensal population estimates on Census Day and the population enumerated in that census adjusted for CNU.[1]

The error of closure is spread uniformly over the intercensal period of days within each month.

Intercensal estimates by age and sex are adjusted in the same way, i.e., by distributing the error of closure uniformly across the age-sex cohorts.

Quality of demographic data

The estimates contain certain inaccuracies stemming from two types of errors:

- errors in the census data;
- imperfections in other data sources and the method used to estimate the components.

Census data

A. Coverage, response and imputation errors

The errors attributable to census data can be divided into two groups: response and processing errors, and coverage errors. The first group implies non-response error, misinterpretation by respondents, incorrect coding and non-response imputation. Errors in the second group primarily result from undercoverage and, to a lesser extent, overcoverage. It should be noted that both types of errors are intrinsic to any survey data.

The coverage errors occur when dwellings and/or individuals are missed, incorrectly included (except for the 2006, 2011 and 2016 censuses, where people incorrectly included were not considered in the Census Overcoverage Study) or counted more than once. Following each census, Statistics Canada undertakes coverage studies to measure these errors. The main studies are the Reverse Record Check Survey (RRC) and the Census Overcoverage Study (COS). Based on these studies, estimates of census undercoverage and overcoverage are produced. The Centre for Demography adjusts the population enumerated in the census by province and territory using these estimates.

When creating base populations, the Demographic Estimates Program (DEP) corrects the census populations only for coverage errors. This correction, which is based on the findings of coverage studies, is primarily subject to sampling errors, and to a lesser extent, processing errors. Statistical tests indicate that coverage adjustments improve the quality of census data. The DEP uses the estimates from coverage studies for the provinces and territories. However, given the size of the samples in these studies, estimates by age and sex are modelled. Furthermore, it is assumed that the coverage rates estimated for a province or territory apply to the regions within that geographic area. Prior to 1993[7], the DEP used census data that was unadjusted for coverage errors. Coverage studies had been done to measure undercoverage, but none measured overcoverage. Following the decision to integrate a correction for the coverage to the enumerated population in 1991, the DEP had to revise the population estimates for the period from 1971 to 1992. The correction is based on the findings of the coverage studies conducted during this period and on hypotheses regarding the ratio between the overcoverage and undercoverage levels based on the findings of subsequent coverage studies.

The corrections to the census data due to CNU improved, in general, the quality of the estimates by compensating for the differential undercoverage by age, sex and by province/territory across censuses.

7. In September 1993, the DEP took advantage of the integration of the 1991 Census counts to produce a series of estimates beginning in 1971 and including census net undercoverage.

Text table 1
Estimated census net undercoverage, Canada, provinces and territories, 2001 to 2016 censuses

Geography	Census population	Census net undercoverage	Incompletely enumerated Indian reserves	Adjusted population	Rate
	A	B	C	D=A+B+C	(B+C)/D*100
	number				percent
2016[1]					
Canada	**35,151,728**	**849,727**	**27,790**	**36,029,245**	**2.44**
Newfoundland and Labrador	519,716	9,774	0	529,490	1.85
Prince Edward Island	142,907	3,464	0	146,371	2.37
Nova Scotia	923,598	17,809	0	941,407	1.89
New Brunswick	747,101	15,735	0	762,836	2.06
Quebec	8,164,361	35,191	11,985	8,211,537	0.57
Ontario	13,448,494	381,542	11,640	13,841,676	2.84
Manitoba	1,278,365	31,895	0	1,310,260	2.43
Saskatchewan	1,098,352	34,844	0	1,133,196	3.07
Alberta	4,067,175	115,968	4,043	4,187,186	2.87
British Columbia	4,648,055	197,267	122	4,845,444	4.07
Yukon	35,874	2,370	0	38,244	6.20
Northwest Territories	41,786	2,939	0	44,725	6.57
Nunavut	35,944	929	0	36,873	2.52
2011[1]					
Canada	**33,476,688**	**759,125**	**37,392**	**34,273,205**	**2.32**
Newfoundland and Labrador	514,536	10,192	0	524,728	1.94
Prince Edward Island	140,204	3,386	0	143,590	2.36
Nova Scotia	921,727	21,911	0	943,638	2.32
New Brunswick	751,171	3,930	0	755,101	0.52
Quebec	7,903,001	73,240	16,882	7,993,123	1.13
Ontario	12,851,821	369,874	14,926	13,236,621	2.91
Manitoba	1,208,268	21,698	608	1,230,574	1.81
Saskatchewan	1,033,381	29,580	768	1,063,729	2.85
Alberta	3,645,257	128,584	4,094	3,777,935	3.51
British Columbia	4,400,057	91,280	114	4,491,451	2.03
Yukon	33,897	1,356	0	35,253	3.85
Northwest Territories	41,462	1,977	0	43,439	4.55
Nunavut	31,906	2,117	0	34,023	6.22
2006[1]					
Canada	**31,612,897**	**868,658**	**40,115**	**32,521,670**	**2.79**
Newfoundland and Labrador	505,469	5,046	0	510,515	0.99
Prince Edward Island	135,851	1,903	0	137,754	1.38
Nova Scotia	913,462	24,558	0	938,020	2.62
New Brunswick	729,997	16,059	0	746,056	2.15
Quebec	7,546,131	60,751	16,600	7,623,482	1.01
Ontario	12,160,282	465,824	15,391	12,641,497	3.81
Manitoba	1,148,401	34,330	0	1,182,731	2.90
Saskatchewan	968,157	22,594	739	991,490	2.35
Alberta	3,290,350	111,353	7,272	3,408,975	3.48
British Columbia	4,113,487	121,551	113	4,235,151	2.87
Yukon	30,372	1,805	0	32,177	5.61
Northwest Territories	41,464	1,620	0	43,084	3.76
Nunavut	29,474	1,264	0	30,738	4.11
2001[1]					
Canada	**30,007,094**	**924,430**	**34,539**	**30,966,063**	**3.10**
Newfoundland and Labrador	512,930	9,401	0	522,331	1.80
Prince Edward Island	135,294	1,325	0	136,619	0.97
Nova Scotia	908,007	24,521	0	932,528	2.63
New Brunswick	729,498	20,095	0	749,593	2.68
Quebec	7,237,479	140,232	12,648	7,390,359	2.07
Ontario	11,410,046	436,349	15,960	11,862,355	3.81
Manitoba	1,119,583	30,903	110	1,150,596	2.70
Saskatchewan	978,933	21,231	581	1,000,745	2.18
Alberta	2,974,807	69,857	4,977	3,049,641	2.45
British Columbia	3,907,738	164,542	263	4,072,543	4.05
Yukon	28,674	1,423	0	30,097	4.73
Northwest Territories	37,360	3,295	0	40,655	8.10
Nunavut	26,745	1,256	0	28,001	4.49

1. The levels and rates are based on the Reverse Record Check (RRC) and the Overcoverage Study and include non-permanent residents.

Source: Statistics Canada, Centre for Demography.

The adjustment also incorporates the results of a study on the estimates of the number of people living on incompletely enumerated Indian reserves to complete the corrections for coverage errors in the census. The results of the coverage studies contain mainly sampling errors.

These adjustments have a direct impact on:

- the error of closure and its distribution by age and sex within a province or a territory as well as by province/territory as the CNU[1] and its distribution vary from one census to another;
- within-cohort consistency of population estimates. If for example, the male cohort of children in age group 0 to 4 in 1981 was tracked up to the 2001 Census (unadjusted for CNU)[1] the age group 20 to 24 would be noticeably smaller in 2001 than the age group 15 to 19 in 1996. Since Canada receives many immigrants within these age groups, the opposite would be expected. However, only after adjustment for CNU,[1] the cohort size increases from 1996 to 2001.

Text table 2
Census adjustment rates by age group, 2001 to 2016 censuses, Canada

	2001	2006	2011	2016
All ages	**3.10**	**2.79**	**2.32**	**2.44**
0 to 4 years	3.38	1.91	0.95	2.14
5 to 9 years	2.18	0.96	-0.25	-0.94
10 to 14 years	1.07	0.95	0.08	-0.36
15 to 19 years	2.93	3.14	2.90	2.90
20 to 24 years	7.09	7.56	6.76	5.98
25 to 29 years	8.26	8.88	8.26	6.97
30 to 34 years	6.38	6.83	6.70	6.09
35 to 39 years	4.62	4.95	4.12	4.66
40 to 44 years	2.70	4.14	2.51	3.55
45 to 49 years	1.49	1.73	1.91	2.93
50 to 54 years	1.33	0.66	0.98	2.36
55 to 59 years	1.14	0.00	0.03	1.53
60 to 64 years	0.69	-0.08	-0.27	0.51
65 to 69 years	0.75	-0.48	-0.41	-0.35
70 to 74 years	0.83	-0.73	-0.52	-0.99
75 to 79 years	0.48	-0.48	-0.51	-1.36
80 to 84 years	0.54	-0.70	-0.51	-1.15
85 to 89 years	0.38	-0.33	-0.49	-0.89
90 to 94 years	-0.14	-3.67	1.48	-0.76
95 to 99 years	-1.99	-7.66	0.91	2.55
100 years and older	-8.27	-6.07	1.42	3.40

Note: The census adjustment represents the sum of census net undercoverage, incompletely enumerated Indian reserves and demographic adjustment
Source: Statistics Canada, Centre for Demography.

For further information regarding the main coverage studies, please see the following document on Statistics Canada's web site: 1996, 2001, 2006, 2011 and 2016 Census Technical Report on Coverage.

Components

Errors due to estimation methodologies and data sources other than the census can also be significant.

A. Births and deaths

Since the law requires the recording of vital statistics, the final estimates for births and deaths data meet very high standards. Nevertheless, since preliminary[2] estimates are derived, they can be slightly different from final estimates.

B. Immigration and non-permanent residents

With respect to immigrants and non-permanent residents, Immigration, Refugees and Citizenship Canada (IRCC) administers special data files on both of these components. Since immigration is controlled by law, data on immigrants and NPRs are compiled upon arrival in Canada. These data represent only "legal" immigration and exclude illegal immigrants. Thus, for the "legal" part of international movement into Canada, the data are considered to be of high quality. However, some biases such as the difference between the stated province of intended residence at the time of arrival and the actual province of residence, may persist. Finally, since information provided by the Visitor Data System (VDS) from IRCC is not complete (age and sex of dependents, province of residence for certain groups of permit holders), estimates of NPRs are more prone to error than data on immigrants.

C. Emigration, returning emigration and net temporary emigration

Of all the demographic components that are used by the DEP, the emigration, returning emigration and net temporary emigration are the most difficult to estimate with precision. Canada does not have a complete border registration system. While immigration and non-permanent residents (NPRs) are well documented by the federal government, Statistics Canada has always used indirect techniques for the estimation of the number of persons leaving the country. For this reason, available statistics regarding these three components have historically been of a lower quality than other components.

Estimates of the number of emigrants and returning emigrants are both derived using Canada child benefit (CCB) data provided by Canada Revenue Agency (CRA). Estimates must be adjusted to take into account the incomplete coverage of the program and to derive the emigration and returning emigration of adults.

These adjustments and the delay in obtaining the data are the two main sources of errors. As current information on the number of persons living temporarily abroad does not exist, estimates are based on the Reverse Record Check (RRC) and the census. Estimates for the intercensal period are distributed equally among the five years. Moreover, assumptions were made to allow for the distribution of national estimates by province and territory and of annual estimates to a quarterly level. Assumptions must also be made to establish the variation for the postcensal period. Any geographical or quarterly variation may introduce error in the estimation of these components.

D. Interprovincial migration

Since July 1993, preliminary[2] interprovincial migration estimates have been based on Canada child benefit (CCB) files. As this program covers only children, various adjustments must be done in order to derive the migration of adults. Consequently, preliminary[2] CCB based estimates are subject to larger error than final estimates derived from Canada Revenue Agency (CRA) tax files.

E. Level of detail of components

As a more detailed breakdown of the data introduces a greater risk of inaccuracy into the estimates, the possibility of error in the components is augmented by the method used to distribute the estimates by age and sex. It seems that, in general, the initial errors should be minimal where the distribution of annual estimates of births, deaths and immigrants is concerned, and more significant with regard to the distribution of other components (non-permanent residents, emigrants, returning emigrants, net temporary emigrants and interprovincial migrants). Finally, the size of error due to the age and sex distribution may vary by period and errors in some components may have a greater impact on a given age group or sex.

Quality assessment

In order to assess the quality of our estimates, two evaluation measures are used: precocity errors and errors of closure.

A. Precocity error

The quality of preliminary estimates of components is evaluated using precocity errors. Precocity error is defined as the difference between preliminary and final estimates of a particular component in terms of its relative proportion of the total population for the relevant geographical area. It can be calculated for both population and component estimates. The precocity error measures the impact of the trade-off of accuracy in favour of timeliness on the estimated population. The annual precocity error of a component is calculated as:

$$PE_{(t-1,t)} = \frac{\left(N^{preliminary}_{(t-1,t)} - N^{final}_{(t-1,t)}\right)}{P^{postcensal}_{(t-1)}} \text{ x } 1{,}000$$

where,

$PE_{(t-1,t)}$ = the precocity error for the period from t-1 to t;

$N^{preliminary}_{(t-1,t)}$ = the preliminary estimate of a component of demographic change;

$N^{final}_{(t-1,t)}$ = the final estimate of a component of demographic change;

$P^{postcensal}_{(t-1)}$ = postcensal estimates of population for the relevant geographical area at time t-1.

Precocity error allows for useful comparisons between components, as well as between provinces and territories or geographical areas of different population size. Precocity error can either be positive or negative. A positive precocity error denotes that the preliminary estimate is larger than the final estimate while a negative precocity error indicates the opposite. As precocity errors measure differences between preliminary and final estimates, small precocity errors refer to those that are close to zero per thousand.

Precocity error by component for Canada

At the national level, the immigration component yielded the smallest precocity errors in absolute numbers, with values close to zero per thousand throughout the years under consideration. On the other hand, interprovincial in-migrants and out-migrants[8] yielded the largest precocity errors in absolute numbers, ranging between 0.17 per thousand and 0.98 per thousand during the period 2016/2017 to 2019/2020 (see Table 3).

8. At the national level, net interprovincial migration equals to zero as the sum of interprovincial in-migrants is equivalent to the sum of interprovincial out-migrants.

Text table 3
Most up-to-date annual precocity errors for components, Canada, provinces and territories

Year/Component	Canada	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
	per thousand													
Births														
2015/2016	0.26	-0.37	-0.62	0.33	0.09	-0.01	0.53	0.48	0.40	0.27	-0.04	-0.24	-0.52	0.57
2016/2017	0.28	0.05	0.42	0.26	0.11	0.00	0.44	0.52	0.24	0.62	-0.05	-0.70	1.48	1.11
2017/2018	0.25	0.68	0.96	0.39	0.20	0.00	0.30	0.05	0.40	0.79	-0.03	0.33	0.22	-0.08
2018/2019	0.26	0.68	0.59	0.53	0.25	0.00	0.39	0.50	0.65	0.42	-0.01	0.62	-0.09	0.58
Deaths														
2015/2016	0.19	0.10	1.41	0.09	0.11	-0.03	0.40	0.19	0.18	0.24	-0.06	0.56	0.00	-0.33
2016/2017	0.12	0.25	0.68	0.28	-0.21	-0.04	0.26	-0.18	0.24	0.19	-0.05	-0.10	-0.49	1.22
2017/2018	-0.10	0.10	-1.23	-0.39	-0.21	-0.04	-0.16	-0.05	0.06	-0.08	-0.05	0.28	0.27	0.35
2018/2019	0.13	0.10	0.47	0.19	0.25	-0.04	0.22	0.32	0.13	0.28	-0.05	-0.20	0.56	-1.18
Immigration														
2016/2017	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017/2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018/2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2019/2020	0.01	0.00	0.02	0.01	0.00	0.00	0.01	0.01	0.00	0.01	0.02	0.00	0.00	0.00
Emigration														
2015/2016	-0.10	-0.06	-0.20	-0.03	-0.05	-0.03	-0.13	-0.06	-0.25	-0.30	0.06	-1.02	0.00	0.11
2016/2017	0.24	-0.01	0.32	0.21	0.29	0.19	0.31	0.29	0.04	0.16	0.28	-1.53	-0.56	0.00
2017/2018	0.52	0.28	0.36	0.07	-0.14	0.39	0.69	0.26	0.33	0.63	0.51	0.66	-0.25	0.05
2018/2019	0.39	0.28	0.04	0.39	0.04	0.35	0.40	0.36	0.04	0.39	0.60	0.39	0.42	0.34
Returning emigration														
2015/2016	-0.06	0.08	0.29	-0.03	0.03	-0.06	-0.09	0.11	-0.06	0.09	-0.19	0.32	0.23	0.00
2016/2017	-0.02	-0.02	-0.23	-0.20	-0.04	-0.07	-0.03	0.00	-0.15	0.19	0.01	-0.26	-0.22	0.00
2017/2018	0.04	-0.08	-0.13	0.08	-0.11	0.07	-0.01	0.13	-0.03	0.05	0.17	0.08	-0.42	0.00
2018/2019	0.05	-0.08	-0.04	0.21	-0.01	0.03	0.05	0.08	0.11	0.01	0.09	-0.07	-0.18	0.39
Net temporary emigration														
2015/2016	-0.23	-0.03	-0.03	-0.02	-0.03	-0.28	-0.45	0.05	-0.25	0.02	0.11	-0.27	-0.18	-0.25
2016/2017	-0.24	-0.03	-0.03	-0.02	-0.03	-0.29	-0.46	0.05	-0.25	0.01	0.10	-0.26	-0.20	-0.24
2017/2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.03
2018/2019	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	0.02	0.00
Net non-permanent residents														
2015/2016	0.07	0.21	0.03	0.33	0.18	0.01	0.17	0.21	0.12	0.14	-0.34	0.05	0.00	-0.03
2016/2017	0.08	0.58	0.76	0.55	0.36	-0.23	0.42	0.50	0.69	0.57	-1.28	-0.91	0.25	0.11
2017/2018	0.09	0.55	0.34	0.64	0.38	-0.41	0.58	0.61	0.41	0.00	-0.78	-0.30	0.16	-0.03
2018/2019	0.08	0.55	-0.87	0.23	0.23	-0.39	0.66	0.70	0.28	-0.05	-0.91	-1.18	-0.73	-0.03
In-migrants														
2016/2017	0.73	0.67	0.98	0.29	1.27	0.30	0.88	-0.01	1.70	1.25	0.49	-2.28	2.69	14.36
2017/2018	0.67	0.92	2.01	1.16	0.92	0.21	0.71	0.36	1.67	1.73	-0.09	7.30	1.31	11.91
2018/2019	0.98	0.92	2.35	1.64	1.46	0.37	0.72	0.68	2.43	3.02	0.43	-0.07	2.73	14.13
2019/2020	-0.17	0.51	-7.65	-1.37	-0.35	0.03	-0.36	-0.33	0.44	0.83	-0.56	-6.46	0.40	12.75
Out-migrants														
2016/2017	0.73	1.66	6.97	2.62	2.95	0.62	-0.01	1.35	1.58	1.15	1.04	15.64	13.04	7.90
2017/2018	0.67	2.67	6.15	1.57	1.61	0.34	0.15	1.90	2.20	0.63	1.17	8.00	12.05	4.85
2018/2019	0.98	2.67	5.82	1.98	2.84	0.25	0.36	2.08	2.64	1.26	1.87	13.94	5.60	10.88
2019/2020	-0.17	-0.53	2.59	0.35	0.76	-0.34	-0.20	-0.04	0.30	-0.21	-0.30	0.07	3.51	7.70
Net interprovincial migration														
2016/2017	…	-0.99	-5.99	-2.33	-1.68	-0.32	0.89	-1.36	0.13	0.10	-0.55	-17.93	-10.35	6.46
2017/2018	…	-1.75	-4.14	-0.41	-0.69	-0.13	0.56	-1.54	-0.53	1.10	-1.26	-0.71	-10.74	7.06
2018/2019	…	-1.75	-3.47	-0.34	-1.38	0.13	0.36	-1.40	-0.21	1.76	-1.44	-14.02	-2.87	3.25
2019/2020	…	1.05	-10.24	-1.72	-1.11	0.38	-0.17	-0.29	0.14	1.05	-0.25	-6.53	-3.11	5.05

... not applicable
Source: Statistics Canada, Centre for Demography.

Precocity errors for births were positive for the entire period under consideration, ranging from 0.25 per thousand in 2017/2018 to 0.28 per thousand in 2016/2017. Precocity errors for deaths were positive for the first two years of the given time period, with a value of 0.19 per thousand in 2015/2016, then 0.12 per thousand in 2016/2017, were negative at -0.10 per thousand in 2017/2018, then positive once again in 2018/2019 with a value of 0.13 per thousand.

Precocity errors for emigration and returning emigration were mostly positive. During the years under consideration, precocity error in absolute number for emigration was lowest in 2015/2016 at 0.10 per thousand and largest in 2017/2018 at 0.52 per thousand. For returning emigration, the absolute values ranged from 0.02 per thousand in 2016/2017 to 0.06 per thousand in 2015/2016. In 2015/2016, the precocity error for net temporary emigration was -0.23 and it was -0.24 in 2016/2017. In 2017/2018 and 2018/2019 it was close to zero.

Precocity error for net non-permanent residents over the period 2015/2016 to 2018/2019 ranged from 0.07 in 2015/2016 to 0.09 in 2017/2018.

Precocity error by component for provinces and territories

In general, precocity error is typically more prone to higher volatility for smaller provinces or territories as it is an error measurement relative to population size. At the provincial and territorial level, precocity errors for births in absolute numbers ranged from close to zero per thousand (Quebec from 2016/2017 to 2018/2019)[9] to 1.48 per thousand (the Northwest Territories in 2016/2017). Similar to births, precocity errors for deaths were mostly positive. Over the years, the largest precocity error in absolute number for deaths was 1.41 per thousand (Prince Edward Island in 2015/2016).

Compared to other demographic components, precocity errors for immigration were low among the provinces and territories. The largest absolute error value was 0.02 per thousand in Prince Edward Island and in British Columbia in 2019/2020. Otherwise, the precocity error values for all provinces and territories for each year from 2016/2017 to 2019/2020 was close to zero per thousand (except in Prince Edward Island in 2016/2017, and Nova Scotia, Ontario, Manitoba, and Alberta in 2019/2020 when it was 0.01).

Precocity errors in absolute numbers for the net change in the number of non-permanent residents were less than or equal to 1.28 per thousand across the provinces and territories, during the years 2015/2016 to 2018/2019.

Precocity errors in absolute numbers for emigration ranged from the lowest at close to zero per thousand (Northwest Territories in 2015/2016 and Nunavut in 2016/2017) to the largest at 1.53 per thousand (Yukon in 2016/2017). Absolute precocity errors for returning emigration ranged from close to zero per thousand for some years in Manitoba and Nunavut to 0.42 per thousand for the Northwest Territories in 2017/2018. Precocity errors for net temporary emigration were negative during the years 2015/2016 and 2016/2017, except for Manitoba, Alberta and British Columbia. The precocity errors were close to zero per thousand for all provinces and territories in 2017/2018, except for Nunavut, where it was -0.03 per thousand and in 2018/2019, except for Prince Edward Island where it was -0.01 per thousand, Yukon where it was -0.02 per thousand, and the Northwest Territories were it was 0.02 per thousand.

Precocity errors for interprovincial in-migrants and out-migrants were mostly positive during the years under consideration, meaning that final estimates were mostly lower than preliminary estimates. Precocity errors for these two components were comparatively larger at the territorial level than for the provinces mainly due to the smaller population size of the territories.

At the provincial level, the largest absolute precocity error value for net interprovincial migration was 10.24 per thousand (Prince Edward Island in 2019/2020), while the smallest was 0.10 per thousand (Alberta in 2016/2017). At the territorial level, precocity errors for net interprovincial migration were comparatively higher, the smallest absolute precocity error was 0.71 per thousand (Yukon in 2017/2018) and the largest was 17.93 per thousand (Yukon in 2016/2017).

Contribution of components to the sum of precocity errors

When looking at aggregated estimates of precocity errors, there is the potential for a “netting-out” effect, referring to negative precocity errors in one component canceling out positive errors in another component. The analysis of the contribution of each component to the sum of precocity errors without the netting-out effect can be done by using absolute values of the precocity errors. A mean absolute percentage precocity error by component is calculated by dividing the mean absolute precocity error by component by its sum and expressed in percentage. In this case, the mean absolute precocity error by component is the mean of the absolute precocity errors for the 2014/2015 to 2018/2019 period, the latest 5-year period that annual precocity errors by all components are available.

9. As mentioned in the Methodology Section, the provincial statistical agencies of Quebec, British Columbia, and Yukon provide their most recent estimates of births and deaths to Statistics Canada. The figures are used to produce preliminary estimates.

At the national level, the mean absolute precocity error for the total emigration[10] component contributed the most to the sum of mean absolute precocity errors (49.56%), followed by births (25.38%) and deaths (12.70%) between 2014/2015 and 2018/2019. Immigration (2.00%) and net non-permanent residents (10.36%) accounted the least to the sum of mean absolute precocity errors (refer to Table 4).

Text table 4
Mean absolute percentage precocity error by components[1], 2014/2015 to 2018/2019, Canada, provinces and territories

	Births	Deaths	Immigration	Total emigration[2]	Net non-permanent residents	Net interprovincial migration
				percent		
Canada	25.38	12.70	2.00	49.56	10.36	0.00
Newfoundland and Labrador	13.63	8.11	0.21	9.72	13.92	54.41
Prince Edward Island	8.65	11.51	0.26	6.16	7.28	66.16
Nova Scotia	13.04	9.52	0.61	12.16	14.54	50.14
New Brunswick	7.18	12.90	0.41	12.24	11.99	55.28
Quebec	1.49	3.41	1.19	51.13	23.92	18.86
Ontario	18.43	11.50	0.76	30.91	19.61	18.78
Manitoba	13.07	6.61	1.61	15.48	17.13	46.10
Saskatchewan	19.35	9.47	1.85	23.11	20.61	25.60
Alberta	16.49	5.48	1.04	15.00	9.62	52.36
British Columbia	1.23	1.87	1.00	19.02	33.82	43.05
Yukon	3.99	2.62	0.08	9.36	4.88	79.07
Northwest Territories	6.59	3.56	0.11	8.85	3.51	77.38
Nunavut	7.46	10.96	0.00	5.61	0.73	75.23

1. Figures in percent may not add up to 100% as a result of rounding.
2. Total emigration includes emigration, returning emigration and net temporary emigration.

Source: Statistics Canada, Centre for Demography.

At the provincial and territorial level, the contribution of individual component to the sum of mean absolute precocity errors was not uniform across the country. Net interprovincial migration accounted for the largest share of the sum of mean absolute precocity errors in eleven out of the thirteen provinces and territories, ranging from 25.60% in Saskatchewan to 79.07% in Yukon. In Quebec (51.13%) and Ontario (30.91%), it is total emigration that explains the largest share of the mean absolute precocity errors (refer to Table 4).

On the other hand, immigration accounted for the smallest share of the sum of mean absolute precocity errors in all provinces and territories, ranging from close to zero in Nunavut to 1.85% in Saskatchewan.

Precocity errors by age and sex are not currently available.

B. Error of closure

The error of closure measures the accuracy of the final postcensal estimates. It is defined as the difference between the final postcensal population estimates on Census Day and the enumerated population of the most recent census adjusted for census net undercoverage (CNU[1]). A positive error of closure means that the postcensal population estimates have overestimated the population.

The error of closure comes from three sources: errors primarily due to sampling when measuring the starting (2011) and end of period (2016) censuses coverage and errors related to the components of population growth over the intercensal period. For each five-year intercensal period, the error of closure can only be calculated following the release of census data and estimates of CNU.[1] The error of closure can be calculated for the total population of each province and territory as well as by age and sex. For the moment, the error is only available for total population by province and territory.

10. Mean absolute percentage precocity error for total emigration includes the mean absolute percentages for emigration, returning emigration and net temporary emigration.

Text table 5 shows postcensal population estimates on May 10, 2016 and census counts adjusted for CNU[1] and the errors of closure for Canada, provinces and territories from 2001 to 2016.

For Canada as a whole, the error of closure was estimated at 110,310 or 0.31% in 2016. This is a decrease over the error for 2011 (0.42%).

The population estimates overestimated the population of eight provinces, one territory and Canada as a whole. Five provinces posted errors of closure greater than 1% or less than -1%. Of these jurisdictions, only British Columbia's estimated population differed from the adjusted census population by more than 2% (-2.07%). In 2011, four provinces and two territories posted errors of closure greater than 1% or less than -1%.

By considering the variance in CNU, it is possible to identify errors of closure that are statistically significant. Text table 5 shows the results of this analysis.

The error of closure is statistically significant for Canada and seven provinces. This means that the population estimates significantly overestimated or underestimated the adjusted census population in these jurisdictions. As noted above, these results are due to both the sampling for census coverage studies and errors in the components of population growth over the intercensal period. Among these components, interprovincial migration and emigration are mostly associated with large errors of closure.

Text table 5
Error of closure of the population estimates, Canada, provinces and territories, 2001 to 2016

	Postcensal estimate on Census Day	Census adjusted for CNU[1]	Error of closure		CNU standard error[2]	t value[3]
	A	B	C=A-B	D=C/B*100	E	F=C/E
Geography	number			percent	number	
2016						
Canada	**36,139,555**	**36,029,245**	**110,310**	**0.31**	**43,844**	**2.52**
Newfoundland and Labrador	530,465	529,490	975	0.18	2,015	0.48
Prince Edward Island	149,116	146,371	2,745	1.88	870	3.16
Nova Scotia	948,080	941,407	6,673	0.71	3,042	2.19
New Brunswick	756,736	762,836	-6,100	-0.80	2,777	-2.20
Quebec	8,297,802	8,211,537	86,265	1.05	20,613	4.18
Ontario	13,902,359	13,841,676	60,683	0.44	33,316	1.82
Manitoba	1,313,904	1,310,260	3,644	0.28	4,829	0.75
Saskatchewan	1,145,156	1,133,196	11,960	1.06	4,651	2.57
Alberta	4,231,285	4,187,186	44,099	1.05	13,530	3.26
British Columbia	4,745,041	4,845,444	-100,403	-2.07	16,561	-6.06
Yukon	37,927	38,244	-317	-0.83	191	-1.66
Northwest Territories	44,667	44,725	-58	-0.13	257	-0.23
Nunavut	37,017	36,873	144	0.39	229	0.63
2011						
Canada	**34,417,759**	**34,273,205**	**144,554**	**0.42**	**57,546**	**2.51**
Newfoundland and Labrador	513,622	524,728	-11,106	-2.12	2,912	-3.81
Prince Edward Island	145,759	143,590	2,169	1.51	923	2.35
Nova Scotia	948,457	943,638	4,819	0.51	5,346	0.90
New Brunswick	756,547	755,101	1,446	0.19	3,335	0.43
Quebec	7,968,651	7,993,123	-24,472	-0.31	23,660	-1.03
Ontario	13,345,467	13,236,621	108,846	0.82	44,121	2.47
Manitoba	1,251,999	1,230,574	21,425	1.74	6,104	3.51
Saskatchewan	1,055,858	1,063,729	-7,871	-0.74	6,306	-1.25
Alberta	3,774,557	3,777,935	-3,378	-0.09	18,046	-0.19
British Columbia	4,543,807	4,491,451	52,356	1.17	19,494	2.69
Yukon	35,356	35,253	103	0.29	303	0.34
Northwest Territories	44,139	43,439	700	1.61	323	2.17
Nunavut	33,540	34,023	-483	-1.42	608	-0.79

Text table 5
Error of closure of the population estimates, Canada, provinces and territories, 2001 to 2016

	Postcensal estimate on Census Day	Census adjusted for CNU[1]	Error of closure		CNU standard error[2]	t value[3]
	A	B	C=A-B	D=C/B*100	E	F=C/E
Geography	number			percent	number	
2006						
Canada	**32,553,799**	**32,521,670**	**32,129**	**0.10**	**53,926**	**0.60**
Newfoundland and Labrador	508,874	510,515	-1,641	-0.32	2,710	-0.61
Prince Edward Island	137,746	137,754	-8	-0.01	701	-0.01
Nova Scotia	933,692	938,020	-4,328	-0.46	4,885	-0.89
New Brunswick	748,737	746,056	2,681	0.36	3,105	0.86
Quebec	7,644,701	7,623,482	21,219	0.28	24,077	0.88
Ontario	12,657,808	12,641,497	16,311	0.13	41,363	0.39
Manitoba	1,176,744	1,182,731	-5,987	-0.51	6,469	-0.93
Saskatchewan	987,706	991,490	-3,784	-0.38	4,805	-0.79
Alberta	3,357,637	3,408,975	-51,338	-1.51	16,091	-3.19
British Columbia	4,296,518	4,235,151	61,367	1.45	16,591	3.70
Yukon	31,146	32,177	-1,031	-3.20	194	-5.31
Northwest Territories	42,160	43,084	-924	-2.14	236	-3.92
Nunavut	30,330	30,738	-408	-1.33	176	-2.32
2001						
Canada	**31,016,011**	**30,966,063**	**49,948**	**0.16**	**44,749**	**1.12**
Newfoundland and Labrador	533,712	522,331	11,381	2.18	1,782	6.39
Prince Edward Island	138,102	136,619	1,483	1.09	775	1.91
Nova Scotia	941,533	932,528	9,005	0.97	4,170	2.16
New Brunswick	754,180	749,593	4,587	0.61	3,555	1.29
Quebec	7,390,137	7,390,359	-222	0.00	21,033	-0.01
Ontario	11,873,643	11,862,355	11,288	0.10	33,472	0.34
Manitoba	1,149,561	1,150,596	-1,035	-0.09	5,423	-0.19
Saskatchewan	1,016,762	1,000,745	16,017	1.60	4,333	3.70
Alberta	3,051,245	3,049,641	1,604	0.05	11,308	0.14
British Columbia	4,068,196	4,072,543	-4,347	-0.11	15,598	-0.28
Yukon	29,737	30,097	-360	-1.20	372	-0.97
Northwest Territories	41,152	40,655	497	1.22	362	1.37
Nunavut	28,051	28,001	50	0.18	411	0.12

1. Census net undercoverage includes the incompletely enumerated Indian reserves.
2. Census net undercoverage excludes the incompletely enumerated Indian reserves.
3. An error of closure with a t value greater than 1.96 or less than -1.96 is statistically significant at the 95% confidence level.

Source: Statistics Canada, Centre for Demography.

The error of closure can be calculated for total population estimates and for age and sex.

Text table 6
Error of closure of the estimates of population by age and sex, 2016, Canada

	Both sexes		Male		Female	
	number	percent	number	percent	number	percent
All ages	**110,310**	**0.31**	**46,349**	**0.26**	**63,961**	**0.35**
0 to 4 years	-6,932	-0.36	-955	-0.10	-5,977	-0.63
5 to 9 years	-22,391	-1.12	-5,447	-0.54	-16,944	-1.73
10 to 14 years	-34,237	-1.79	-11,105	-1.14	-23,132	-2.46
15 to 19 years	-13,941	-0.67	-9,851	-0.91	-4,090	-0.41
20 to 24 years	75,634	3.17	21,255	1.71	54,379	4.75
25 to 29 years	43,111	1.75	-2,018	-0.16	45,129	3.77
30 to 34 years	32,547	1.31	7,727	0.62	24,820	2.01
35 to 39 years	36,817	1.53	27,234	2.29	9,583	0.79
40 to 44 years	-409	-0.02	8,378	0.72	-8,787	-0.74
45 to 49 years	-19,783	-0.81	-3,663	-0.30	-16,120	-1.32
50 to 54 years	-29,205	-1.06	-9,376	-0.68	-19,829	-1.45
55 to 59 years	-18,258	-0.69	-3,759	-0.28	-14,499	-1.08
60 to 64 years	-15,130	-0.66	-394	-0.03	-14,736	-1.26
65 to 69 years	-1,060	-0.05	2,821	0.30	-3,881	-0.38
70 to 74 years	21,606	1.54	6,827	1.01	14,779	2.02
75 to 79 years	22,059	2.19	6,915	1.49	15,144	2.79
80 to 84 years	12,374	1.67	2,968	0.92	9,406	2.25
85 to 89 years	13,578	2.84	4,376	2.38	9,202	3.13
90 to 94 years	7,159	3.23	2,226	3.26	4,933	3.21
95 to 99 years	5,908	10.19	1,905	14.13	4,003	8.99
100 years and older	863	10.13	285	20.85	578	8.08

Source: Statistics Canada, Centre for Demography.

Explanatory notes for the tables

Text table 7
Annual population estimates and factors of demographic growth

Period	Population at beginning period	Natural increase	Net interprovincial migration	Net international migration	Total net migration	Total growth
2016/2017	PD	D	D	D	D	D
2017/2018	PD	D	D	D	D	D
2018/2019	PD	D	D	D	D	D
2019/2020	PD	R	D	R	R	R
2020/2021	PR	P	P	P	P	P
2021/2022	PP	…	…	…	…	…
Modified since[1]	2016/2017	2016/2017	2019/2020	2018/2019	2018/2019	2016/2017

… not applicable

[1]Modified since indicates the year from which the data were revised since the last release. Last year's data were not modified as they are released for the first time.

Note: D: Final estimates. PD : Final postcensal estimates. R : Updated estimates. PR : Updated postcensal estimates. P : Preliminary estimates. PP : Preliminary postcensal estimates.
Source: Statistics Canada, Centre for Demography.

Text table 8
Annual estimates of components of demographic growth

Period	Births	Deaths	In-migrants	Out-migrants	Immigrants	Emigrants	Returning emigrants	Net temporary emigrants	Net non-permanent residents
2016/2017	D	D	D	D	D	D	D	D	D
2017/2018	D	D	D	D	D	D	D	D	D
2018/2019	D	D	D	D	D	D	D	D	D
2019/2020	R	R	D	D	D	R	R	R	R
2020/2021	P	P	P	P	P	P	P	P	P
Modified since[1]	2016/2017	2016/2017	2019/2020	2019/2020	2019/2020	2018/2019	2018/2019	2018/2019	2018/2019

[1]Modified since indicates the year from which the data were revised since the last release. Last year's data were not modified as they are released for the first time.

Note: D: Final estimates. R: Updated estimates. P: Preliminary estimates.
Source: Statistics Canada, Centre for Demography.

Appendix A – Glossary

Age
Age as of July 1.

Aging (of a population)
An increase in the **number of old persons** as a percentage of the total population.

Average age
The average age of a population is the average age of all its members.

Census coverage
Census net undercoverage: Difference between undercoverage and overcoverage.

Overcoverage: Number of persons who should not have been counted in the census or who were counted more than once.

Undercoverage: Number of persons who were intended to be enumerated in a census but were not.

Cohort
Represents a group of persons who have experienced a specific demographic event during a given year. In the cast of births, persons born within a specified year are referred to as a generation.

Components of demographic growth
Any of the classes of events generating population movement variations. Births, deaths and migrations are the components responsible for the variation since they alter either the total population or the age and sex distribution of the population.

Demographic dependency ratio
The **ratio of the combined population** aged from **0 to 14 years old** and the population **aged 65 years** and older to the population aged from **15 to 64 years old**.

Emigrant
Canadian citizen or **immigrant** who has left Canada to establish a residence in another country, involving a change in usual place of residence. Emigration may be either temporary or permanent. Where the term is used alone, it references to a person's permanent emigration which involves severing residential ties with Canada and acquiring permanent residency in another country.

Error of closure
Difference between the **postcensal estimate** at the census date and the results of the census adjusted for **census net undercoverage** (including adjustment for incompletely enumerated Indian reserves).

Generation
Unless otherwise specified, refers here to a group of persons born within a given period. The 2001 generation represents people born during the year 2001.

Immigrant
Within the framework of this publication, the terms immigrant, landed immigrant and permanent resident are equivalent. An immigrant refers to a person who is or has ever been a landed immigrant (permanent resident) and who has been granted the right to live in Canada permanently by immigration authorities. Immigrants are either Canadian citizens by naturalization (the citizenship process) or permanent residents under Canadian legislation. Some immigrants have resided in Canada for a number of years, while others have arrived recently. Most immigrants are born outside Canada, but a small number are born in Canada. Also, children born in other countries to parents who are Canadian citizens that reside temporarily in another country are not included in the category as they become Canadian citizens at birth.

International migration
International migration represents movement of population between Canada and a foreign country which involves a change in the usual place of residence. A distinction is made with regard to **immigrants**, **emigrants**, **returning emigrants**, **net temporary emigration** and **net non-permanent residents**.

Interprovincial migration
Interprovincial migration represents all movement from one province or territory to another involving a change in the usual place of residence. A person who takes up residence in another province or territory is an **out-migrant** with reference to the province or territory of origin and an **in-migrant** with reference to the province or territory of destination.

Median age
The median age is an age "x", such that exactly one half of the population is older than "x" and the other half is younger than "x".

Natural increase
Variation in the population size over a given period as a result of the difference between the numbers of births and deaths.

Net international migration
Net international migration is obtained according to the following formula: **Immigrants** + **returning emigrants** + **net non-permanent residents** – (**emigrants** + **net temporary emigrants**).

Net interprovincial migration
Net interprovincial migration represents the difference between **in-migrants** and **out-migrants** for a given province or territory.

Net non-permanent residents
Net non-permanent residents represent the variation in the number of non-permanent residents between two dates.

Non-permanent residents
A non-permanent resident is a person who is lawfully in Canada on a temporary basis and who holds a work, study or other (excluding visitor visas) permit issued for that person along with members of their family living with them. This group also includes individuals who seek refugee status upon or after their arrival in Canada and remain in the country pending the outcome of processes relative to their claim. Note that Immigration, Refugees and Citizenship Canada uses the term temporary resident rather than non-permanent resident.

Net temporary emigration
Net temporary emigration represents the variation in the number of temporary emigrants between two dates. Temporary emigration includes Canadian citizens and **immigrants** living temporarily abroad who have not maintained a usual place of residence in Canada.

Population
Estimated population and population according to the census are both defined as being the number of Canadians whose usual place of residence is within that area, regardless of where they happened to be on Census Day. Also included are any Canadians staying in a dwelling in that area on Census Day and having no usual place of residence elsewhere in Canada, as well as those considered **non-permanent residents**.

Population estimate

a. **Postcensal:** Population estimate produced by using data from the most recent available census adjusted for **census net undercoverage** (including adjustment for incompletely enumerated Indian reserves) and estimate of the **components of demographic growth** since that last census. This estimate can be preliminary, updated or final.
b. **Intercensal:** Population estimate derived by using **postcensal estimates** and data adjusted for **census net undercoverage** (including adjustment for incompletely enumerated Indian reserves) of censuses preceding and following the year in question.

Population growth or total growth
Variation of population size between two dates. It can also be obtained by summing the **natural increase**, **total net migration** and if applicable, subtract **residual deviation**. It can be positive or negative.

Precocity error
Difference between preliminary and final estimate in terms of its relative proportion of the total population for the relevant geographical area. It can be calculated for either population estimates or components of population growth.

Rate

Refers to the ratio of the number of events estimated in a year (t, t+1) to the average populations at the beginning and the end of the period. In this regard, births, deaths, immigration rates, etc are calculated. Generally, the rates are expressed in per 1,000.

Census net undercoverage of population rate: Difference between the census undercoverage rate and the census overcoverage rate.

Demographic growth rate or population growth rate: Ratio of population growth between the year t and t+1, to the average **population** of both these years. The rate is generally expressed in per 1,000.

Overcoverage of population rate: The ratio of the number of persons who should not have been counted in the census or who were counted more than once to the total number of persons that should have been enumerated in the census. Generally, the rate is expressed in percentage.

Undercoverage of population rate: The ratio of the estimated number of persons not enumerated in the census (who were intended to have been enumerated) to the total number of persons that should have been enumerated in the census. Generally, the rate is expressed in percentage.

Residual deviation
Difference between demographic **population growth** calculated using **intercensal estimates** of population between two dates and that obtained by the sum of the components for the same period. This deviation results from the distribution of the **error of closure** (based on the number of days) over the months related to the five-year period.

Returning emigrant
Canadian citizen or **immigrant** having previously emigrated from Canada and subsequently returned to the country.

Sex ratio
The ratio of the number of men to the number of women. This is not to be confused with the sex ratio at birth, which is the ratio of the number of live-born boys to the number of live-born girls. This ratio is usually expressed as an index, with the number of females taken to be a base of 100.

Sprague coefficients

Series of factors which, when multiplied to a population distributed by multiples age groups, give a distribution of the same population by single years of age.

Total net migration
Sum of **net international** and **net interprovincial** migration.

Vital statistics
Includes all the demographic events (births, deaths, marriages and divorces) for which there are a legal requirement to inform the Provincial or Territorial Registrar's Office.

Year
Unless otherwise specified, the term "year" refers to the period beginning July 1 of a given year and ending June 30 of the following year.

Appendix B – Sources and remarks

Base population:

May 10, 2016 Census of Population adjusted for census net undercoverage and incompletely enumerated Indian reserves.

2016 Census: Statistics Canada, Census of Canada, 2016, Catalogue no. 98-501-X.

Census net undercoverage: See The Daily, September 27, 2018.

Incompletely enumerated Indian reserves: See The Daily, September 27, 2018.

Births and deaths

Statistics Canada, the Centre for Population Health Data.

Statistics Canada, the Centre for Demography, Catalogue no. 91-215-X, annual.

Births
Fertility rates for 2020 based on preliminary count of births by age group of the mother provided by the Centre for Population Health Data applied to the female population estimates by age group at the beginning of the quarter. Births for Quebec, British Columbia and Yukon were provided by their respective agencies.

Note: Following an assessment of unreleased data from the National Routing System (NRS) on births, it was decided not to make an adjustment to the current method of estimating the number of births for the first and second quarters of 2021 in the current release. From the information available, it was impossible to determine with certainty the existence of an impact strictly due to the COVID-19 pandemic. We will continue to analyze the data over the coming months and revisit our decision in the next release.

Deaths
Mortality rates for 2019 based on preliminary count of deaths by age group and sex provided by the Centre for Population Health Data applied to the population estimates by age group and sex at the beginning of the quarter. Deaths for Quebec, British Columbia and Yukon were provided by their respective agencies.

Note: For the provinces and territories where the usual method was adjusted (data from Quebec, British Columbia, and Yukon were not adjusted), the number of deaths was estimated from two sources: the provisional death counts from the Centre for Population Health Data (CPHD) when available, and the usual method with the addition of the number of COVID-19 deaths as published by the Public Health Agency of Canada (PHAC) when CPHD data were not available.

The age and sex structure of deaths was adjusted to account for COVID-19 using CPHD data when available and by the usual method when CPHD data were not available. Data for Quebec were not adjusted.

Immigration

Estimates are based on the immigrant files provided by Immigration, Refugees and Citizenship Canada (IRCC) received on August 17, 2021.

Note: No adjustments related to COVID-19 were made to the usual estimating method as IRCC data were received as usual and were of normal quality.

Emigration

The estimates are produced by the Centre for Demography using:

- data from Canada Revenue Agency (CRA) Canada child benefit files (CCB) program. The last year of data used is 2018/2019

- tax data calculated using T1FF file provided by Statistics Canada Centre for Income and Socioeconomic Well-being Statistics. The last year of data used was 2018/2019
- data provided by the U.S. Department of Homeland Security, Office of Immigration Statistics. The last year of data used was 2018/2019
- data on the number of adult and children emigrants from T1FF file used for the provincial distribution of adults. The last year of data used was 2018/2019.

For estimates after 2018/2019, we:

- calculated the 2018/2019 emigration rate for Canada
- applied this rate to Canada's population on July 1st at the beginning of the period to be estimated
- distributed the number of emigrants for Canada by the province and territory according to the provincial distribution of 2018/2019
- distributed these data by month according to the provincial or territorial emigration seasonality of 2018/2019.

Note: An adjustment was made to the usual estimation method in order to take into account the travel restrictions, in Canada and in other countries, imposed within the COVID-19 context. The adjustment was applied from March 2020 to June 2021. It was calculated using the number of immigrant visas in the United States issued from U.S. consulates in Canada. The ratio between the number of immigrant visas from the United States and preliminary estimates of emigration for 2017, 2018 and 2019 was applied to the number of issued visas from March 2020 to June 2021. This adjustment resulted in lower estimates of emigration for March 2020 and a marked decrease from April to December 2020. Adjusted data show a relative recovery beginning in January 2021, especially in the second quarter.

Returning emigration

The estimates are produced by the Centre for Demography using:

- data from Canada Revenue Agency (CRA) Canada child benefit files (CCB) program. The last year of data used was 2018/2019
- 2016 Census – 1 year mobility.

For estimates after 2018/2019, we:

- calculated the 2018/2019 returning emigration rate for Canada
- applied this rate to Canada's population on July 1st at the beginning of the period to be estimated
- distributed the number of returning emigrants for Canada by the province and territory according to the provincial distribution of 2018/2019
- distributed these data by month according to the provincial or territorial returning emigration seasonality of 2018/2019.

Note: Adjustments were made to the usual estimation method in order to take into account the travel restrictions, in Canada and in other countries, imposed within the COVID-19 context. The adjustments were applied from March 2020 to June 2021. It was calculated using two alternative sources: the number of entries in the country of Canadian citizens living abroad as given by the Frontier Counts data for Canadian airports with Primary Inspection Kiosks (PIK) and registered individuals in the Register of Canadians Abroad (ROCA). The adjustment was done in two parts. First, the monthly ratios between the number of PIK entries and preliminary estimates of returning emigration for 2018 and 2019 were applied to the number of entries of March 2020 to June 2021. Second, monthly ratios of the number of persons registered in ROCA returning to Canada and the number of entries from PIK from 2018 and 2019 were calculated. The monthly variations between the average ratios of 2018 and 2019 and those of 2020 were applied to the results of the first step. These adjustments resulted in a marked increase of the number of returning emigrants in March and April 2020 and a decrease in the following months.

Net temporary emigration

The intercensal estimates are produced by the Centre for Demography using:

- data from the Reverse Record Check (RRC) of the 2016 Census
- 2016 Census – question on the place of residence 5 years ago
- estimates of returning emigrants for 2011 to 2016 intercensal period.

For the postcensal estimates, we:

- calculated the 2015/2016 net temporary emigration rate for Canada
- applied this rate to Canada's population on July 1st at the beginning of the period to be estimated
- distributed the result for the year into monthly estimates using an applied seasonality that is an average between zero seasonality and the seasonality of emigration
- distributed by province and territory the monthly estimates according to the provincial distribution of the intercensal data.

Note: An adjustment was made to the usual estimation method in order to take into account the travel restrictions, in Canada and in other countries, imposed within the COVID-19 context. The adjustment was applied from March 2020 to June 2021. Temporary departures and returns were adjusted independently. Temporary departures were adjusted in the same way as emigration but using non-immigrant visas from the United States. Temporary returns were adjusted in a similar way as returning emigration but by using individuals who were abroad for 180 to 364 days in ROCA. This adjustment resulted in a strong decrease in the estimates of net temporary emigration for March and April 2020 and a diminution after. We observe some level of recovery beginning in autumn 2020.

Net non-permanent residents

The estimates are produced by the Centre for Demography using the Global Case Management System (GCMS) files from IRCC. These files, received on August 17, 2021, document the number of permit holders and asylum claimants.

Note: No adjustments related to COVID-19 were made to the usual estimating method as IRCC data were received as usual and were of normal quality.

Interprovincial migration

The estimates are produced by the Centre for Demography using:

- adjusted migration data for children from Canada child benefit (CCB) program from Canada Revenue Agency (CRA)
- factors ($_{j}G$) corresponding to the ratio of the migration rate of all children to the migration rate of who are registered to the CCB program children calculated using 2019/2020 tax file data
- factors ($_{jk}F$) used to calculate adult migration and corresponding to the ratio of the adult to child migration rates, calculated on a three-year basis using tax file data for 2017/2018, 2018/2019 and 2019/2020.

Notes: Due to a change in methodology, we remind you that the in- and out- interprovincial migrants cannot be summed in order to obtain a different period (for example, the sum of the quarterly estimates is not equal to the annual estimates). This method has been applied starting with July 2011.

No adjustments related to COVID-19 were made to the usual estimating method.

Related products

Publications

91-003-X	Canadian Demographics at a Glance
91-209-X	Report on the Demographic Situation in Canada
91-214-X	Annual Demographic Estimates: Subprovincial Areas
91-215-X	Annual Demographic Estimates: Canada, Provinces and Territories
91-520-X	Population Projections for Canada, Provinces and Territories
91-528-X	Population and Family Estimation Methods at Statistics Canada

Tables

17-10-0005-01	Population estimates on July 1st, by age and sex
17-10-0006-01	Estimates of deaths, by age and sex, annual
17-10-0008-01	Estimates of the components of demographic growth, annual
17-10-0009-01	Population estimates, quarterly
17-10-0014-01	Estimates of the components of international migration, by age and sex, annual
17-10-0015-01	Estimates of the components of interprovincial migration, by age and sex, annual
17-10-0016-01	Estimates of births, by sex, annual
17-10-0020-01	Estimates of the components of interprovincial migration, quarterly
17-10-0021-01	Estimates of the components of interprovincial migration, annual
17-10-0022-01	Estimates of interprovincial migrants by province or territory of origin and destination, annual
17-10-0040-01	Estimates of the components of international migration, quarterly
17-10-0060-01	Estimates of population as of July 1st, by marital status or legal marital status, age and sex
17-10-0045-01	Estimates of interprovincial migrants by province or territory of origin and destination, quarterly
17-10-0061-01	Estimates of the number of census families as of July 1st
17-10-0059-01	Estimates of the components of natural increase, quarterly
13-10-0708-01	Deaths, by month
13-10-0709-01	Deaths, by age group and sex
13-10-0415-01	Live births, by month
13-10-0416-01	Live births, by age of mother
13-10-0417-01	Mean age of mother at time of delivery (live births)
13-10-0418-01	Crude birth rate, age-specific fertility rates and total fertility rate (live births)
13-10-0710-01	Deaths and mortality rates, by age group

Surveys

3231	Statistics Canada, Canadian Vital Statistics - Birth database (CVSB)
3233	Statistics Canada, Canadian Vital Statistics - Death database (CVSD)
3601	Quarterly Demographic Estimates (QDE)
3604	Annual Demographic Estimates: Canada, Provinces and Territories
3605	Estimates of population, by marital status or legal marital Status, age and sex for July 1st, Canada, provinces and territories
3606	Estimates of the number of census families for July 1st, Canada, provinces and territories