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The contribution of immigration to the size and ethnocultural diversity of future cohorts of seniors

by Yves Carrière, Laurent Martel, Jacques Légaré and
Jean-François Picard

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

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Overview of the study

This article analyzes the impact of immigration on the size and ethnocultural composition of future cohorts of seniors in Canada, using data from the Population Estimates Program, the Population Projections Program and other sources of demographic data.

- Among people born in Canada between 1937 and 1941, 19% did not live to the age of 65. Among those born between 1997 and 2011, the percentage of deaths by age 65 is projected to be approximately 6%, due to increased life expectancy.

- Because of immigration, the population at age 65 of individuals born between 1937 and 1941 was 36% higher than the population level that would have been expected with mortality alone. If current immigration levels were to continue, this proportion could reach 73% for individuals born between 1997 and 2001 when they reach their 60s.

- The contribution of immigration is expected to be lower among individuals born between 1957 and 1961 (during the baby-boom). At age 65, their projected population size may be only 28% higher than the size that would be expected with mortality alone.

- At age 65, about 1 in 4 people belonging to the 1957 to 1961 cohort could be born abroad. By comparison, this proportion could be close to 1 in 2 for those born between 1997 and 2001.

- At age 65, about 17% of people born between 1957 and 1961 could belong to a visible minority group. This proportion could rise to almost 50% for people born between 1997 and 2001 when they reach that age.

Introduction

The aging of the population has recently accelerated in Canada. Since 2011, the number of people aged 65 and over increased by 4.0% per year on average, while the corresponding annual growth rate was 2.2% on average over the two previous decades. According to all scenarios included in Statistics Canada's most recent population projections,[1] this number should continue to increase at an average rate of 3.5% over the next 20 years.

In large part, the aging of Canada's population that will happen between now and 2031 is related to the fact that the baby-boom cohort (born between 1946 and 1965) is presently turning 65. The baby boom was followed by a significant drop in birth rates (the baby bust), as the number of births fell from a peak of 479,000 in 1959 to just over 343,000 in 1973. Such declines in the size of the cohorts at birth suggests that the population aging projected over the next decades is mainly related to the aging of baby boomers.

However, immigration helps to mitigate the differences in the size of the various cohorts between the ages of 0 and 65. In countries with sustained immigration such as Canada, this may have a significant impact on the size of certain cohorts.

In addition to having an effect on cohort size, immigration also contributes to the ethnocultural diversity of the population if the characteristics of immigrants are different from those of the host population.

The purpose of this article is to quantify the effect of immigration on the size of the various cohorts between the ages of 0 and 65, and to project the ethnocultural diversity of Canada's senior population in the future. This study could therefore inform policies and programs regarding the behaviour of future seniors, particularly in relation to, for example, retirement or health care services and home support services. Understanding these trends is necessary for planning the services that could be important to Canada's future senior population.
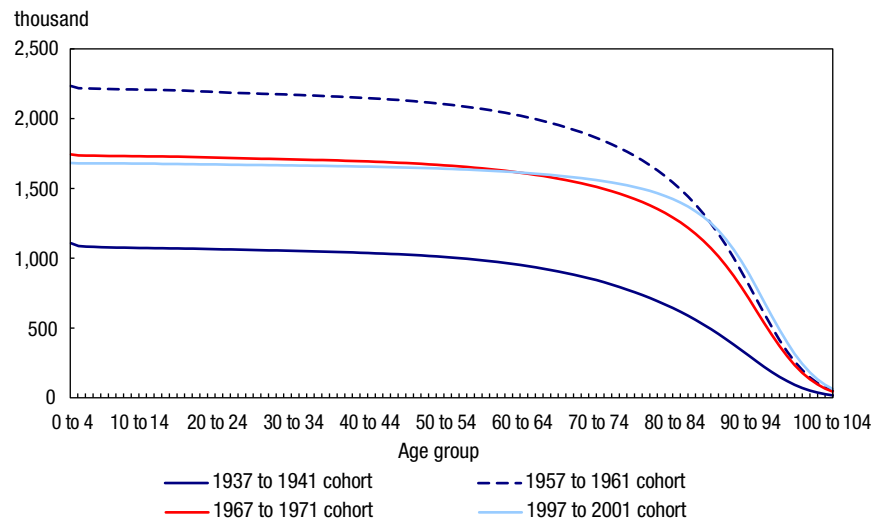
The results are based on various data sources that include Vital Statistics, statistics from Immigration, Refugees and Citizenship Canada, and data from the Population Estimates Program and the Population Projections Program—including the Demosim microsimulation model (see *Data sources, methods and definitions*). The results shown in this study are coming from the medium growth scenario (or reference scenario). For each projection result, however, the results from the low and high growth scenarios are shown in a footnote at the end of the document in order to reflect the uncertainty related to any projection exercice.

Chart 1
Number of births in Canada, 1926 to 2011

thousand
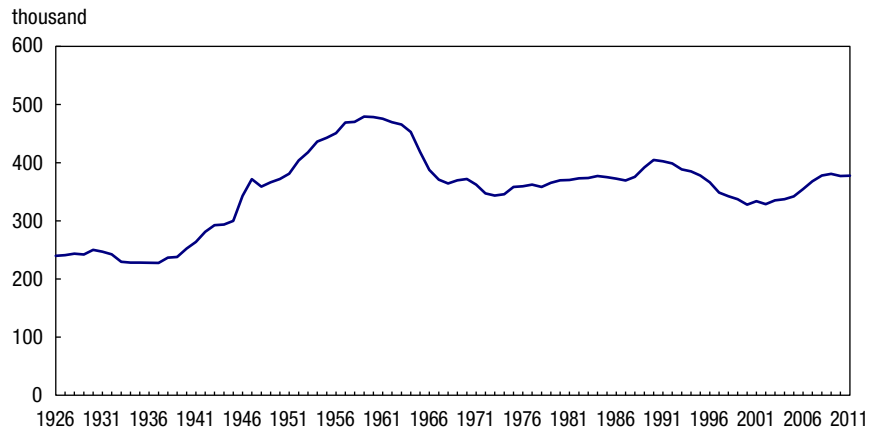
Source: Statistics Canada, Vital Statistics, 1926 to 2011.

Chart 2
Estimated survival curves between birth and age 100 for native-born Canadians, various cohorts

thousand

Age group

——— 1937 to 1941 cohort   - - - - 1957 to 1961 cohort
——— 1967 to 1971 cohort   ——— 1997 to 2001 cohort

Sources: Statistics Canada, Demography Division, Population Estimates Program and Population Projections Program.

Variation in the size of cohorts at birth

The number of births in Canada—and thus the size of cohorts at birth—has fluctuated considerably since 1926, particularly during the 1940s, 1950s and 1960s (Chart 1).

The size of the cohort of Canadians born between 1937 and 1941 was approximately 1.2 million at birth. It increased to more than 1.8 million births between 1947 and 1951, and then to nearly 2.4 million births between 1957 and 1961—the largest cohort observed during the period. In comparison, the size of the 1967 to 1971 cohort—corresponding to a period of declining birth rates in Canada—was significantly smaller, at approximately 1.8 million. The size of the 1997 to 2001 cohort (the most recent one studied) was even smaller, at 1.7 million—partly because of lower fertility around the turn of the century.[2]

The large changes observed in the size of the various cohorts of people born during the 1940s, 1950s and 1960s can be related to the fact that, internationally, Canada experienced one of the most significant baby booms during the post-war years. During that period, Canada had one of the highest total fertility rate (number of children per woman) of all G8 countries.

The decline in birth rates that followed was also significant, as fertility fell from a record level of 3.94 children per woman in 1959 to 1.83 in 1974, only 15 years later.

The decrease in mortality slightly reduces the differences between cohorts

By definition, mortality has an influence on the size of cohorts between birth and age 65, by convention the age at which individuals are reaching their senior years. During the 20th century in Canada, however, mortality had less of an impact on recent cohorts (which were smaller in size). In other words, their size was less affected than earlier cohorts by the number of deaths occurring between ages 0 and 65.

This phenomenon can be illustrated with the survival curves of various cohorts obtained in the context of a closed population (i.e., with only mortality having an impact on their size) (Chart 2).[3]

The results show that by age 65, 19% of those born between 1937 and 1941 had disappeared as a result of mortality only. This proportion, however, is projected to be 13%[4] for the 1957 to 1961 cohort, and could be no more than 6%[5] for those in the most recent cohort (individuals born between 1997 and 2001).

Furthermore, both the 1997 to 2001 cohort and the 1967 to 1971 cohort could be similar in size at age 60.[6] This is because mortality will have a larger impact on the latter between ages 0 and 60, despite having a larger size at birth.

Chart 3
Number of immigrants and immigration rate, 1852 to 2014
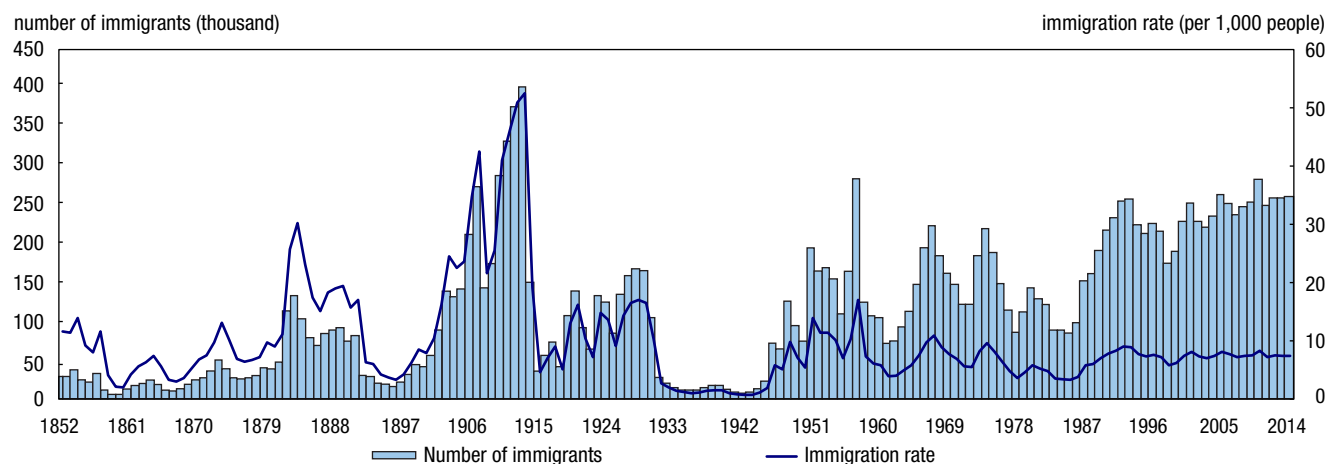
Sources: Immigration, Refugees and Citizenship Canada (Facts and Figures 2014); Statistics Canada, Demography Division, Population Estimates Program.

## The impact of immigration varies from one cohort to another

Aside from mortality, the other factor that has an influence on cohort size is immigration. This is particularly true in Canada, where immigration levels have been constant over the past 70 years.[7] Although the number of immigrants and the immigration rate have fluctuated a great deal since 1852, they have remained relatively high since the end of the Second World War (Chart 3). Between 1946 and 2014, Canada admitted an average of 172,000 immigrants per year, for an immigration rate of 7.2 per 1,000 residents.

Since the end of the 1980s, immigration has nonetheless been characterized by higher levels (an average of over 235,000 immigrants per year) and less year-over-year variations. The extent to which immigration contributes to cohort size could therefore be different, depending on when a particular cohort reaches the age corresponding to higher immigration levels (around 30 years old in Canada).[8]

For example, the first children of the baby boom—born between 1946 and 1956—turned 30 between 1976 and 1986, a period during which the number of immigrants admitted to Canada each year was among the lowest since 1946.

It is thus anticipated that the impact of immigration on the size of the baby-boom cohort between the ages of 0 and 65 will be smaller than for more recent cohorts. In other words, while the boomer cohorts were more numerous at birth than

Chart 4.1
Change in the number of individuals born between 1937 and 1941, by age
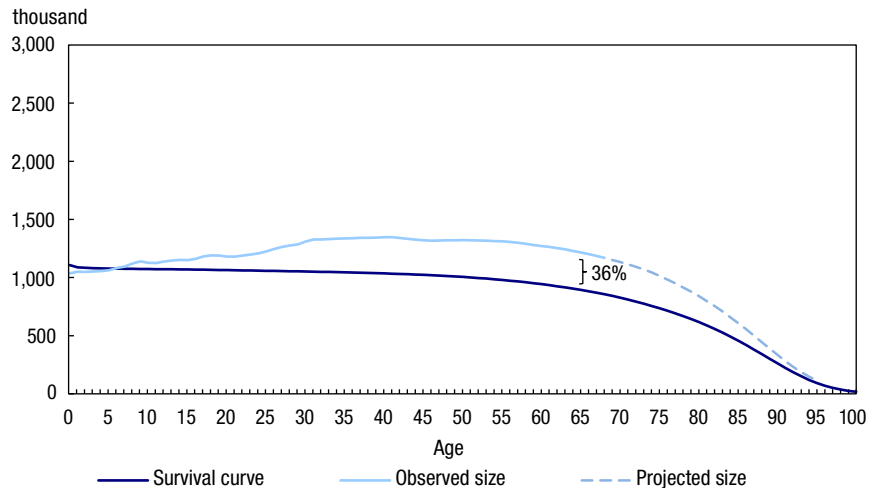
thousand

Sources: Statistics Canada, Demography division, Population Estimates Program and Population Projections Program, medium growth scenario (M1).
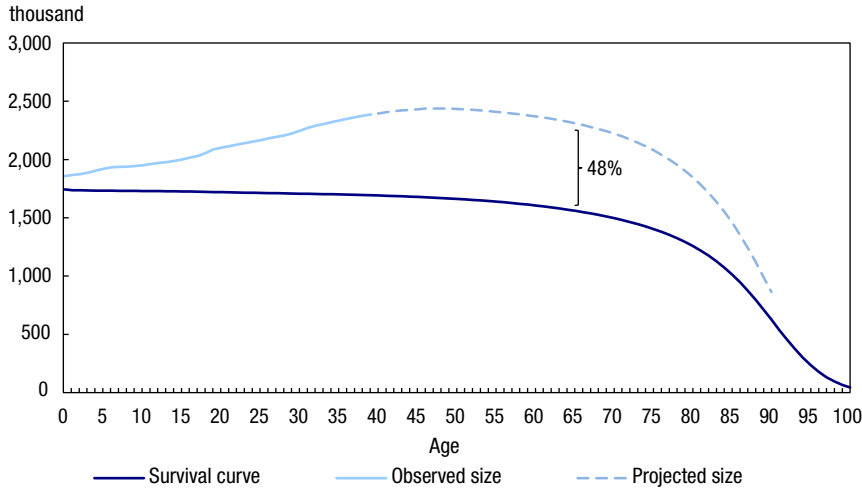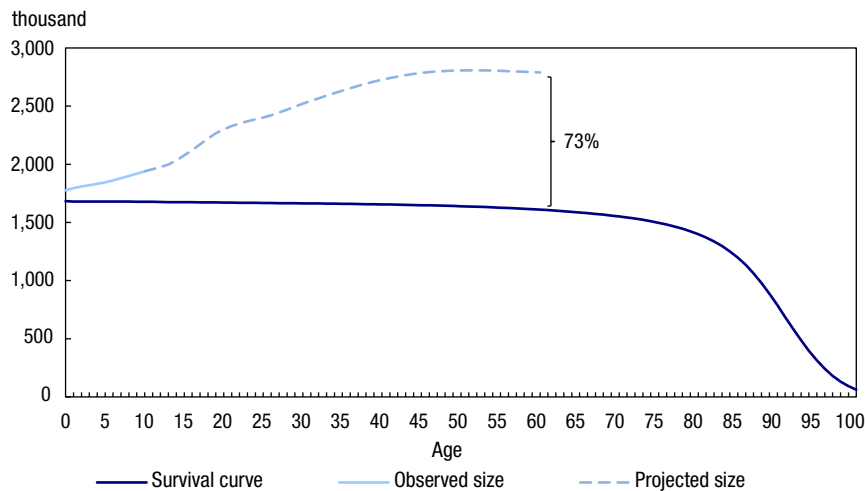
Chart 4.2
Change in the number of individuals born between 1957 and 1961, by age
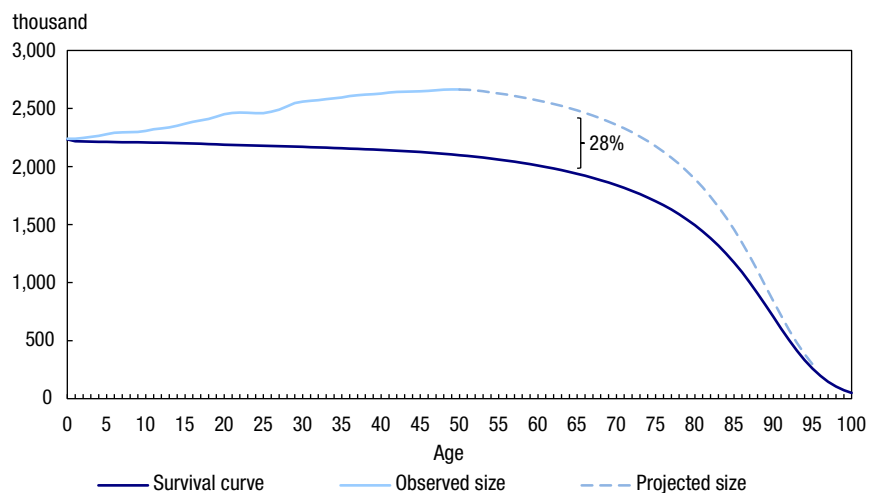
thousand

Sources: Statistics Canada, Demography division, Population Estimates Program and Population Projections Program, medium growth scenario (M1).

Chart 4.3
Change in the number of individuals born between 1967 and 1971, by age

thousand

Sources: Statistics Canada, Demography division, Population Estimates Program and Population Projections Program, medium growth scenario (M1).

Chart 4.4
Change in the number of individuals born between 1997 and 2001, by age

thousand

Sources: Statistics Canada, Demography division, Population Estimates Program and Population Projections Program, medium growth scenario (M1).

subsequent cohorts, the more recent cohorts could eventually catch up with them as they benefited more from immigration.

It is possible to examine the impact of mortality and immigration on changes in the size of four cohorts of the 20th century—those born between 1937 and 1941 (before the baby boom); between 1957 and 1961 (peak of the baby boom); between 1967 and 1971 (during the period when birth rates were declining); and between 1997 and 2001 (the most recent cohort used in this study).

Among those born between 1937 and 1941, for instance, the size of the cohort at age 65 was 36% higher than what might have been expected had mortality been the only determining factor (Charts 4.1 to 4.4).

The impact of immigration on size clearly varied across cohorts. In general, the impact was smaller for older cohorts, and larger for recent cohorts.

For the 1967 to 1971 cohort, the size at age 65 is projected to be 48%[9] higher than the size that would be expected with mortality as the only factor. This compared with only 28%[10] for the largest cohort— those born between 1957 and 1961. For the most recent cohort—people born between 1997 and 2001—the size could be 73%[11] higher if current immigration trends were to continue in the coming years.

The observed and projected sizes of the various cohorts discussed above can be examined in a chart

(Chart 5), providing a snapshot of the changing older population in the coming decades.

The results indicate that even though the size of the 1997 to 2001 cohort was significantly smaller than the 1957 to 1961 (baby-boom) cohort at birth, it is anticipated that the size of the two cohorts could be similar by age 35 (according to all population growth scenarios).

In addition, when individuals in the most recent cohort (1997 to 2001) will turn 60, their numbers could exceed the projected number of individuals born between 1957 and 1961 at the same age (according to all scenarios). This suggests that the growth of the older population could continue even after the period in which the baby-boomers turn 65. People born between 1997 and 2001 will turn 65 in the mid-2060s.

Canada's older population to become increasingly diverse

The different impact of immigration on the size of the various cohorts at ages 0 to 65 could also mean that successive cohorts of seniors will not share the same characteristics.

The proportion of foreign-born people should remain fairly similar between the 1947 to 1951 cohort (currently in their mid-60s) and the 1957 to 1961 cohort (according to all scenarios). In both cases, individuals born outside of Canada should make up slightly more than one-quarter of the population of their respective cohorts at age 65 (Chart 6).[12] In other words, the more numerous baby-boom cohorts could be less diversified.

If, however, the next decades continue to be characterized by present day trends in immigration

Chart 5
Observed and projected sizes of various cohorts, by age
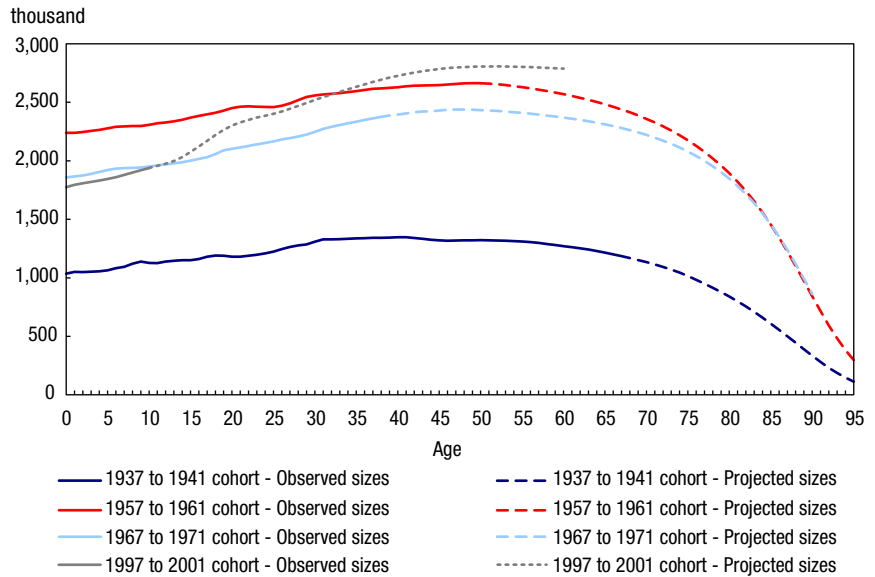
Source: Statistics Canada, Demography division, Population Estimates Program and Population Projections Program, medium growth scenario (M1).

Chart 6
Projected proportion of foreign-born people, various cohorts at age 65
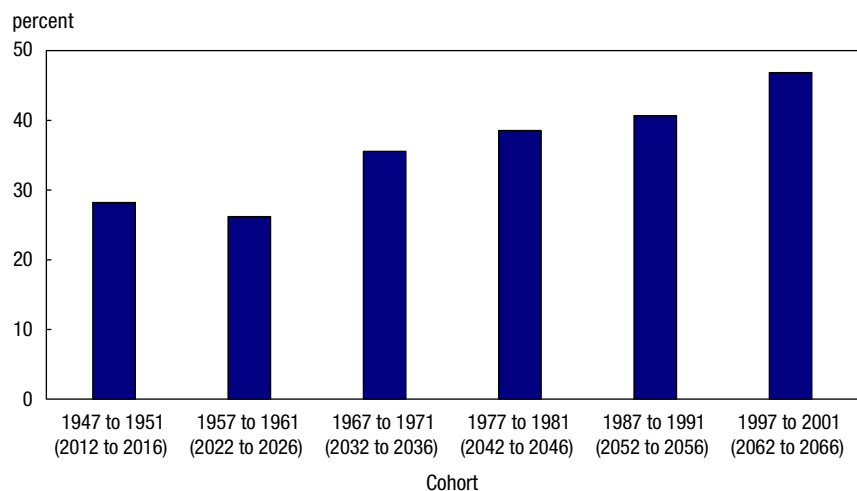
Source: Statistics Canada, Demography Division, special tabulations from Demosim, reference scenario.

levels and composition, close to 47%[13] of the 1997 to 2001 cohort could be composed of individuals born outside of Canada when they will turn 60.

This proportion could be at least 36% (or just over 1 in 3 people)[14] among those born between 1967 and 1971—a period characterized by declining birth rates. When the people from this generation will turn 65 in the 2030s, the ethnocultural diversity of Canada's older population should grow. This could also translate into major changes in the birthplace of people born outside of Canada (Chart 7).

The proportion of individuals aged 65 who were born in Europe should decrease rapidly, from the older cohorts up to the 1957 to 1961 cohort. Conversely, the proportion of people aged 65 who were born in Asia should increase significantly, starting with the 1957 to 1961 cohort (according to all scenarios).

The 1947 to 1951 cohort could therefore be the last (at age 65) with a higher proportion of European-born than Asian-born individuals. By contrast, in the 1967 to 1971 cohort and in subsequent cohorts as well, Asia would represent the most common continent of birth for people born outside Canada and aged 65 (according to all scenarios).
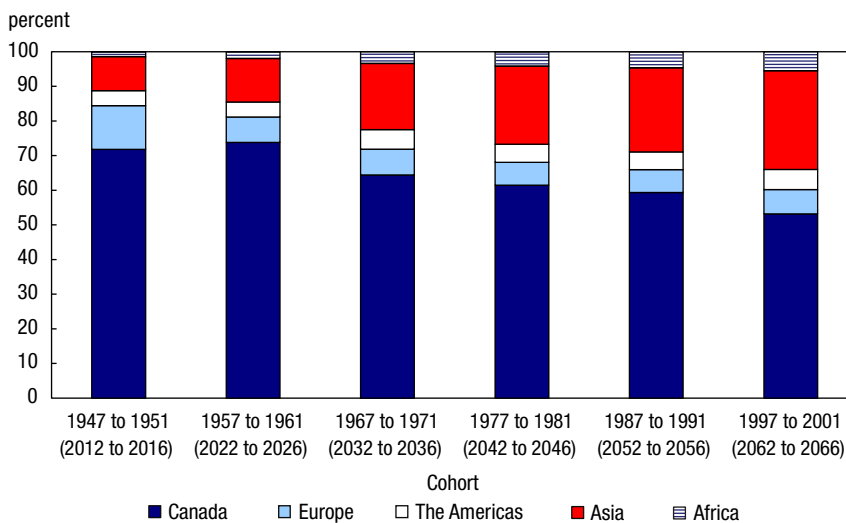
This transition from immigration that is primarily European in origin to immigration that is mainly from Asia will contribute to another transformation of the

sociodemographic characteristics of the older population in the future—specifically, the share of those who belong to a visible minority group.

The proportion of individuals who belong to a visible minority group at age 65 could increase only marginally between the 1947 to 1951 and the 1957 to 1961 cohorts (from 13% to 17%)[15], because these two baby-boom cohorts have been less influenced by immigration (Chart 8).

In comparison, when the 1967 to 1971 cohort will turn 65, this proportion could increase quickly and could reach 1 in 4 within this cohort (26%)[16] and possibly even close to 1 in 2 (44%)[17] for the most recent cohort (people born between 1997 and 2001).

Conclusion

The results presented in this article show that in a country with a sustained level of immigration, the size of various cohorts can vary considerably between ages 0 and 65.

It is true that population aging will accelerate until 2031, as the larger baby-boom cohorts will reach 65. Despite having a smaller size at birth, however, younger cohorts will also contribute to the aging of the population in the future, because the size of these cohorts will be sustained by immigration and by a lower mortality.

With more people born aboard, the ethnocultural characteristics of the more recent cohorts at age 65 will differ from the characteristics of older cohorts, thereby contributing to a significant increase in ethnocultural
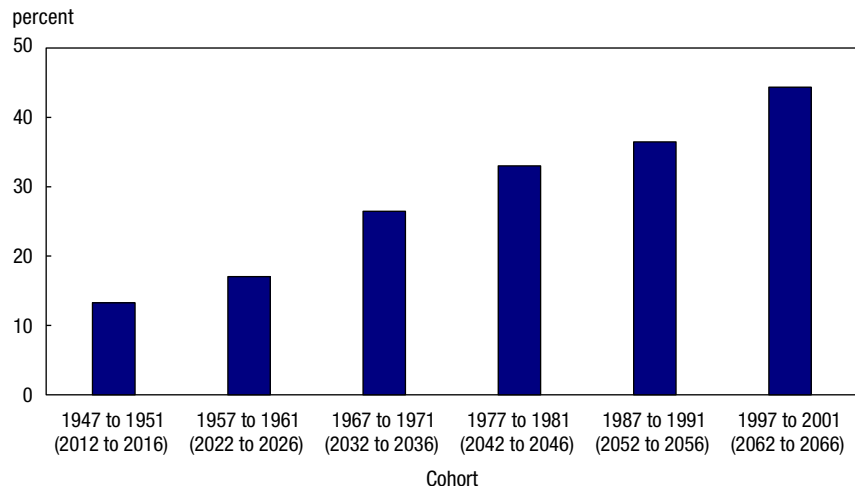
Chart 7
Projected distribution of various cohorts at age 65, by place of birth

Source: Statistics Canada, Demography Division, special tabulations from Demosim, reference scenario.

diversity within Canada's older population during the 2030s, 2040s and 2050s.

However, by 2030, the ethnocultural diversity of Canada's older population is projected to change little; the proportion of people born abroad could decrease slightly, while the proportion belonging to a visible minority group could increase only slightly because a significant proportion of baby boomers (who are about to turn 65) were born in Canada. In addition, these cohorts have benefited less from the sustained immigration levels observed in Canada since the end of the 1980s.

These changes in the profile of Canada's older population could have many implications for public policy and programs aimed at seniors. The needs as well as the lifestyles and consumption patterns of future cohorts of seniors may be very different from those of today. For example, the care provided to dependent seniors by family members or by the formal system could change. Compared with native-born Canadians, some people from various ethnocultural groups could have different traditions and expectations towards their family network once they become older, particularly if they

Chart 8

Projected proportion of people belonging to a visible minority group, various cohorts at age 65

percent

Source: Statistics Canada, Demography Division, special tabulations from Demosim, reference scenario.

lose their independence. These trends could also have an impact on, for example, the transition from working life to retirement, income levels at retirement, the passing on of family wealth, intergenerational cohabitation, the assistance that seniors provide to their grandchildren, and leisure and travel habits.

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Notes

1. See Statistics Canada (2014).

2. The number of women aged 20 to 34—the age when fertility is highest—also decreased during that period.

3. Observed and projected probabilities of death were calculated for each cohort that was studied, making it possible to reproduce mortality for each of these cohorts.

4. The high and low growth scenarios for projected probabilities of dying change this percentage by only one point of percentage compared to the medium growth scenario.

5. This percentage increases to 7% under the high mortality scenario, and decreases to 4% under the low mortality scenario.

6. All mortality scenarios (high, low and medium) lead to the same result.

7. Aside from immigration, emigration can also have a downward impact on the size of the various cohorts between the ages of 0 and 65. However, given that emigration has been low and fairly stable in Canada for several decades, the trend over time in the net immigration rate (immigrants minus emigrants divided by the Canadian population) is close to that of the immigration rate (immigrants divided by the Canadian population).

8. The average age at which immigrants arrive may vary from one cohort to another, and population projections take age at immigration into account. For example, immigration can contribute to an increase in the size of the 1997 to 2001 cohort up to 2060, under the assumption that some immigrants arrive in Canada in their 60s. However, the most common age at arrival for immigrants is still around 30 years old, which means that the 1997 to 2001 cohort will see its numbers increase mainly around the period from 2027 to 2031.

9. Under the low growth scenario, this proportion is 46% and under the high growth scenario, 50%.

10. Under the low growth scenario, this proportion is 27% and under the high growth scenario, 29%.

11. Under the low growth scenario, this proportion is 71% and under the high growth scenario, 75%.

12. In 2011, more than 1 in 3 people (30%) aged 65 and over living in Canada were born abroad. However, the corresponding proportion was lower (25%) for people aged 45 to 64 (baby boomers), and was 29% for people aged 35 to 44—the children born during the period in which the birth rate was declining, that is at the end of the 1960s and beginning of the 1970s (baby bust).

13. Under the low growth scenario, this proportion is 40% and under the high growth scenario, 51%.

14. Similar results are obtained under the low and high growth scenarios.

15. Similar results are obtained under the low and high growth scenarios.

16. Under the low growth scenario, this proportion is 25% and under the high growth scenario, 26%.

17. Under the low growth scenario, this proportion is 40% and under the high growth scenario, 47%.

References

Statistics Canada. 2014. *Population Projections for Canada (2013 to 2063), Provinces and Territories (2013 to 2038)*. Statistics Canada Catalogue no. 91-520-X. Ottawa.

Statistics Canada. 2010. *Projections of the Diversity of the Canadian Population, 2006 to 2031*. Statistics Canada Catalogue no. 91-551-X. Ottawa.