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A Long-Term View of Canada's Changing Demographics.

Are Higher Immigration Levels an Appropriate Response to Canada's Aging Population?

REPORT OCTOBER 2016

A Long-Term View of Canada's Changing Demographics: Are Higher Immigration Levels an Appropriate Response to Canada's Aging Population?

Julie Ades, Daniel Fields, Alicia Macdonald, and Matthew Stewart

Preface

This report explores how increasing immigration could change the implications of an aging population. First, we generate five long-term population scenarios based on differing immigration assumptions. These scenarios range from Canada having a population of 53.7 million by 2100 (*Status Quo Scenario*) to 100 million in the final, most optimistic scenario (*100 Million Scenario*). We then examine how these assumptions will affect the size and age structure of the population through the next 84 years. Second, we look at how the various demographic scenarios will affect the Canadian economy and, in turn, governments' fiscal resources to pay for public spending programs.

To cite this report: Ades, Julie, Daniel Fields, Alicia Macdonald, and Matthew Stewart. *A Long-Term View of Canada's Changing Demographics: Are Higher Immigration Levels an Appropriate Response to Canada's Aging Population?* Ottawa: The Conference Board of Canada, 2016.

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Acknowledgements

This report was prepared by The Conference Board of Canada. The research was conducted by Julie Ades, Daniel Fields, Alicia Macdonald, and Matthew Stewart.

We would like to thank Kate Subak, Sophia Lowe, and Aleema Jamal of the Century Initiative for their very helpful comments and suggestions. Additionally, we would like to thank the Century Initiative Executive Team, which includes Dominic Barton, Mark Wiseman, Tom Milroy, Andrew Pickersgill, and Goldy Hyder, for helping to make this report possible.

This study was made possible through funding provided by the Century Initiative. However, the findings and conclusions of this report are entirely those of The Conference Board of Canada. Any errors and omissions in fact or interpretation remain the sole responsibility of The Conference Board of Canada.

EXECUTIVE SUMMARY

A Long-Term View of Canada's Changing Demographics: Are Higher Immigration Levels an Appropriate Response to Canada's Aging Population?

At a Glance

- The goal of this research report is to measure how demographic changes, particularly changes to immigration levels, might mitigate some of the economic and fiscal costs of an aging Canadian population.
- Higher immigration levels have the potential to increase the growth of Canada's labour force over the long term and to generate higher economic growth.
- A larger Canadian population cannot completely offset the effects of an aging population on the economy. However, it does soften the impact.

Canada's demography will change over the next few decades. The foremost factor is the aging of the population. In 2015, those aged 65 and over made up 16.1 per cent of Canada's total population, a share that is all but certain to rise to over 24 per cent by 2035. The impact of an aging population will have significant implications for the Canadian economy and long-term policy planning. As the large baby-boom cohort ebbs out of the workforce into retirement, economic growth will slow. At the same time, costs will increase significantly for public services, including health care, education, and Old Age Security (OAS).

This report explores how increasing immigration could change the implications of an aging population. First, we generate a variety of long-term population scenarios based on differing assumptions centred on immigration. We then examine how these assumptions will affect the size and age structure of the population through the next 84 years to 2100. Second, we determine how the various demographic scenarios will affect the Canadian economy and, in turn, governments' fiscal resources to pay for public spending programs.

Long-Term Economic Outlook

The aging of Canada's population, expected to occur primarily over the next 20 years, will have a major impact on the country's economic growth. Sluggish labour force expansion will have a negative effect on household spending, while a slow-growth economy will lead to only moderate gains in private capital investment.

An option for governments to potentially offset the negative effect of an aging population on the economy is to increase immigration levels.

In our *Status Quo Scenario*, we estimate that economic growth in Canada will slow to around 1.6 per cent by 2050 and average just 1.5 per cent from 2050 to 2100. This is even less than the tepid trend of 2 per cent growth that the economy is expected to experience over the near term.

Weaker economic growth over the long term will limit the amount of revenue that governments in Canada collect. At the same time, the aging of Canada's population will require governments to sharply increase expenditures for both health care and OAS.

Five Scenarios

The analysis includes five population growth scenarios for the next 84 years based on different assumptions related to the natural increase in population and immigration. These scenarios include the *Status Quo Scenario*; *Medium Scenario*; *Medium Scenario With Younger Immigrants*; *High Scenario*; and *100 Million Scenario*, in which the Canadian population reaches 100 million by 2100.

One of the main options available to governments to potentially offset the negative effect of an aging population on the economy is to increase immigration levels. That would help boost Canada's labour force and generate stronger long-term economic growth. Most important, it could reduce the average cost per working Canadian of expensive social programs by increasing the ratio of employed workers to retirees.

Another way to affect population growth is through increasing fertility. Canada's fertility rate is currently 1.55 children per woman of child-bearing age. This is well below the replacement rate of 2.1 births per woman needed to maintain a stable population. Canada has had low fertility rates for the better part of the last 40 years, and this is having a serious impact on the natural increase of the population (annual number of births less deaths). Some of the demographic scenarios present sensitivity analyses based on a higher fertility level. However, governments have traditionally had a difficult time increasing the population through policy incentives in this area.

The five population growth scenarios are based on different assumptions related to the natural increase in population and immigration.

The Status Quo Scenario is the most conservative, as it is based on maintaining current trends in fertility rates and immigration levels throughout the 84-year forecast period. If Canada's current fertility rate of 1.55 continues, the natural increase in the population (births minus deaths) becomes negative by 2034, despite the continued downward trend in death rates. Immigration levels rise gradually, but immigration as a share of the population remains the same throughout the forecast. In this scenario, Canada's population reaches 53.7 million in 2100.

Our *Medium Scenario* is the most likely alternative to the status quo. In this scenario, the federal government increases annual immigration levels to 353,000 by 2030. Canada's population grows by 1 per cent annually between 2015 and 2040. The natural increase in the population turns negative in 2039 (i.e., the number of deaths exceeds the number of births) and, from that point on, immigration is responsible for all population growth. Despite higher immigration levels, population growth over the 2040-to-2065 period slows to an average of about 0.6 per cent per year and remains stable at this rate over the final 35 years of the projection. As a result, Canada's population rises from the current 36 million to 46 million in 2040. In this scenario, by 2100, Canada's population would reach 66 million. The *Medium Scenario*—with a slight variation to include the recruitment of somewhat younger immigrants (which we have called the *Medium Scenario With Younger Immigrants*)—would see the population reach 73.9 million by 2100. In both medium scenarios, we assume that the fertility rate increases to 1.7 by 2023, where it remains constant through the rest of the forecast period.

In the *High Scenario*, the fertility rate is lifted to just below 2.0 by 2023 and is then held constant (at 1.996) for the remainder of the forecast period. This scenario also sees the immigration rate increase at the same rate as in the *Medium Scenario* until 2030. Then, until 2050, immigration increases at a rate of 1 per cent per year. Afterwards, immigration as a share of the population is held constant as a result of the higher fertility rate, and the natural increase in the population stays positive (with more births than deaths) through 2100. Canada has not

seen a fertility rate near the replacement rate of 2.1 since the 1970s and efforts to increase the fertility rate in other developed countries have had limited impact.[1]

The fifth scenario—*the 100 Million Scenario*—is based on assumptions that would take the Canadian population to 100 million by 2100 and is the most optimistic scenario with respect to immigration levels. Under this scenario, immigration levels increase steadily until they reach 408,000 immigrants annually by 2030. From 2030 to 2050, immigration levels would grow by a further 2.1 per cent per year before being held constant as a share of the population. As well, fertility rates follow the same path as the *Medium Scenario*, with a slight increase to 1.7 by 2023, and would then hold constant throughout the remainder of the forecast.

Impact of Demographic Change on Public Spending

The impact of growing to 100 million people is significant. Under Conference Board assumptions, Old Age Security (OAS) spending will fall from 12 per cent to below 10 per cent of government revenues, and provincial health care costs will fall from 34.5 per cent to 29.2 per cent of provincial spending. Housing starts would rise to 432,000 rather than 268,000 under the *Status Quo Scenario* and there would be significant increases in spending on durable goods and in investment. The increase in the population will not reverse the consequences of an aging population but will significantly help to cushion the economic impact.

While these scenarios slow the pace of the overall population aging, it is evident that none of them reverse it. Population growth alone will not solve the challenges ahead. In each of these scenarios, the share of the population over the age of 65 exceeds 22 per cent in 2030 (up from

1 Anne H. Gauthier, "The Impact of Family Policies on Fertility in Industrialized Countries: A Review of the Literature," *Population Research and Policy Review* 26, no. 3, 340.

Over the next 25 years, Canada must also look to other solutions to address the impact of an aging population in a cost-effective manner.

16.1 per cent today). Even in the scenario where Canada's population reaches 100 million by the turn of the next century, the proportion of the population aged 65 and over never falls below 20 per cent.

Consequently, provincial governments will experience a significant strain on their budgets over the next 20 to 30 years. While higher immigration levels will reduce the share of revenue that the federal and provincial governments spend on OAS, health care, and other public services, it will be almost impossible to offset the impact of the aging of the population over the next 20 years through changes in demographics alone. Beyond 2030, changes in key demographic variables may have a more noticeable effect on public spending demand.

In the *Status Quo Scenario*, where we continue current immigration and fertility trajectories, the share of government revenues directed to health care (assuming constant age-adjusted spending) rises from 37 per cent today to 44 per cent in 2042. It does not begin to fall again until around 2050. The general results until 2045 are nearly identical across all scenarios presented. A large difference in the share of revenues directed to health care does not begin to appear until after 2045.

In our *Medium Scenario*, provincial revenues required to fund a similar health care system do not drop below 40 per cent until almost 2070. However, under the *100 Million Scenario*, the share of provincial revenues directed toward health care spending falls from 43 per cent in 2035 to 38 per cent in 2060. By 2100, the differences are more pronounced. In the *Status Quo Scenario*, the share of provincial spending directed toward health care falls to 34 per cent while, in the *100 Million Scenario*, it falls to 29 per cent.

It is clear that governments will face a significant challenge from an aging population. Higher immigration and fertility rates soften the significant cost strains on the Canadian system in the long term. However, over the next 25 years, Canada must also look to other solutions to address the impact of an aging population in a cost-effective manner. Growth in the population is one lever that can be part of this mix.

CHAPTER 1

Introduction

Chapter Summary

- The goal of this report is to measure how demographic changes, particularly changes to immigration or fertility rates, will affect the economic and fiscal costs of an aging Canadian population.
- First, we generate five long-term population scenarios based on differing assumptions (regarding immigration or fertility rates) and examine how these assumptions affect the size and age structure of the population profile through to 2100.
- Second, we examine how the varying demographic scenarios affect the Canadian economy.
- Third, we estimate how the share of federal and provincial revenues, to fund OAS and health care, changes over the long term under the different population scenarios.

Canada's demographic composition will undergo a dramatic shift over the next several decades. The principal factors are the aging of the population and the slowing natural rate of population growth. In 2015, those aged 65 and over made up 16.1 per cent of Canada's total population. This share will continue to rise over the coming years, with over 24 per cent of Canadians 65 and older by 2035. Combined with the country's low fertility rate, these demographics will restrict the natural rate of increase (births less deaths), thereby slowing the rate of population growth. Canada's natural rate of increase, which currently adds about 120,000 people annually to the population, will drop progressively in the coming years as the number of deaths rises steadily and births decrease.

The impact of an aging population will have significant implications for the Canadian economy and long-term policy planning. The oldest members of Canada's largest demographic cohort—the baby boomers—have already reached the age of 65 and many are retiring from the workforce. The ratio of the population aged 65 to 69 (when many retire) to the working-age population of people aged 20 to 64 has increased to 66 per cent, up from 43 per cent 10 years ago. In other words, there are now 66 people in the 65-to-69 age group for every 100 people aged 20 to 64, meaning fewer tax rolls to pay for an already strained social system. Within 10 years, the ratio is expected to surpass 83 per cent.

As the pace of retirement accelerates, Canada's future labour supply will be limited. In addition to affecting the labour market, an aging population will also put a major strain on health care and Canada's systems of retirement income support (notably Old Age Security). Both of these

The goal of this report is to measure how demographic changes might mitigate some of the economic and fiscal costs of an aging population.

issues will have significant implications for overall economic growth and, in turn, the government revenues required to support a multitude of other essential government services such as education and social services.

The goal of this report is to measure how demographic changes, particularly changes to immigration or fertility rates, might mitigate some of the economic and fiscal costs of an aging population. In addition, this analysis explores how potential adjustments to the demographic composition of Canada could affect long-term economic growth and demand for public services through 2100.

The analysis takes place in three stages. First, we generate five long-term population scenarios based on differing assumptions (regarding immigration or fertility rates) and examine how these assumptions affect the size and age structure of the population profile through 2100. Second, we examine how the varying demographic profiles affect the Canadian economy. Third, we estimate how the share of federal and provincial revenues, to fund OAS and health care, changes over the long term under the different population scenarios.

The first section of this report examines the historical and projected demographic trends in Canada for a range of indicators, including the natural rate of increase in the population, fertility rates, and life expectancy. This analysis sets the stage for five scenarios based on different assumptions concerning immigration and fertility rates. The impact of each scenario on Canada's economy is also considered in this section. The final section of the report provides concluding comments.

CHAPTER 2

Demographic Trends: History and Forecasts

Chapter Summary

- This chapter reviews the main demographic trends in Canada in recent history and provides demographic projections for the Canadian population in the next 84 years.
- Population growth throughout history has been influenced by two main factors: the natural increase in the population (determined by births and deaths) and net migration.
- Natural population increase is expected to play a small part in the growth of Canada's population. While net migration is the driving force for growth, immigration will likely account for all of Canada's population growth after 2019.

This chapter reviews the main demographic trends in Canada in recent history and also provides projections of population trends over the next 84 years. The analysis in this chapter will help put into context the examination of the five population scenarios presented in the next chapter. This report employs the taxonomy for generations that was used by Statistics Canada in the 2011 Census of Population. (See Table 1.)

Table 1
Generations in Canada
(estimates for 2015)

Generation name	Birth years	Size (millions)	Share of Canadian population (per cent)
1918 and before	1918 and before	0.04	0.1
Parents of baby boomers	1919 to 1940	2.71	7.5
World War II generation	1941 to 1945	1.46	4.1
Baby boomers	1946 to 1965	9.7	27
Baby busters	1966 to 1971	2.89	8
Children of baby boomers	1972 to 1992	10.3	28.7
Generation Z	1993 to present	8.83	24.6

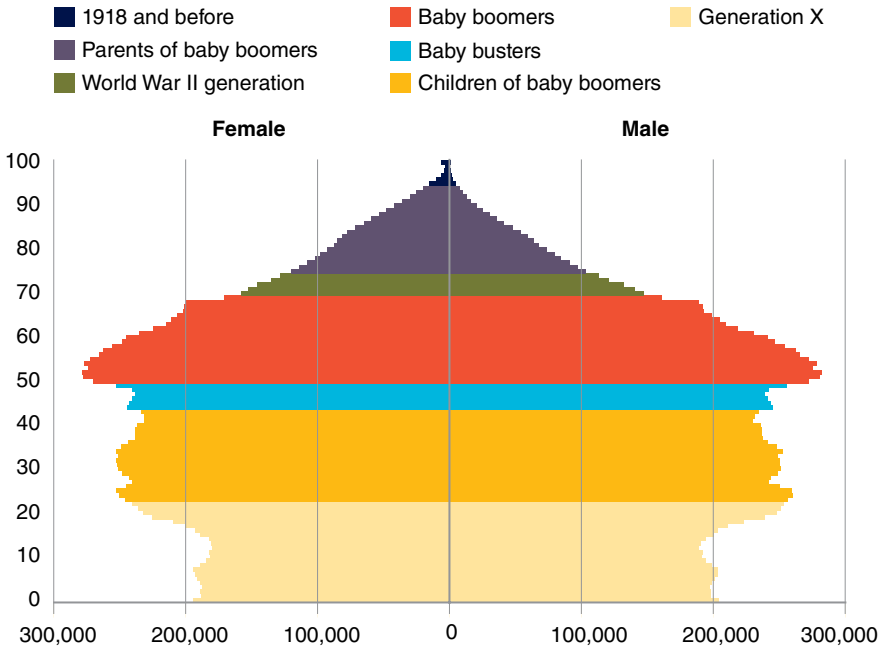
Source: Conference Board of Canada calculations based on data from Statistics Canada, 2011 Census of Population.

Historical Demographic Trends

The end of the Second World War gave rise to a time of higher living standards and flourishing optimism. Most important in terms of demographic composition was the burst in fertility in the post-war years, which led to the largest and most talked-about demographic cohort in Canada—the baby boomers. The baby boom lasted from 1946 to 1965 in Canada. Fertility soared during this period, peaking in 1959

at four children per woman of child-bearing age. Later, the increase in immigration to Canada during the 1980s and 1990s also swelled the size of the baby-boom cohort. In 2015, the baby boomers numbered 9.7 million and accounted for 27.0 per cent of Canada's total population. (See Chart 1.)

Chart 1
Canadian Population Dynamics, 2015
(population by single-age cohort)



Sources: The Conference Board of Canada; Statistics Canada.

The baby boom eventually gave way to a cohort known as "baby busters" (people born from 1966 to 1971). The bust was due largely to a decline in fertility—the result of the commercial introduction of the birth control pill in 1961 and the rising participation of women in the labour market. At about 2.9 million, baby busters account for 8.0 per cent of the total population.

Population growth has been influenced by two main factors: the natural increase in the population (determined by births and deaths) and net migration.

Many of the boomers began having children in the early 1970s. These children, whose generation is known simply as the "children of baby boomers," were born between 1972 and 1992. Due to the sheer size of the boomer cohort, their children's generation today numbers 10.3 million and makes up 28.7 per cent of the total population.

In Canada, children born in 1993 or later are referred to as "Generation Z." These are the offspring of the youngest baby boomers, the baby busters, and the oldest of the children of baby boomers.

Although children are still being born into this cohort, it will be smaller than the children of the baby-boomer cohort, reflecting both the small size of its parents' generation and the low fertility rate. This cohort, now 23 years old and younger, numbers 8.8 million and accounts for 24.6 per cent of the total population.

The Components of Population Growth

Population growth over history has been influenced by two main factors: the natural increase in the population (determined by births and deaths) and net migration.

The natural increase is simply the number of births minus the number of deaths in any given year. The number of births per year depends on the number of females of child-bearing age (typically from 15 to 49) and on age-specific fertility rates.

The age structure of the population has had a significant influence on the natural rate of increase over history. Indeed, the natural rate of increase decelerated markedly in the 1990s, in large part due to the age structure of the population—the baby boomers stopped having more children in the mid-1990s, marking the completion of the children of baby boomers generation.

The age structure of the population will also have an impact on the natural rate of increase in the coming decades. Generation Z is a smaller cohort than the children of baby boomers generation and, as it moves into child-bearing age, the overall birth rate will fall as the proportion of

women of child-bearing age declines. Meanwhile, the baby boomers—who represent about 27 per cent of the Canadian population—are gradually moving toward older-age-cohorts, which will result in a higher overall death rate as the baby boomers begin to reach the end of their lifespan.

The Effect of Fertility Rates on Canada's Demographic Landscape

The fertility rate and growing life expectancy will also play a crucial part in shaping Canada's demographic landscape over the long term.

Fertility rates depend on a variety of social and economic factors. The most commonly cited factors include the cost of child-rearing, current and expected income, educational attainment, access to health and reproductive care, and female labour force participation.

To maintain the current population through natural increases, a fertility rate of 2.1 is required.[1] The national fertility rate has been increasing over the past decade, rising from 1.46 live births per woman of child-bearing age in 2001 to 1.56 in 2011. However, it remains far below the replacement rate of 2.1 and is therefore insufficient to maintain the population through natural means. In fact, Canada has not seen a fertility rate near the replacement rate of 2.1 since the 1970s.[2]

Many of the key factors affecting fertility rates are unlikely to change over the next few decades. Access to health and reproductive care is well-established in Canada and therefore is not expected to change much in the future. The long-term profile for personal income growth is projected to be relatively stable over the forecast period and is consequently not

1 A fertility rate of 2.1 represents the replacement rate for the Canadian population. This means that the population can be maintained over the long term (assuming no immigration or emigration). A rate of 2.1 covers both parents, who eventually pass away; infant and child mortality; and the small chance that a woman will pass away before reaching her fertile age.

2 United Nations Population Division, *World Population Prospects, the 2015 Revision* (New York: U.N. Department of Economic and Social Affairs, 2015). http://esa.un.org/unpd/wpp/.

The most crucial demographic driver is the age structure of the population.

anticipated to alter fertility rates. Labour force participation rates for women in their prime child-bearing years are also likely to remain fairly stable and thus should not influence fertility rates.

New immigrant arrivals initially tend to have higher fertility rates but, after 10 years in Canada, they adopt lower Canadian fertility rates. Immigrants who have lived in Canada for more than 10 years have a fertility rate of just 1.5, nearly identical to the Canadian level. For these reasons, a fertility rate close to its current level, ranging between 1.55 and 1.7, is likely the most realistic assumption over the forecast period in the absence of any policies that might trigger changes in individual behaviour.

Life Expectancy Continues to Improve

The number of deaths in a population in a given year is determined by a multitude of demographic and non-demographic factors. The most crucial demographic driver is the age structure of the population.

In industrial economies, where populations are older on average, death rates (number of deaths per 100 people) are projected to rise over time. However, improved health practices will continue to extend life expectancies.

Technological, social, and economic advancements over the last 80 years have raised overall life expectancies considerably. Prior to the 1930s, men and women had roughly the same life expectancy, at approximately 60 years. Over the following 50 years, life expectancy for Canadians as a whole rose to nearly 80 years. But a gap in life expectancy emerged between men and women, with women now expected to live around 4.5 years longer than men. The gap between men and women is due mostly to technological, social, and economic improvements that have greatly reduced the risks associated with child-bearing.

The latest available data indicate that average life expectancy at birth over the 2007-to-2009 period had climbed to 83.3 years for women and 78.8 years for men. Additionally, those who were aged 65 in this

period had a further life expectancy of 21.6 for females and 18.5 years for males. Over the next two decades, assuming continued medical advances and economic prosperity, life expectancy in Canada should continue to rise.

In each of the five scenarios presented in the next section, we assume a continued downward trend in death rates. Over the course of the forecast (2016 to 2100), death rates for every age category are expected to improve by an average of 20 per cent. This improvement in death rates will translate into a higher life expectancy, although the increase in life expectancy will slow over time.

Net Migration Will Be the Key Driver of Population Growth

Net migration, which is the number of new arrivals minus the number of people leaving the country, has been a key driver of Canada's population growth in recent years. As the country can expect the natural increase to diminish, immigration will be the key component of Canada's future population growth. The contribution of immigration to population growth is evident in all demographic scenarios presented in this report.

The number of people entering and leaving the country depends on a multitude of factors, such as socio-economic conditions and government policies at home and abroad. Many of these factors occur in the birth countries of potential immigrants, and some factors are beyond the control of Canadian policy-makers. Fortunately, Canada is one of the most hospitable nations for individuals leaving their homelands.[3] Many immigrants who are drawn to Canada see an opportunity to enjoy a better quality of life than what was possible in their home countries.

3 In a 2011 survey of 16 countries, Canada had the highest percentage of people who responded "yes" when asked whether their community was accepting of people from different racial, ethnic, and cultural groups. The Conference Board of Canada, *How Canada Performs* (Ottawa: The Conference Board of Canada, 2011). www. conferenceboard.ca/hcp/details/society/acceptance-of-diversity.aspx.

Net migration currently accounts for the lion's share of population growth in Canada and will likely continue to do so over the next decades.

Annual immigration to Canada has averaged just above 250,000 permanent residents per year over the last 10 years. After keeping "permanent resident" immigration targets in the range of 240,000 to 265,000 for several years, the new federal government (as of October 2015) recently raised its targets, bringing the range to 280,000 to 305,000.

Canada's current immigration system admits permanent immigrants in three main categories: economic class (mainly skilled workers and business migrants); family class (spouses, partners, and close family members); and refugees. Economic immigration has been a priority in Canada's immigration system. In 2014, the economic class represented 63.4 per cent of all immigrants. The family class represented 25.6 per cent, while refugees represented 11 per cent of the total intake of immigrants.[4]

Overall, net migration currently accounts for the lion's share of population growth in Canada and will likely continue to do so over the next decades.

4 Immigration, Refugees and Citizenship Canada, *2015 Annual Report to Parliament* (Ottawa; Citizenship and Immigration Canada, 2015). www.cic.gc.ca/English/resources/publications/annual-report-2015/index.asp.

CHAPTER 3

Demographic and Economic Trends Over the Next 84 Years

Chapter Summary

- This chapter presents five population scenarios for the next 84 years based on different assumptions related to the natural increase in population (the fertility rate) and net migration (the number and age of new arrivals).
- Each section and population scenario presents and analyzes the economic and fiscal costs of different immigrant and fertility assumptions.
- In addition to the *Status Quo Scenario*, we examine four more population scenarios: two that increase immigration gradually (*Medium* and *Medium With Younger Immigrants*), and two that increase immigration more rapidly (*High* and *100 Million*).
- Under the *Status Quo Scenario*, the Canadian population reaches just under 54 million by 2100 and real GDP growth averages 1.5 per cent annually from 2050 to 2100.
- This compares with the *100 Million Scenario* where real GDP growth averages 2.5 per cent annually over the same period.
- As well, provincial health spending as a percentage of provincial revenues is 29 per cent in 2100 under the *100 Million Scenario* compared with 34.5 per cent under the *Status Quo Scenario*.

This chapter presents five population scenarios for the next 84 years based on different assumptions related to the natural increase in population (the fertility rate) and immigration (the number and age of new arrivals). The five scenarios include the *Status Quo Scenario* and four alternative scenarios:

- *Medium Scenario*
- *Medium Scenario With Younger Immigrants*
- *High Scenario*
- *100 Million Scenario*

The impact on Canada's economy attributable to the different assumptions for the five scenarios is also examined.

Assessing the Economic Impact of Various Economic Scenarios

To assess the economic impact of the various demographic scenarios, we used the Conference Board's long-term forecasting model. Projections of real long-term economic growth were primarily affected by our estimates of potential output. Real GDP growth, coupled with assumptions about inflation, determines the pace of growth of nominal GDP (or income) generated in Canada and provides the broadest measure for determining how much revenue the federal and provincial governments can generate.

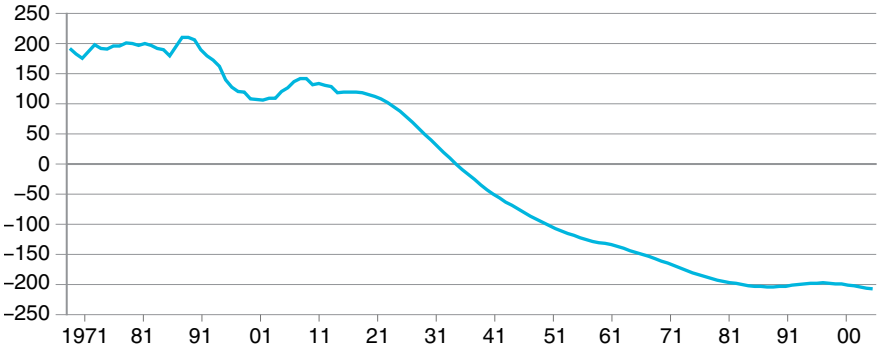
For a more detailed discussion of the methodology used to generate our economic growth projections and our outlook for government revenues and expenditures, refer to Appendix 1.

Scenario 1: *Status Quo Scenario*

Demographic Summary

The *Status Quo Scenario* is the most conservative of the five scenarios. We maintain a constant fertility rate and ratio of immigration to total population over the forecast period. By maintaining a constant fertility rate of 1.55 throughout the entire forecast period, the natural increase in the population (births minus deaths) becomes negative by 2034, despite the continued downward trend in death rates. (See Chart 2.)

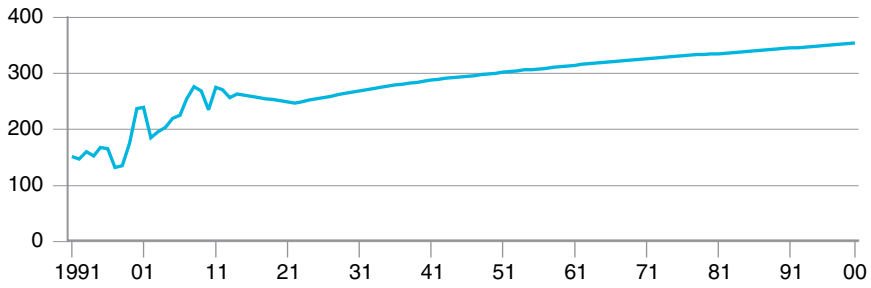
Chart 2
Natural Increase in the Population—*Status Quo Scenario*, 1971–2100
(000s)



Sources: The Conference Board of Canada; Statistics Canada.

Meanwhile, the contribution of net migration to population growth increases in 2034, even though the ratio of immigration to total population stays constant at 0.76 per cent. The age distribution of immigrants to Canada has not changed a great deal on a year-over-year basis in the past 40 years. As such, this analysis assumes that the composition of the immigrant population (i.e., the proportion of the total immigrant population in each group) is the same in each year until 2100 as it has been over the past 40 years. Net migration will continue to grow during most of the forecast period. (See Chart 3.)

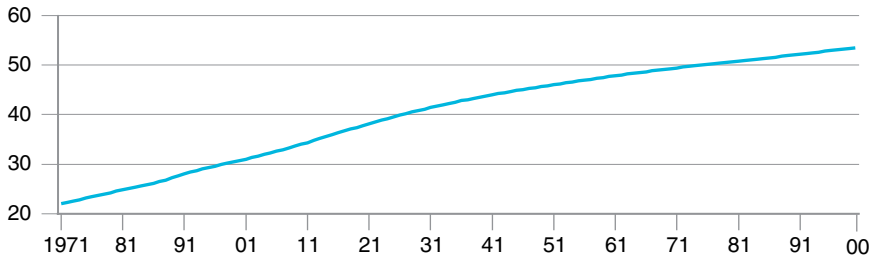
Chart 3
Net Migration—*Status Quo Scenario*
(000s)



Sources: The Conference Board of Canada; Statistics Canada.

In the *Status Quo Scenario*, immigration is the driving force behind Canada's population growth over the long term, allowing the Canadian population to increase by nearly 20 million people. It would expand from around 36 million in 2015 to 53.7 million inhabitants in 2100. (See Chart 4.)

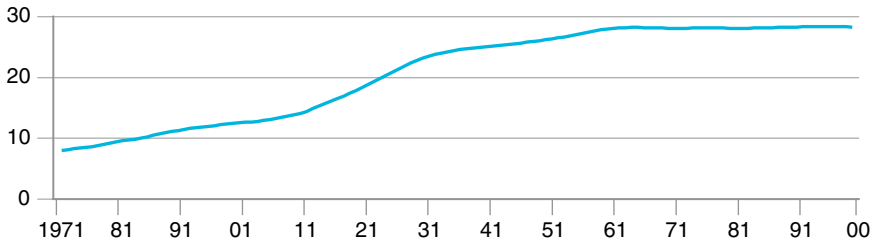
Chart 4
Population—*Status Quo Scenario*, 1971–2100
(000s)



Sources: The Conference Board of Canada; Statistics Canada.

Still, the increase in the level of immigration does not reverse the ongoing changes in the age composition of the population. Indeed, the Canadian population is aging and this trend continues over the forecast period. The share of the population over the age of 65 in the *Status Quo Scenario* steadily increases from 16.1 per cent in 2015 to 28 per cent in 2060, where it stabilizes for the remainder of the forecast. Most of the increase takes place over the next 20 years, as the baby boomers move into the 65-and-over age cohort. (See Chart 5.)

Chart 5
Share of the Population Aged 65 and Over—*Status Quo Scenario*, 1971–2100
(per cent)



Sources: The Conference Board of Canada; Statistics Canada.

Economic and Fiscal Trends

In the *Status Quo Scenario*, where the fertility rate and the ratio of immigration to total population remain constant over the forecast period, the aging of the population has a negative impact on economic growth in Canada. Despite optimistic assumptions around seniors working longer, the growth in the labour force slows down sharply as the population ages, and Canada's potential economic growth declines. Until about 2020, real GDP growth averages around 2.0 per cent. However, from 2050 to 2100, real GDP growth slows to an annual pace of only 1.5 per cent. The unemployment rate holds steady at its natural rate of about 5.8 per cent over the long term.

In the *Status Quo Scenario*, expenditures by the provinces on health care increase from a cumulative $150.3 billion in 2015 to $2.6 trillion by 2100.

The aging of the population and the subsequent decline in the growth of the labour force over the forecast period is the main factor contributing to weaker potential economic growth through 2100. This development leads to a change in consumption and investment spending patterns. As more and more people approach retirement age, they start to save more and spend less on goods and services. Consumer spending remains the largest component of overall GDP over the forecast period, but weaker growth in household spending subtracts from overall economic growth. Also, the aging population has a negative effect on housing activity, as older people start to live in other types of accommodation (such as retirement homes or long-term care facilities). In our assumption, housing starts decline by over half over the forecast period, from 195,536 in 2015 to just under 79,000 by 2100. This generates weaker growth in spending on durable goods over the forecast period. With regard to investment spending, a less-robust economy does not require as much investment in machinery and equipment. This factor, plus the slower growth in household spending, contributes to the overall decline in real GDP growth.

The aging population has a major impact on health care spending in Canada in this scenario. Expenditures by the provinces on health care increase from a cumulative $150.3 billion in 2015 to $2.6 trillion by 2100. The share of revenues that provincial governments spend on health care increases from about 37 per cent in 2015 to 44 per cent by 2042, as the large baby-boom cohort ages.[1] Given that baby boomers have an adjusted life expectancy of 85 years, the youngest members of this generation will die between approximately 2050 and 2060. Under this assumption, the share of revenues devoted to health care drops to 34.5 per cent by 2100. The share of revenues that the federal government spends on OAS also expands over at least part of the forecast period. The share grows from 16.5 per cent in 2015 to close to 20 per cent by the 2030s before gradually declining to around 12 per cent by 2100 as the number of Canadians receiving OAS decreases.

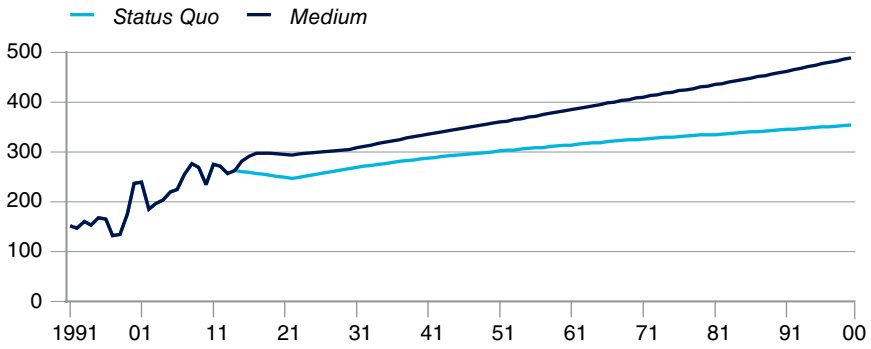
1 This assumes constant inflation-adjusted spending per person of a similar age.

Scenario 2: *Medium Scenario*

Demographic Summary

The immigration assumptions in the *Medium Scenario* are most aligned with previous immigration trends and current government policies. Under the *Medium Scenario*, we expect annual immigration to increase at a decent pace until 2030, when annual immigration reaches 353,000. Then, immigration as a share of the population is held constant over the remainder of the forecast period. Due to greater international immigration, net migration is higher than in the *Status Quo Scenario*. (See Chart 6.)

Chart 6
Net Migration—*Medium and Status Quo Scenarios*
(000s)

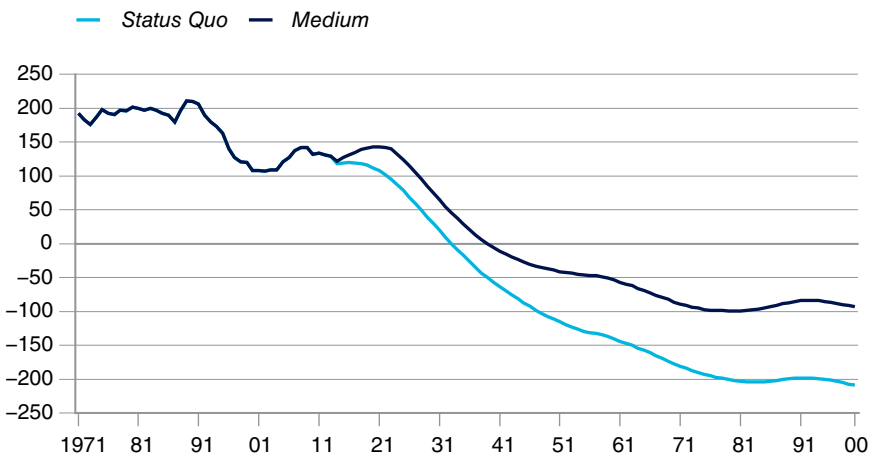


Sources: The Conference Board of Canada; Statistics Canada.

In addition, the fertility rate in the *Medium Scenario* increases from its current level of 1.55 to 1.7 by 2023, and then stays constant over the following 77 years of the forecast period. This is partly due to an improving economic situation. The fertility rate fell slightly during the 2008–09 recession and could be expected to recover following a pickup in economic activity. Thanks to this lift in the fertility rate, the natural increase in the population (births minus deaths) in the *Medium Scenario*

is expected to remain in positive territory for a longer period than in the *Status Quo Scenario*. Under the *Medium Scenario*, the number of births will exceed the number of deaths until 2039. (See Chart 7.) Again, it is assumed that the composition of the immigrant population (i.e., share of the total immigrant population in each age group) in each year after 2015 is the same as it was in the 40 years before 2015.

Chart 7
Natural Increase in the Population—*Medium* and *Status Quo Scenarios*, 1971–2100
(000s)

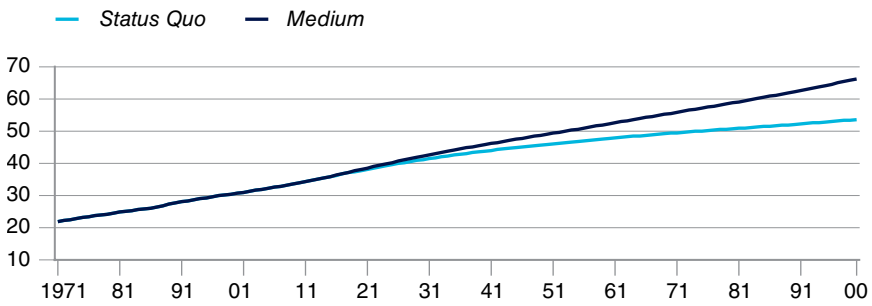


Sources: The Conference Board of Canada; Statistics Canada.

The combined effect of a larger number of immigrants and a higher fertility rate in the *Medium Scenario* allows the total Canadian population to reach over 66 million people by 2100. (See Chart 8.)

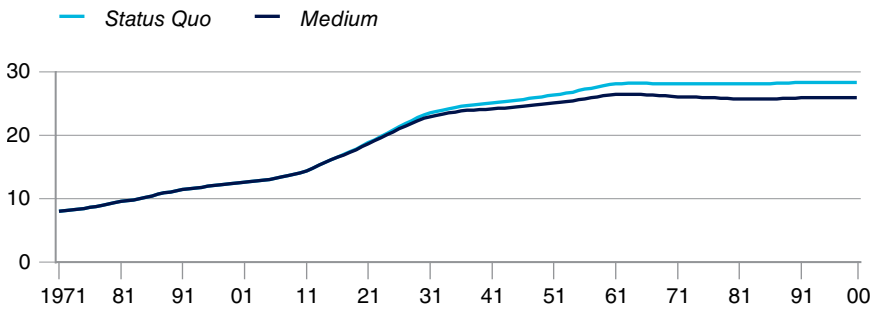
Still, despite the higher fertility rate, the average age of the overall population is expected to continue to rise. The proportion of the population over the age of 65 in this scenario steadily increases from 16.1 per cent in 2015 to 26 per cent in 2058, where it stabilizes for the remainder of the forecast. (See Chart 9.)

Chart 8
Total Population—*Medium* and *Status Quo Scenarios*, 1971–2100
(millions)



Sources: The Conference Board of Canada; Statistics Canada.

Chart 9
Share of the Population Aged 65 and Over—*Medium* and *Status Quo Scenarios*, 1971–2100
(per cent)



Sources: The Conference Board of Canada; Statistics Canada.

Economic and Fiscal Trends

In the *Medium Scenario*, the economy is expected to see somewhat faster growth than in the *Status Quo Scenario*. However, the share of both provincial and federal government revenues required to fund OAS and health care does not change significantly over the forecast period.

Despite higher immigration, Canada's population continues to age rapidly.

The *Medium Scenario* assumes that annual immigration levels increase at a faster pace than they do in the *Status Quo Scenario*, reaching 353,000 by 2030. Beyond 2030, we assume that immigration as a share of the total population remains constant over the remainder of the forecast period. The increase in immigration results in greater labour force growth than that in the *Status Quo Scenario*. By the end of the forecast period, real GDP is projected to be expanding by 1.9 per cent annually, compared with 1.6 per cent growth in the *Status Quo Scenario*. Annual housing starts are 165,000 by 2100, significantly higher than the 79,000 estimate in the *Status Quo Scenario*. This level of starts contributes to greater spending on durable goods and slightly higher economic growth through 2100.

The higher economic growth in the *Medium Scenario* is still not enough to significantly lower the share of spending by provincial and federal governments on health care and OAS, respectively. In fact, the shares are almost identical in both the *Status Quo* and *Medium* scenarios by the end of the forecast period. For instance, the share of provincial government revenue spent on health care is 34.5 per cent in the *Status Quo Scenario* versus 32.9 per cent in the *Medium Scenario* by 2100. The slightly higher economic growth linked to the increase in immigration and slightly higher fertility rate does not generate enough revenue for governments to significantly reduce the share of revenues required to fund the OAS and health care programs.

Furthermore, despite higher immigration, Canada's population continues to age rapidly. In the *Medium Scenario*, 26 per cent of the population is in the 65-plus age cohort by 2060. This share is only marginally lower than the 28 per cent in this age range in the *Status Quo Scenario*.

Scenario 3: *Medium Scenario With Younger Immigrants*

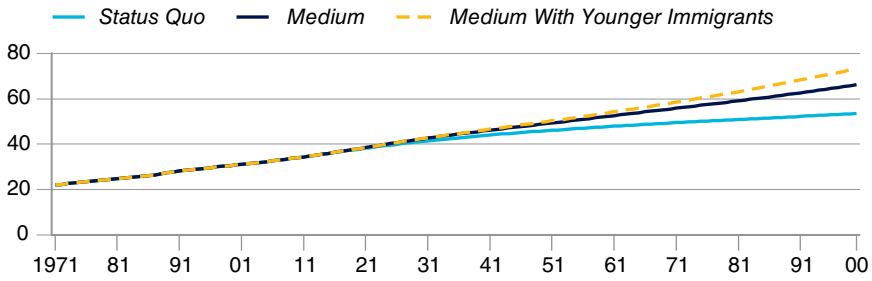
Demographic Summary

Over the last 40 years, the average age of immigrants has remained relatively stable at 30 and, without a change in policy, it will likely remain at its current level. The *Medium Scenario With Younger Immigrants* allows us to see the impact of reducing the average age of immigrants by approximately three years on different demographic variables. Assumptions about immigration as a share of total population and about the fertility rate are identical to those in the *Medium Scenario*. However, the change in the average age of immigrants has important implications for population growth. As a result of this change, more women in Canada are of child-bearing age, which means the natural increase in the population remains positive throughout the forecast period. This change allows the population to grow to 73.9 million by 2100, a gain of 7 million from the *Medium Scenario*. (See Chart 10.)

Chart 10

Total Population—*Status Quo*, *Medium*, and *Medium With Younger Immigrants Scenarios*, 1971–2100

(millions)



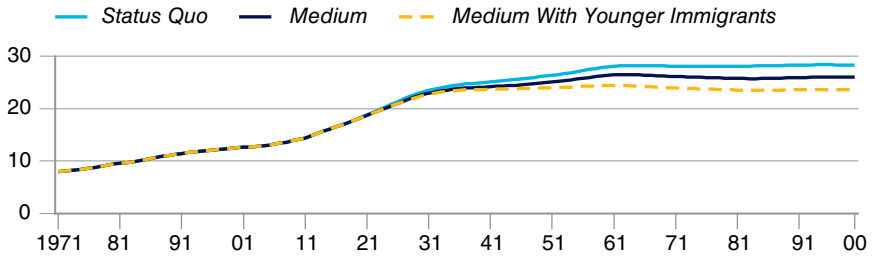
Sources: The Conference Board of Canada; Statistics Canada.

Still, even when the average age of immigrants drops by three years, the aging trend in the population remains. As a result of more babies being born, the proportion of people in 2060 over the age of 65 is reduced from 26 per cent in the *Medium Scenario* to 24 per cent. This proportion is still well above the current ratio of 16.1 per cent. The oldest of the baby boomers have already moved into the 65-and-over age cohort. However, most of the baby boomers are in their late 40s and 50s and will move into the 65-and-over age cohort over the next decade and a half. The aging of the baby boomers will be the inevitable force keeping the share of people over the age of 65 elevated in coming decades. (See Chart 11.)

Chart 11

Share of the Population Aged 65 and Over—*Status Quo*, *Medium*, and *Medium With Younger Immigrants Scenarios*, 1971–2100

(per cent)



Sources: The Conference Board of Canada; Statistics Canada.

Economic and Fiscal Summary

In the *Medium Scenario With Younger Immigrants*, the immigrant population includes a greater number of young people than the typical wave of immigrants into Canada over the past 40 years. This assumption has a slightly positive effect on the economy over the forecast period, as the labour force expands at a faster clip and this leads to higher potential economic growth. Real GDP increases at an annual pace of around 2.1 per cent toward the end of the forecast period, compared with growth of 1.9 per cent in the *Medium Scenario* (and 1.6 per cent in the *Status Quo Scenario*). Housing starts are 234,000 by 2100, significantly higher than the 165,000 estimate in the *Medium Scenario*.

The difference in immigration assumptions between the *Medium* and *High* scenarios pertains to the post-2030 period.

Stronger economic growth generates more revenue for the provincial and federal governments. However, the share of revenues required to fund OAS and health care does not decline significantly. The share of revenue required to fund OAS, for instance, increases to 17 per cent by 2050 before falling to 10.1 per cent by 2100. This compares with 17.6 per cent in 2050 and 11.2 per cent by 2100 in the *Medium Scenario*, and 18.1 and 12 per cent, respectively, in the *Status Quo Scenario*.

Scenario 4: *High Scenario*

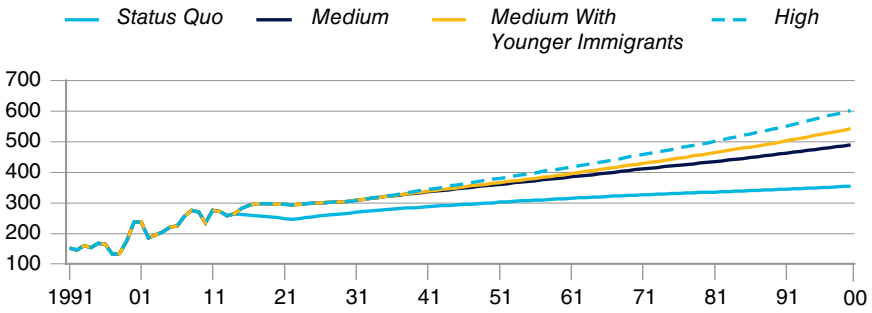
Demographic Summary

In the *High Scenario*, the immigration assumptions are optimistic, although not unrealistic. As in the *Medium Scenario*, immigration increases at a steady pace until 2030, at which point it reaches 353,000 immigrants annually. It is assumed that the composition of the immigrant population (i.e., the share of the total immigrant population in each age group) in each year after 2015 is the same as it was in the 40 years before 2015, also as in the *Medium Scenario*. The difference in immigration assumptions between the *Medium* and *High* scenarios pertains to the post-2030 period. Between 2031 and 2050, immigration is forecast to grow by 1 per cent a year under the *High Scenario*. Then, over the 50 years that follow, immigration as a share of the population is held constant. This translates into a higher level of net migration. (See Chart 12.)

Also present in the *High Scenario* is an increase in the fertility rate from 1.6 in 2015 to 1.966 by 2023: this rate is then held constant (at 1.996) for the remainder of the forecast period. This is a substantial increase from the current level, although it remains slightly below the replacement rate of 2.1—the fertility rate at which the current population level can be maintained domestically over the long term. As a result of the boost in the fertility rate (to 1.966 by 2023) in the *High Scenario*, the natural increase in the population remains in positive territory throughout the projection period. (See Chart 13.)

Chart 12

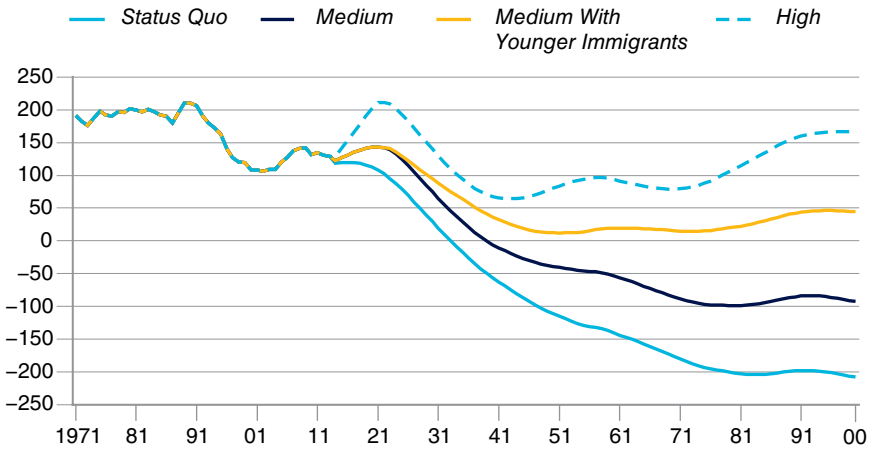
Net Migration—*Status Quo*, *Medium*, *Medium With Younger Immigrants*, and *High Scenarios*
(000s)



Sources: The Conference Board of Canada; Statistics Canada.

Chart 13

Natural Increase in the Population—*Status Quo*, *Medium*, *Medium With Younger Immigrants*, and *High Scenarios*, 1971–2100
(000s)



Sources: The Conference Board of Canada; Statistics Canada.

A fertility rate of 1.966 by 2023 is optimistic. Canada has not seen a fertility rate near the replacement rate of 2.1 since the 1970s. Without a substantial change in policies or social priorities, a fertility rate of 1.966 by 2023 is unlikely to occur. (See "The Impact of Government Policies on Fertility.")

The Impact of Government Policies on Fertility

Although some literature suggests government policies can have an impact on fertility rates, the magnitude of the impact tends to be small or non-existent. In "The Impact of Family Policies on Fertility in Industrialized Countries: A Review of the Literature," Anna H. Gauthier reports that, while many studies suggest a small positive effect of government policies on fertility, they may be capturing only an effect on the timing of births, not on final family size. Many studies report no impact at all of government policies on fertility. Consequently, the effect of government policies on fertility is likely small.

The fact that France (which has pro-family policies) has a higher fertility rate than Germany has often been used as evidence of the positive effect of government policies on the fertility rate. However, France's fertility rate is similar to that of the U.K. where government pro-family policies are much less extensive. Here in Canada, Quebec has more-supportive family policies than the rest of Canada, with policies such as its popular government daycare. However, Quebec's fertility rate is similar to the rest of Canada.

Although the literature is inconclusive on whether government policies can have an impact on fertility rates, it is clear that significant changes would have to occur to reverse 40 years of declining fertility rates.

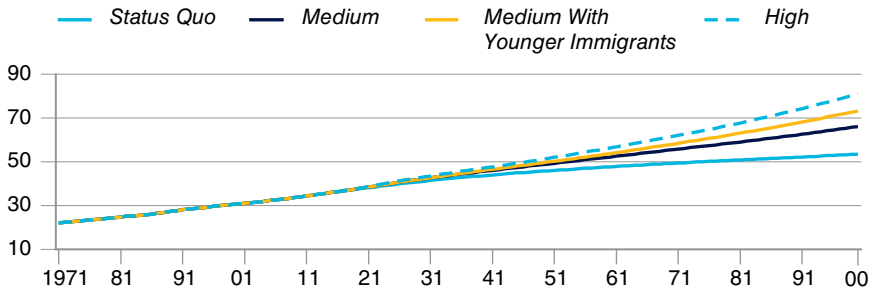
Source: Anne H. Gauthier, "The Impact of Family Policies on Fertility in Industrialized Countries: A Review of the Literature," *Population Research and Policy Review* 26, no. 3, 328, 334.

With the higher fertility rate and higher level of net migration, the total population under the *High Scenario* is expected to reach 81.8 million people by 2100, a gain of 15 million people compared with the *Medium Scenario*. (See Chart 14.)

Chart 14

Total Population—*Status Quo*, *Medium*, *Medium With Younger Immigrants*, and *High Scenarios*, 1971–2100

(millions)



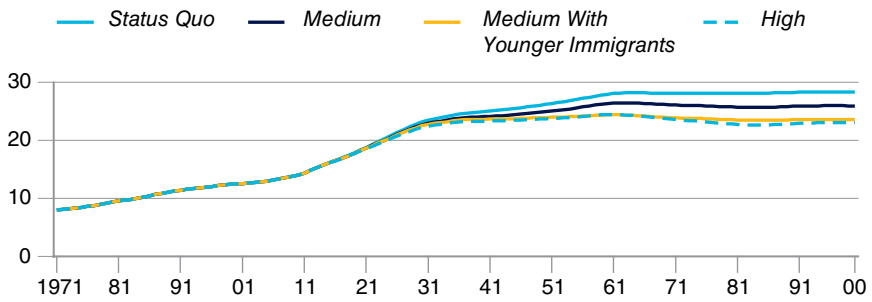
Sources: The Conference Board of Canada; Statistics Canada.

The share of the population aged 65 and over in the *High Scenario* is very close to that in the *Medium Scenario With Younger Immigrants*. The proportion of the population aged 65 and over in the *High Scenario* steadily increases from 16.1 per cent in 2015 to 24.5 per cent in 2060 (compared with 28 per cent in the *Status Quo Scenario*). In the *High Scenario*, between 2060 and 2075, the share of the population 65 and over falls slowly and stabilizes around 23 per cent for the remainder of the forecast. (See Chart 15.)

Chart 15

Proportion of the Population Aged 65 and Over—*Status Quo*, *Medium*, *Medium With Younger Immigrants*, and *High Scenarios*, 1971–2100

(per cent)



Sources: The Conference Board of Canada; Statistics Canada.

The faster-growing economy in the *High Scenario* generates more revenue for the provincial and federal governments than do the previous three scenarios.

Economic and Fiscal Summary

In the *High Scenario*, higher fertility rates and immigration levels lead to stronger economic growth than that in previously mentioned scenarios. Housing starts are higher in this scenario (269,000 versus 165,000 in the *Medium Scenario*) and the additional spending on durable goods boosts economic growth over the long term. Also, investment spending expands at a quicker pace, as a faster-growing economy requires more machinery and equipment. Real GDP growth averages 2.2 per cent per year by 2100, compared with growth of 1.9 per cent in the *Medium Scenario*.

The faster-growing economy in the *High Scenario* generates more revenue for provincial and federal government coffers than do the previous three scenarios. However, higher revenues are not enough to significantly lower the share of revenues that governments in Canada spend on OAS and health care services. The more optimistic assumptions concerning fertility rates and immigration levels in the *High Scenario* are not enough to offset the fact that the population continues to age at a fast pace. The share of Canada's population aged 65 and over by 2060 is 24.5 per cent in the *High Scenario* (as compared with 26 per cent in the *Medium Scenario* and 28 per cent in the *Status Quo Scenario*).

However, when the share of provincial government revenue spent on health care peaks in the 2040s for both the *High* and *Status Quo* scenarios, there is little difference in the results. In both scenarios, the share of provincial government revenue spent on health care is around 44 per cent. In the 2040s, the baby boomers require large expenditures on health care and OAS. In these scenarios, governments in Canada will have to consider other policy options in addition to increasing immigration levels to fund the rising expenditures.

Scenario 5: *100 Million Scenario*

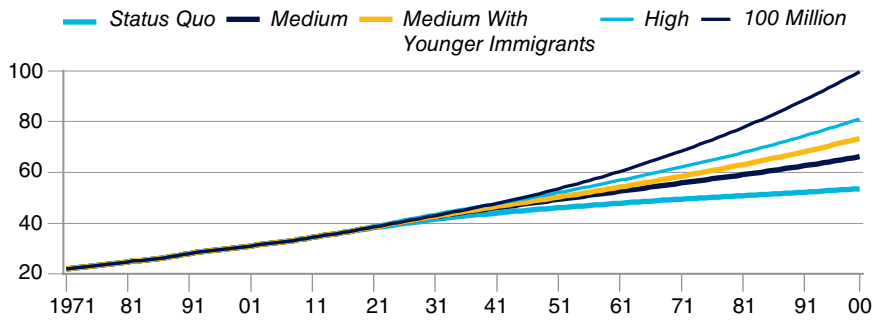
Demographic Trends

The *100 Million Scenario* is the most optimistic population growth scenario with respect to immigration levels. The only difference between it and the *Medium Scenario With Younger Immigrants* is the assumption that annual immigration increases enough for Canada's population to reach the 100 million by 2100. (See Chart 16.) Under this *100 Million Scenario*, annual immigration increases steadily to reach 408,000 annual immigrants by 2030. From 2030 to 2050, it grows by 2.0 per cent annually; thereafter, immigration as a share of the total population is held constant. This translates to a higher level of net migration. (See Chart 17.)

Chart 16

Total Population—*Status Quo*, *Medium*, *Medium With Younger Immigrants*, *High*, and *100 Million Scenarios*, 1971–2100

(millions)

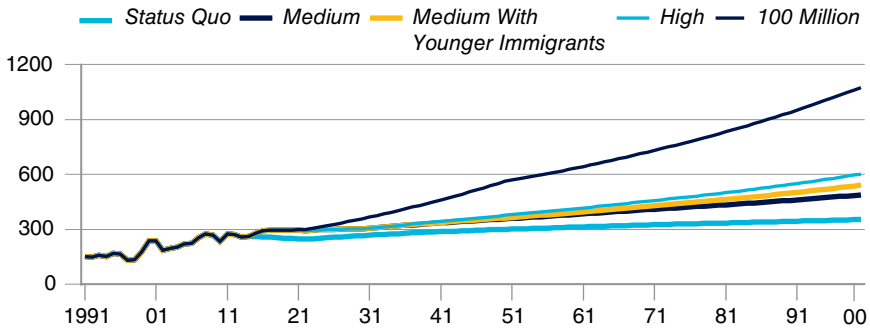


Sources: The Conference Board of Canada; Statistics Canada.

Chart 17

Net Migration—*Status Quo*, *Medium*, *Medium With Younger Immigrants*, *High*, and *100 Million Scenarios*

(000s)



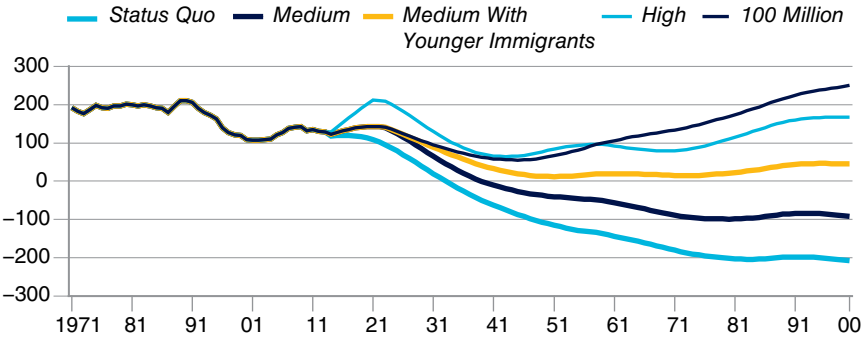
Sources: The Conference Board of Canada; Statistics Canada.

Unlike the fertility rate in the *High Scenario* (which grew to 1.966 by 2023 and held constant afterwards), the fertility rate in this scenario increases to 1.7 by 2023 and is then held constant for the remainder of the forecast period through 2100. However, the higher level of net migration translates into more births. As a result, the natural increase in the population in this scenario surpasses that in the *High Scenario* (with the higher fertility rate) in 2059. (See Chart 18.)

In the *100 Million Scenario*, the proportion of the population aged 65 and over never rises above 23.2 per cent and eventually stabilizes around 21.3 per cent. Even in this very optimistic scenario, the aging of the baby boomers has a large impact on the composition of the Canadian population over the next 40 years. The proportion of the population aged 65 and over never falls below 20 per cent. (See Chart 19.) The *100 Million Scenario* would result in a dramatically different demographic composition of Canada by 2100. (See Chart 20.)

Chart 18

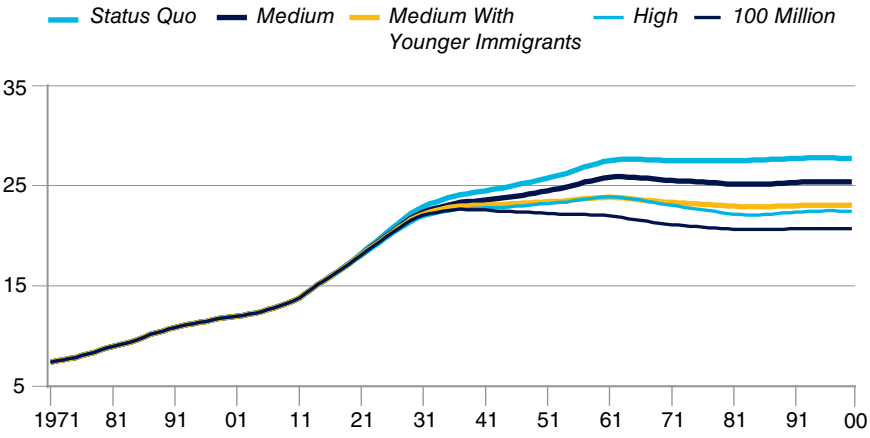
Natural Increase in the Population—*Status Quo*, *Medium*, *Medium With Younger Immigrants*, *High*, and *100 Million Scenarios*, 1971–2100
(000s)



Sources: The Conference Board of Canada; Statistics Canada.

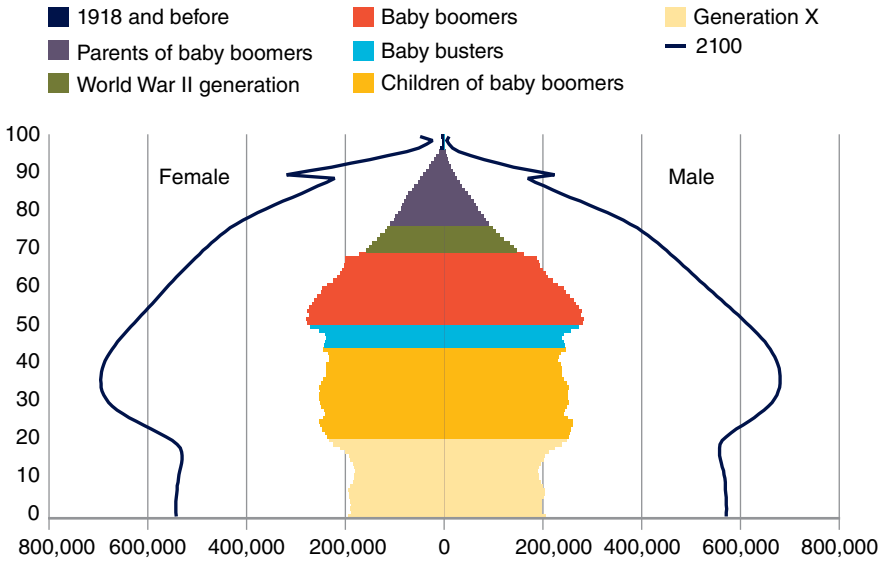
Chart 19

Proportion of the Population Aged 65 and Over—*Status Quo*, *Medium*, *Medium With Younger Immigrants*, *High*, and *100 Million Scenarios*, 1971–2100
(per cent)



Sources: The Conference Board of Canada; Statistics Canada.

Chart 20
Canadian Population Dynamics, 2015 and 2100
(population by single-age cohort)



Sources: The Conference Board of Canada; Statistics Canada.

Economic Trends

The assumption that immigration levels rise sufficiently for Canada's population to reach 100 million results in a sharp increase in Canada's potential output over the long term. Canada's labour force expands at a much faster pace than it does in the other scenarios. Housing starts reach 432,000 by 2100, compared with 268,000 in the *High Scenario*, which leads to much faster growth in spending on durable goods over the forecast period. Investment spending also increases at a faster pace than it does in the other scenarios, supporting a quickly expanding economy.

The surge in immigration under the *100 Million Scenario*, however, does not lower the proportion of the population aged 65 and over to present levels (around 16.1 per cent in 2015) over the long term. After peaking at 23.2 per cent in 2039, the share of the population 65 and over stabilizes at about 21 per cent in the latter years of the forecast period.

The share of provincial government revenue spent on health care remains at, or close to, the 44 per cent mark for all of the scenarios in the 2040s.

Higher potential economic growth—estimated to be 2.3 per cent in 2050 and 2.6 per cent in 2100—leads to greater revenue for both provincial and federal governments. This reduces the share of revenues required to fund both OAS, health care, and other services. However, governments in Canada still have to devote a large portion of their revenues to funding public programs, especially in the 2030s and 2040s—a period when virtually all of the baby boomers have left the workforce, are collecting OAS, and are increasing their use of the health care system. The share of provincial government revenue spent on health care remains at, or close to, the 44 per cent mark for all of the scenarios in the 2040s.

Under this scenario, by 2100, the share of revenue spent on OAS at the federal level is less than 10 per cent, a significant reduction from the 12 per cent share in the *Status Quo Scenario* and 11.2 per cent share in the *Medium Scenario*. Similarly, the share of provincial government revenue going to health care declines to 29.2 per cent by 2100, compared with 34.5 per cent in the *Status Quo Scenario*.

CHAPTER 4

Conclusion

Chapter Summary

- The aging of Canada's population will have a significant impact on Canada's potential economic growth. Weaker labour force growth will have a negative impact on household spending, while a more slowly expanding economy will engender less investment spending.

- Weaker economic growth over the long term will limit the amount of revenue that governments in Canada collect over the forecast period at a time when the aging of Canada's population will require significantly more expenditures for both health care and OAS.

- Higher immigration can increase the growth of Canada's labour force over the long term and generate higher economic growth.

- A larger Canadian population cannot completely offset the effects of an aging population on the Canadian economy, but the economy is projected to be significantly stronger with 100 million Canadians than with 54 million (under the *Status Quo Scenario*).

Growing Canada's population through immigration boosts economic growth and softens the economic burden of an aging population and low birth rates.

The aging of Canada's population will have a significant impact on Canada's potential economic growth. Weaker labour force growth will have a negative impact on household spending, while a more slowly expanding economy will require less investment spending.

In the *Status Quo Scenario*, we estimate that potential economic growth in Canada will slow down to around 1.6 per cent by 2100; even lower than the tepid growth of 2 per cent that is expected over the near term. The weaker economic growth over the long term will limit the amount of revenue that governments in Canada collect over the forecast period, at a time when the aging of Canada's population will require sharply higher expenditures for both health care and OAS. Funding health care, OAS, and other public services and infrastructure will be extremely challenging. Provincial governments, in particular, will continue to struggle to provide adequate funding for health care—particularly over the next 35 years, when the baby boomers move into high-cost age cohorts.

Higher immigration has the potential to increase the growth of Canada's labour force over the long term and generate higher economic growth. A larger Canadian population cannot completely offset the effects of an aging population on the Canadian economy, but it does help soften the impact. The five scenarios presented and analyzed in this report reveal that, while a higher population and growth through immigration levels and increasing fertility will reduce the share of revenues that the federal and provincial governments spend on OAS and health care, it will be difficult to make a major dent in the shares required to fund these programs over the long term. In all five scenarios presented, the share of provincial revenues required to fund a similar health care system does not drop below 40 per cent during the 2030s and 2040s, when virtually all of the baby boomers are retired and collecting OAS.

Growing Canada's population through immigration boosts economic growth and softens the economic burden of a rapidly aging population and low birth rates in Canada. However, to fully address the challenges

of Canada's demographic future, other policy initiatives will also be required so that federal and provincial governments in Canada can raise the revenues they need to fund OAS and health care programs.

Table 2
Comparing Population and Dependency Ratios Across Scenarios

	Population (millions)					Dependency ratio				
Scenario	**2014**	**2030**	**2050**	**2070**	**2100**	**2015**	**2030**	**2050**	**2070**	**2100**
Status Quo	35.9	41.4	46.1	49.5	53.7	0.61	0.77	0.81	0.87	0.87
Medium	35.9	42.7	49.3	55.8	66.5	0.61	0.79	0.81	0.86	0.87
Medium With Younger Immigrants	35.9	42.7	50.3	58.5	73.9	0.61	0.78	0.81	0.83	0.82
High	35.9	43.5	52.0	62.1	81.8	0.61	0.82	0.84	0.88	0.86
100 Million	35.9	43.0	53.5	68.4	101.0	0.61	0.78	0.79	0.78	0.77

Sources: The Conference Board of Canada; Statistics Canada.

Table 3
Comparing Natural Increase and Immigration Levels Across Scenarios
(000s)

	Natural increase					Immigration levels				
Scenario	**2014**	**2030**	**2050**	**2070**	**2100**	**2015**	**2030**	**2050**	**2070**	**2100**
Status Quo	118	30	–111	–177	–208	273	313	349	376	408
Medium	122	75	–39	–86	–93	293	353	409	463	552
Medium With Younger Immigrants	122	95	12	16	45	293	353	416	484	611
High	129	140	80	79	167	293	353	430	514	676
100 Million	122	100	63	131	250	293	408	618	789	1,164

Sources: The Conference Board of Canada; Statistics Canada.

Table 4
Comparing Share of Population Over 65 and Real GDP Across Scenarios
(percent)

	Share of population over 65					Real GDP				
Scenario	**2014**	**2030**	**2050**	**2070**	**2100**	**2015**	**2030**	**2050**	**2070**	**2100**
Status Quo	15.7	23.2	26.2	28.1	28.3	1.08	1.71	1.59	1.61	1.55
Medium	15.7	22.7	25.0	26.2	26.0	1.08	1.82	1.82	1.90	1.88
Medium With Younger Immigrants	15.7	22.5	24.0	24.0	23.6	1.08	1.83	1.96	2.07	2.07
High	15.7	22.3	23.7	24.0	23.1	1.08	1.82	2.03	2.23	2.23
100 Million	15.7	22.4	22.9	21.8	21.3	1.08	1.92	2.34	2.57	2.60

Sources: The Conference Board of Canada; Statistics Canada.

Table 5
Comparing Labour Participation Rates and Provincial Health Care Spending Across Scenarios
(percent)

	Labour participation rates					Real GDP				
Scenario	**2014**	**2030**	**2050**	**2070**	**2100**	**2015**	**2030**	**2050**	**2070**	**2100**
Status Quo	15.7	23.2	26.2	28.1	28.3	1.08	1.71	1.59	1.61	1.55
Medium	15.7	22.7	25.0	26.2	26.0	1.08	1.82	1.82	1.90	1.88
Medium With Younger Immigrants	15.7	22.5	24.0	24.0	23.6	1.08	1.83	1.96	2.07	2.07
High	15.7	22.3	23.7	24.0	23.1	1.08	1.82	2.03	2.23	2.23
100 Million	15.7	22.4	22.9	21.8	21.3	1.08	1.92	2.34	2.57	2.60

Sources: The Conference Board of Canada; Statistics Canada.

Table 6
Comparing Largest Age Cohorts Across Scenarios

	Largest age cohort				
Scenario	**2014**	**2030**	**2050**	**2070**	**2100**
Status Quo	50–54	35–39	55–59	45–49	45–49
Medium	50–54	35–39	55–59	45–49	45–49
Medium With Younger Immigrants	50–54	35–39	30–34	40–44	35–39
High	50–54	35–39	55–59	45–49	40–44
100 Million	50–54	35–39	30–34	35–39	35–39

Sources: The Conference Board of Canada; Statistics Canada.

Table 7
Fertility Rate Assumptions, by Scenario

Assumptions	Fertility rate
Status Quo	1.56 constant throughout
Medium	Grows to 1.70 in 10 years, held constant afterward
Medium With Younger Immigrants	Grows to 1.70 in 10 years, held constant afterward
High	Grows to 1.96 in 10 years, held constant afterward
100 Million	Grows to 1.7 in 10 years, held constant afterward

*Assumptions regarding death rates, emigration, non-permanent residents, returning emigrants, and temporary emigrants are all consistent across scenarios.
Source: The Conference Board of Canada

Table 8
Immigration Assumptions, by Scenario

Assumptions	Immigration
Status Quo	Share of total population held constant
Medium	Grows to 350,000 by 2030, then share of total population held constant
Medium With Younger Immigrants	Same as Medium, but with average age of immigrants lowered by 3 years
High	Grows to 350,000 by 2030, then grows by 1 per cent a year until 2050; afterward, share of total population held constant until 2100
100 Million	Grows to 408,000 by 2030, then grows by 2 per cent a year until 2050; average age of immigrants lowered by three years. afterward, share of total population held constant until 2100

Source: The Conference Board of Canada

APPENDIX A

Estimating Canada's Long-Term Potential Output, Government Revenues, and Expenditures

The Conference Board of Canada's standard way to estimate Canada's potential output is based on a Cobb-Douglas production function, which estimates the economy's production capacity given its labour supply potential, its current capital stock, and the available technology. Potential labour output is estimated by projecting labour participation rates (by age and gender) based on past trends and projections of changes in the average age of retirement (which is rising). This is combined with demographic projections, a forecast of the natural unemployment rate, and potential average hours worked to estimate Canada's level of potential employment. The natural unemployment rate is the lowest level of unemployment that can be sustained in the economy without creating inflation. It is estimated over time and is based on various factors, such as the generosity of the employment insurance program and other social programs. Potential average hours worked are estimated over time and are based on past trends and the changing age structure of the labour force. The capital stock is determined simply as the capital stock at the end of the last period, plus projections of new investment, less depreciation. The final category of potential output is total factor

productivity (TFP) or technological change. Historically, TFP has been simply defined as the gain in output growth that is not accounted for by improvements and growth in labour and capital. Over the forecast period, it is assumed to grow at its historical average rate.

Due to an aging population, potential labour force growth will not keep pace with population growth. Strong population gains in the 65-and-over age group will overshadow growth in the 15-to-64 age group across each of the scenarios. This will cause the overall labour participation rate to decline gradually, as baby boomers move progressively into older cohorts. Cohorts aged 60 and over have lower labour force attachment, due largely to the effects of health problems and retirement. Even though we assume labour participation rates among older cohorts will increase over the forecast horizon, this will not be enough to offset the rising number of retirements. Therefore, as a growing proportion of the Canadian population moves into the 65-and-over cohort, the overall labour force participation rate will fall abruptly.

Not only do older cohorts have lower participation rates, but they are also much more likely to work part-time hours, which further reduces potential labour supply. For example, the average employed male in the 55-to-64 age cohort worked an average of 36.3 hours per week in 2013. For an employed male in the 65-and-over cohort, that number falls to 30.1 hours. Lower participation rates and fewer hours worked will be offset somewhat by continued declines in the natural rate of unemployment, driven by the increase in the average age of the labour force. Since older workers are not as likely to quit their jobs to look for other work, the average number of unemployed workers between jobs (frictional unemployment) will decrease as the average age of the labour force rises.

The 2008–09 recession increased the output gap to its highest level since the 1982 recession, and it is expected to remain negative through 2018. Despite slower-than-expected growth over the last two years, real GDP growth is still projected to outpace potential output growth over the

medium term. This will lead to a closing of the gap in 2021. Over the long term, real GDP growth will align with our forecast for potential output. As such, potential output is key to our analysis of Canada's fiscal capacity.

To project government revenues over the long term, the Conference Board maintains a detailed fiscal model that projects each of the government revenue categories, based on the components of nominal GDP and population.

Old Age Security is currently the largest category of federal government spending, representing 16.7 per cent of the total budget for program spending. Our forecast is based on projections of the number of recipients and the average pension, which is indexed to inflation.

To assess the demand for health care, the Conference Board has built a detailed, demographically driven health expenditure model. This model projects total provincial health care expenditures for nine components of public health. Five of these components are modelled by detailed age and gender cohorts, allowing not just for population growth, but also for the changes in Canada's demographic composition that drive health care needs. Specifically, hospitals, physicians, other institutions, other professionals, and drugs are each broken down for 40 separate age and gender cohorts and forecast in real (i.e., inflation-adjusted) terms. Capital investment, public health, administration, and other health spending categories are forecast on a more aggregate, total real per capita basis.

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PUBLICATION 8282 | 8285
PRICE: Complimentary