



Department of Finance
Canada

Ministère des Finances
Canada

Economic and
Fiscal Implications of
Canada's Aging Population

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Canada

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Cat. No.: F2-217/2012E-PDF
ISBN: 978-1-100-21409-2



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NOTE TO READERS

The historical Canadian economic data in this document are taken from the March 2, 2012 release of the National Income and Expenditure Accounts, except where otherwise noted.

The starting point for the long-term economic and fiscal projections presented in this document is the projection for the 2012 to 2016 period presented in *Budget 2012: Economic Action Plan 2012—A Plan for Jobs, Growth and Long-Term Prosperity*.



Introduction

In 2006, the Government launched a comprehensive economic plan to foster strong, sustainable, long-term economic growth, building on Canada's key economic advantages. The Government followed through by implementing broad-based tax reductions, paying down debt, and investing in knowledge and infrastructure.

These actions put the Canadian economy on a solid foundation for sustainable, long-term economic growth. They also placed Canada in a stronger position than most other countries to respond quickly and effectively during the 2008–2009 global recession to support the economy and protect Canadian jobs.

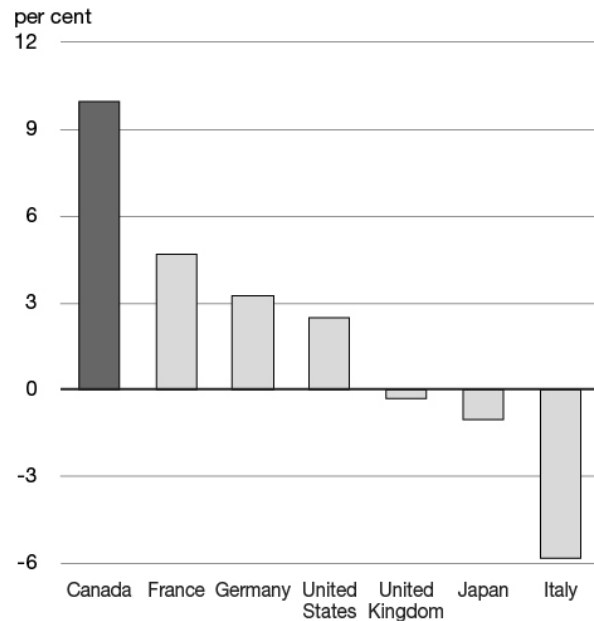
The fundamental strength of the Canadian economy was reflected in the fact that Canada fared better than other Group of Seven (G-7) countries in the face of the global recession and during the recovery. The strength of the economy has also been reflected in a strong economic performance over the past six years, with Canada recording the strongest growth in income per capita among G-7 countries, compared to the weakest growth performance in the 1990s.

A key factor behind Canada's strong economic performance has been its strong employment performance, with almost 1.4 million jobs created since the beginning of 2006, the strongest employment growth in the G-7. As a result, Canada now has the highest employment rate—the percentage of the population employed—in the G-7.

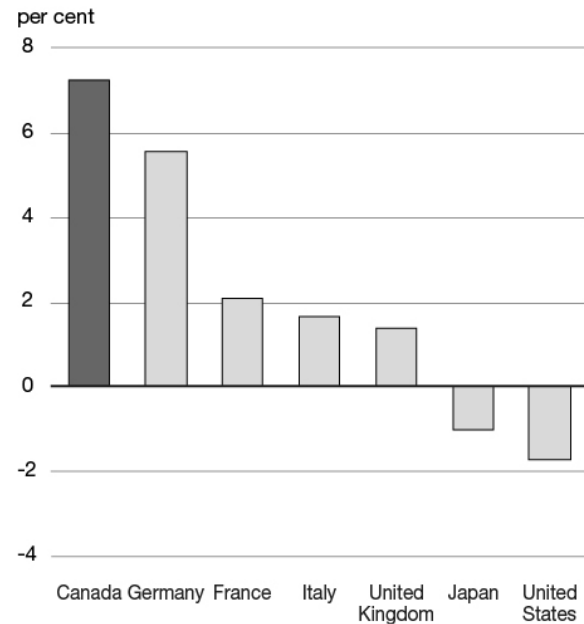


Employment and income have grown faster in Canada than in any other G-7 country since 2006

Growth in real per capita disposable income from 2006 to 2011



Growth in employment from 2006 to 2011



Notes: This chart shows gross personal disposable income deflated by the Consumer Price Index. Base year for calculations is 2005. Data for Japan and Italy are up to 2010. The cut-off date for data included in this chart is the week of October 15, 2012.

Notes: Base year for calculations is 2005. The cut-off date for data included in this chart is the week of October 15, 2012.

Sources: Haver Analytics; International Monetary Fund; Department of Finance calculations.

Going forward, however, demographic changes will make it increasingly difficult to continue to improve the income and standard of living of Canadians through increases in the employment rate. Projections show that, as a result of population aging, the proportion of the population of working age (15 to 64) will shrink over the coming decades, which will lead to an inevitable fall in the employment rate.

Faced with an aging population, the first imperative is to redouble efforts to boost productivity growth so that Canadian workers can produce more and better goods and services and be better paid. To increase productivity growth, Canada will need to continue to invest in the key drivers of productivity: innovation, human capital and business investment. These three drivers interact with each other to improve productivity. For instance, skilled workers using modern equipment with the latest technology complement and reinforce each other. At the same time, corporate structure and culture, as well as business workplace organization, also have a significant impact on productivity. While most of the investments in the drivers of productivity result from private decisions by individuals and businesses, the Government can strengthen its policy framework to encourage these investments.



The second imperative is to ensure that an increasing number of Canadians have the necessary skills and the incentives to fully participate in the workforce. This will help mitigate the impact of population aging on Canada's economy. While Canada's labour force participation rate is higher than in most other advanced countries, there is room for improvement. For example, Canadians aged 55 and over are less active in the labour market than in many other advanced countries and workforce participation is a challenge for a number of Canadians, including Aboriginal people, recent immigrants, less-skilled individuals, young people, and persons with disabilities.

Indeed, building on Government actions taken since 2006, *Budget 2012: Economic Action Plan 2012—A Plan for Jobs, Growth and Long-Term Prosperity* announced a number of important structural economic initiatives to create an environment conducive to higher productivity and support the participation of Canadians in the workforce. The payoff from starting to pursue these structural initiatives now is potentially very large as these policies will tend to reinforce each other over time.

At the same time, ensuring that public finances are sustainable is one of the best ways that governments can contribute to long-term economic growth and job creation. Sustainable and responsible fiscal management put Canada in a position of strength when it came time to combat the effects of the global recession, as it enabled the Government to respond quickly through the stimulus phase of Canada's Economic Action Plan. Going forward, maintaining fiscal sustainability and flexibility as the Canadian population ages will require returning to balanced budgets over the medium term and putting the public debt-to-GDP (gross domestic product) ratio on a downward track.

As a first crucial and necessary step to guarantee long-term fiscal sustainability, the Government has taken measured actions since the end of the recession to ensure a return to balanced budgets over the medium term, including bringing federal public sector compensation in line with that of other public and private sector employers and restraining growth in direct program spending. In addition, these actions have been supplemented by measures to preserve social programs. Combined, these actions will help ensure the sustainability of Canada's public finances and social programs over the longer term.

Indeed, the projections contained in this document suggest that these actions should be sufficient to ensure long-term fiscal sustainability based on current demographic and economic trends. However, like any projection that extends over the long term, the "status quo" fiscal projections presented in this document, as well as the underlying demographic and economic projections, are subject to considerable uncertainty. In particular, the baseline economic and fiscal projections do not take into account the likelihood that Canada could be hit by other recessions. This is why the Government will follow through on its plan to return to balanced budgets over the medium term by restraining growth in operating spending and ensuring that existing spending is as efficient as possible. Achieving this goal will provide the Government with the flexibility to respond to unexpected economic shocks.

This document describes the demographic transition that is underway, discusses the economic and public finance implications of this transition, and identifies public policy directions that will help Canada deal with the consequences of an aging population.



A central conclusion of the document is that acting and planning now to prepare for the challenge of an aging population will support long-term economic growth and avoid the need to take drastic or inequitable actions in the future, such as significant tax increases or service reductions.

This document is structured as follows:

- **The demographic challenge:** Population aging will be a key challenge over the coming decades as the share of the population aged 65 and older increases and the share of the population of working age falls.
- **Economic implications:** Unless productivity growth and labour market participation improve, population aging is expected to lead to lower growth in output and income and increase the possibility of labour shortages. While most decisions determining productivity growth and workforce participation are made by individuals and businesses, governments can play an important role by putting in place public policies that encourage productivity-enhancing investments and workforce participation. In this respect, the Government has implemented and announced a number of important structural economic initiatives to create an environment conducive to higher productivity and support the participation of Canadians in the workforce, which should help offset some of the impacts of population aging.
- **Implications for public finances:** Through slower economic growth, population aging is expected to reduce the growth rate of government revenues, thereby limiting the capacity of governments to continue to finance growth in public expenditures at rates as high as in the past. At the same time, population aging will put upward pressure on public expenditures, notably for age-related programs such as health care and elderly benefits. With the Government's plan to return to balanced budgets over the medium term and to ensure the sustainability of public finances over the longer term, Canada is better prepared than most countries to adjust to the demographic changes now underway.



Chapter 1

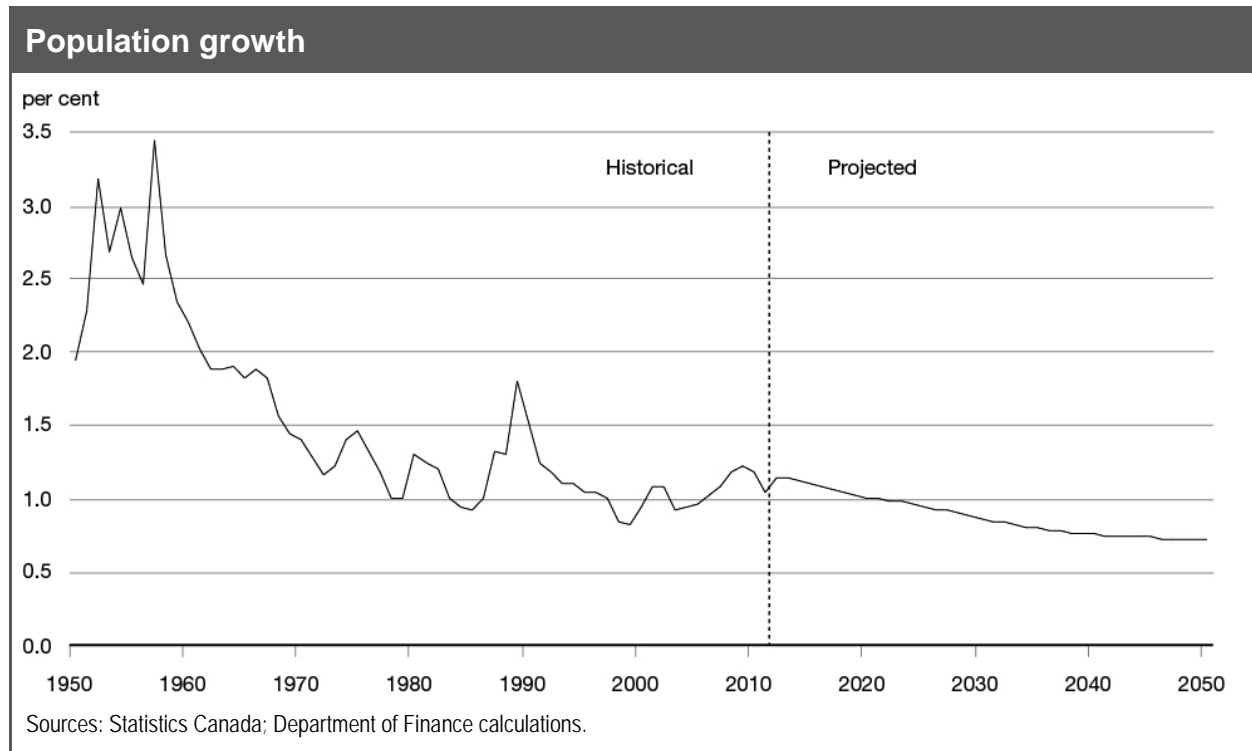
The Demographic Challenge

HIGHLIGHTS

- ✓ As a result of significant improvements in life expectancy and a significant drop in the fertility rate, the Canadian population has gradually become older over the past decades.
- ✓ However, with the oldest members of the large baby boom generation now reaching retirement age, the aging of the Canadian population is soon set to accelerate.
- ✓ Indeed, the ratio of the elderly to the working-age population is expected to nearly double over the next 20 years.
- ✓ While population aging is a worldwide phenomenon, Canada is expected to age more rapidly than most other countries.
- ✓ As a result, while Canada currently has a lower ratio of elderly to working-age population than most other countries in the Organisation for Economic Co-operation and Development (OECD), accelerated population aging is expected to push the ratio in Canada above the OECD average by 2030.
- ✓ A higher fertility rate and higher levels of immigration could help slow population aging but would not prevent it.



Population growth is on a declining trend



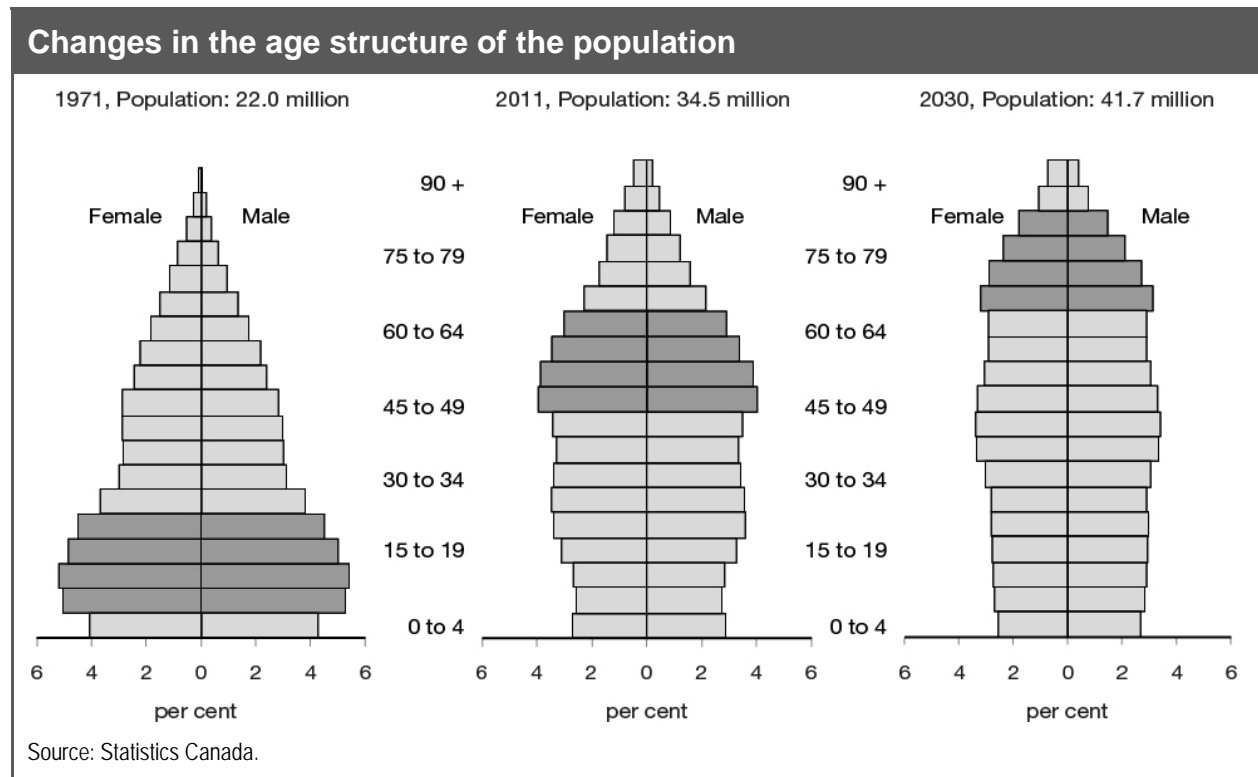
- The growth rate of Canada’s population has been on a declining trend since the late 1950s, reflecting a gradual decline in the fertility rate.¹
- The fertility rate in Canada has rapidly decreased from a high of 3.9 children per woman in 1959 to 1.7 in 1979, and has stayed close to this level ever since. The fertility rate has been declining to varying degrees in most advanced economies.
- In the late 1950s, at the peak of the baby boom, Canada’s population grew by 2.8 per cent a year. Since then, annual population growth has gradually declined and now stands at about 1 per cent annually.
- This downward trend is expected to continue in coming decades, with population growth projected to gradually fall to 0.7 per cent per year by 2050.²

¹ The total fertility rate is a synthetic measure of fertility that represents the average number of children that a woman would have if the current age-specific fertility rates prevail over her reproductive period.

² Unless otherwise noted, the population projections used in this document are from Statistics Canada. See Annex 1 for more details.



Substantial changes are also occurring to the age structure of the population



- Combined with falling fertility rates, positive developments in longevity, whereby Canadians have seen their life expectancy increase by about 20 years since the 1920s, have resulted in the Canadian population gradually growing older.
 - In the early 1970s, Canada's population stood at about 22 million, with an age pyramid consisting of a wide base, reflective of a young population.
 - Today's population stands at almost 35 million, with an age distribution that is no longer pyramidal.
 - In 2030, with a projected population of more than 40 million, the age structure is expected to have an even narrower base, as a greater share of the population will be in older age groups.

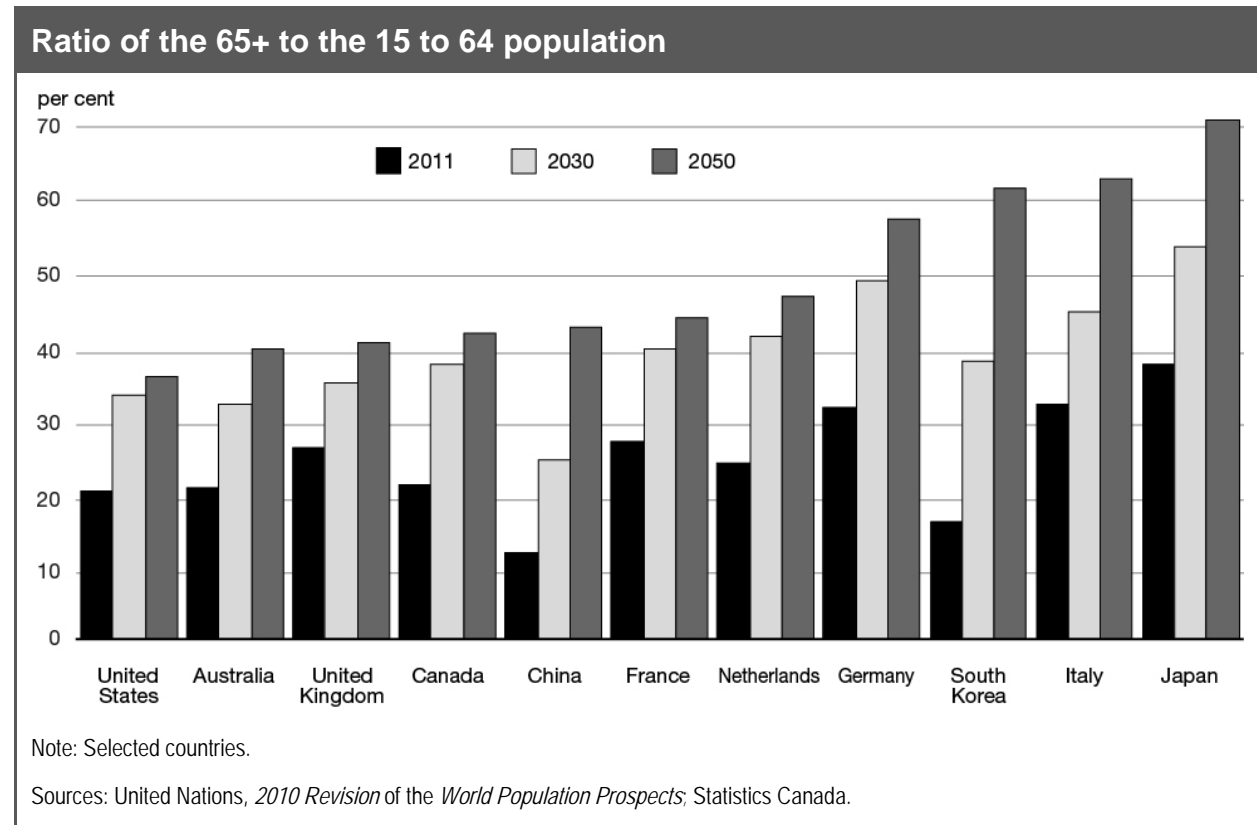


- Age pyramids allow us to see the influence of the baby boom generation (people born between 1946 and 1965) on the structure of the population. The importance of this generation is discernible (the darker shaded area of the age pyramids).
- Until now, the baby boom generation has slowed the pace of population aging. However, as baby boomers move into retirement, the opposite effect is expected to take hold, accelerating the pace of population aging.
- As the baby boom generation enters retirement age, the ratio of the elderly (65+) to the working-age (15 to 64) population is expected to almost double from its current level of about 21 per cent to 37 per cent in 2030.³

³ Throughout this document, the working-age population is defined as the population aged 15 to 64, following Statistics Canada's definition.



Population aging is a worldwide phenomenon...

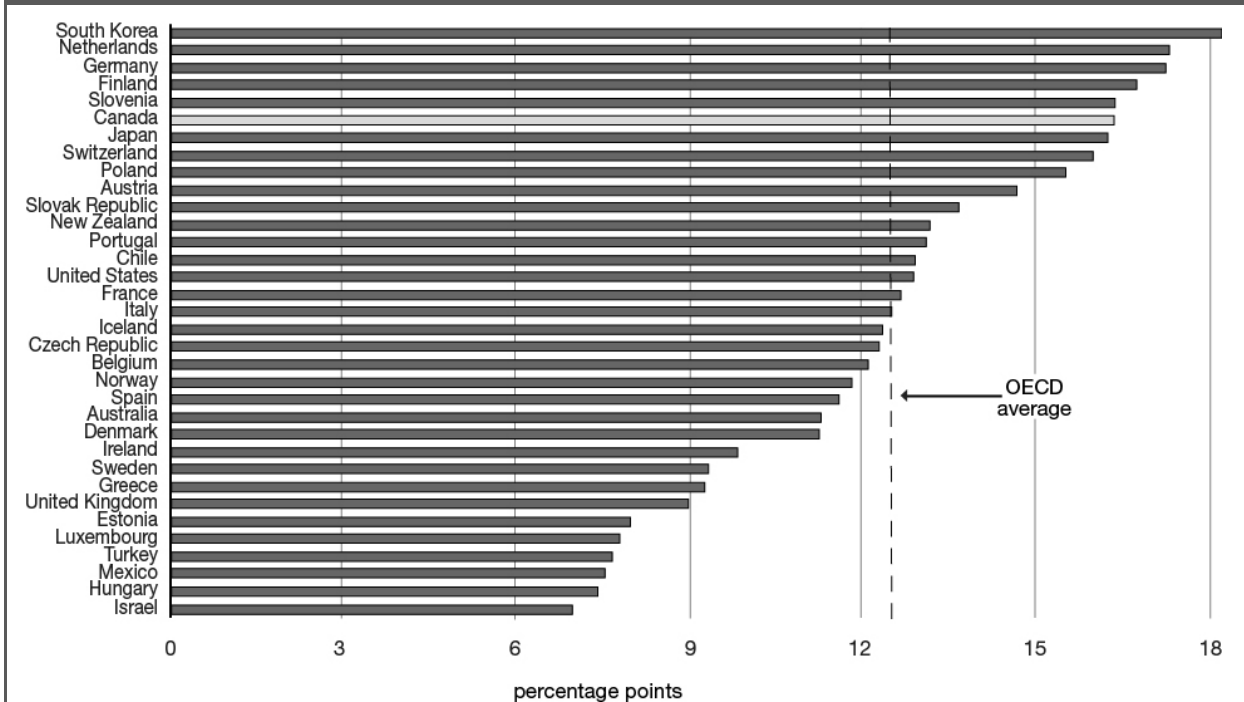


- Aging is not unique to Canada. It is a global phenomenon that is affecting or is expected to affect all advanced countries, as well as some developing ones, notably China.
- In OECD countries, the elderly to working-age population ratio is projected to increase, on average, from 23 per cent in 2011 to 35 per cent in 2030.
- At 37 per cent in 2030, Canada's elderly to working-age population ratio is projected to be: slightly above the OECD average but still slightly under the G-7 average (41 per cent); higher than that of the United States and the United Kingdom; close to the elderly ratio in France; and below that of Germany, Italy and Japan.
- The Chinese population is also projected to age significantly over the coming decades and is expected to be as old as the Canadian population by 2050.



...but Canada is expected to age more rapidly than most other countries

Change in the 65+ to the 15 to 64 population ratio, OECD countries, 2011–2030



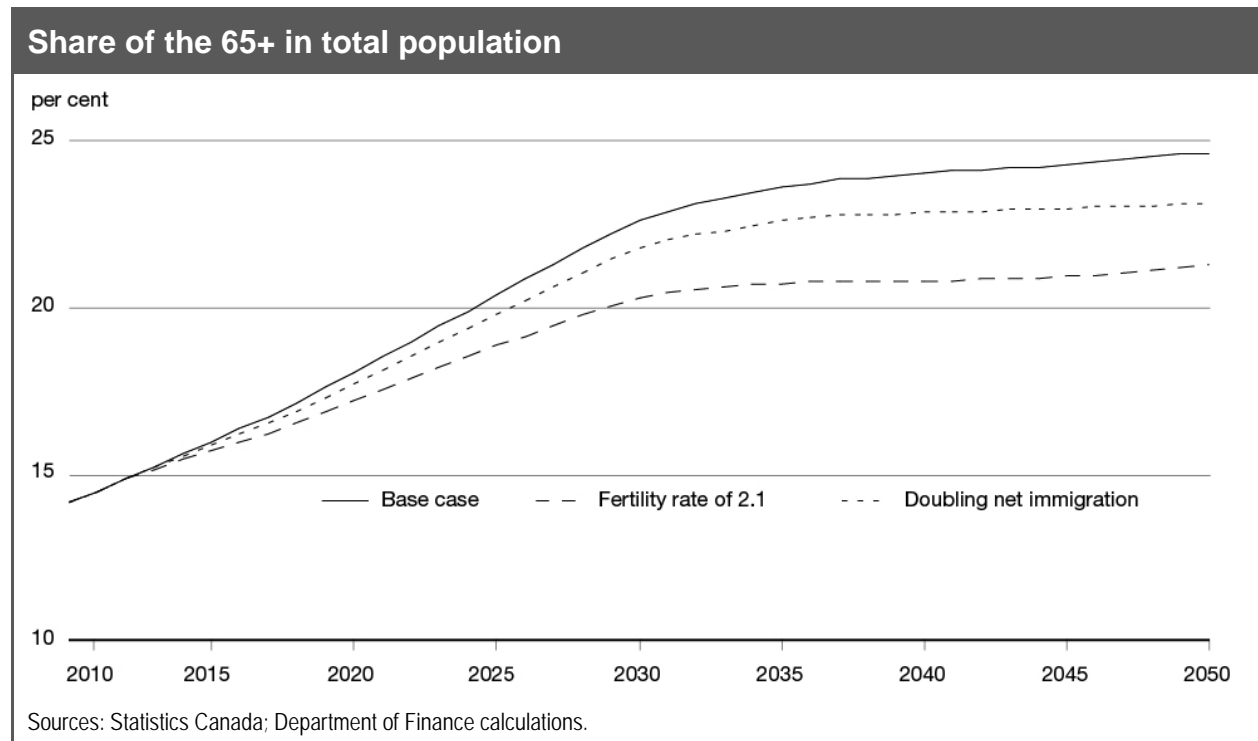
Note: OECD average based on 34 countries.

Sources: United Nations, *2010 Revision of the World Population Prospects*; Statistics Canada.

- While all advanced countries are expected to age over the coming decades, the Canadian population is projected to age more rapidly than that of most other OECD countries, based on estimates of the United Nations.
- Over the next two decades, the ratio of elderly to working-age Canadians is projected to increase by 16 percentage points, close to 4 percentage points above the OECD average.
- Five other OECD countries (Slovenia, Finland, Germany, the Netherlands and South Korea) are expected to record similar or larger increases in their elderly to working-age ratio over the same period.
- As a result, while Canada currently has a lower ratio of elderly to working-age population than most other OECD countries, accelerated population aging in Canada is expected to push this ratio slightly above the OECD average by 2030.
- This relatively rapid aging of the population means Canadians and their governments will have to deal with the economic and public finance implications of population aging in a shorter period of time.



Raising fertility and immigration rates could help slow population aging but would not prevent it



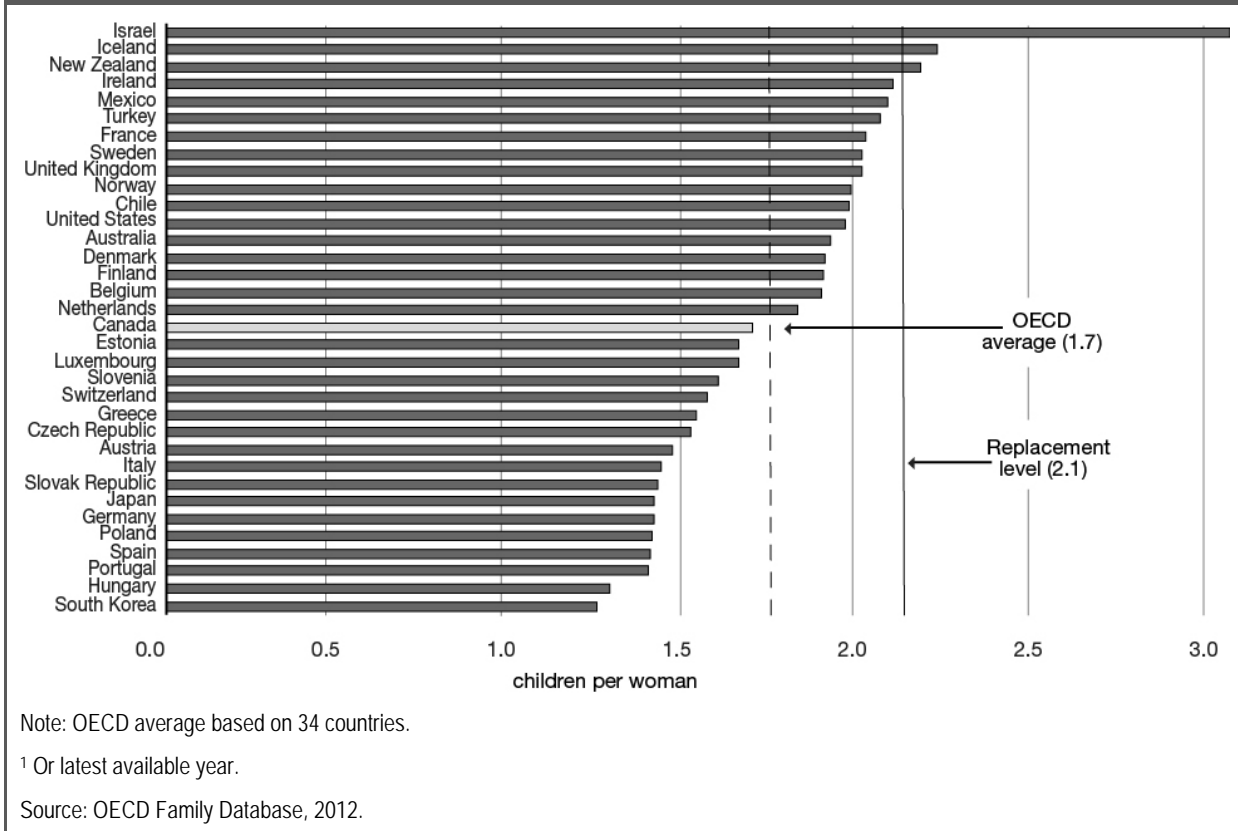
- Reasonable changes in the underlying determinants of population growth, such as immigration and births, could help slow the pace at which the population is expected to age, but they would not prevent it.⁴
- For instance, even if the fertility rate were to rise to the replacement level of 2.1 or net immigration (immigrants plus returning emigrants minus emigrants) levels were doubled, the share of the elderly in the total population would still increase sharply by 2050. By that time, the share of the elderly in the total population would be reduced by a little more than 3 percentage points under the higher fertility scenario, and by less than 2 percentage points under the higher net immigration scenario.
- Furthermore, as illustrated below, raising the fertility rate to 2.1 or doubling net immigration levels would both be challenging, given the low fertility rates in almost all OECD countries and given that Canada already has one of the highest immigration rates in the industrialized world.

⁴ See also Banerjee, R. and William B.P. Robson (July 2009), "Faster, Younger, Richer? The Fond Hope and Sobering Reality of Immigration's Impact on Canada's Demographic and Economic Future." C.D. Howe Institute Commentary, No. 291.



Fertility rates are below the replacement level in almost all OECD countries

Total fertility rate, OECD countries, 2010¹

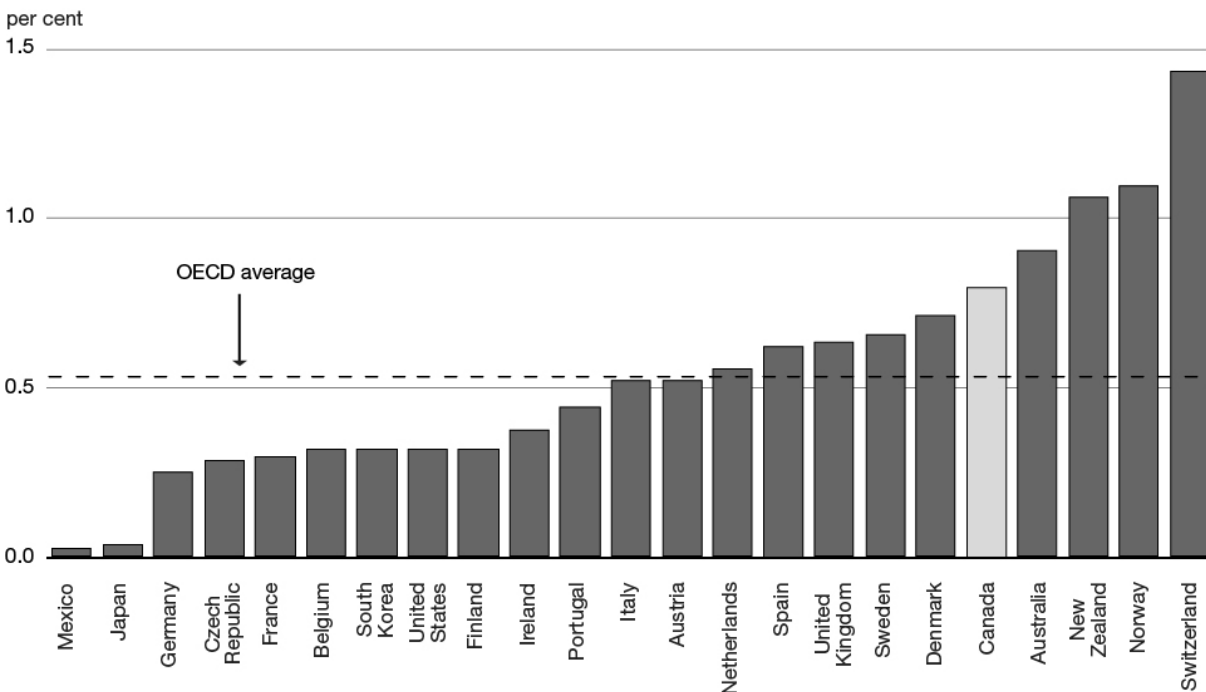


- A common trend in almost all OECD countries is declining fertility rates. In 1970, the average fertility rate in OECD countries stood at 2.7 children per woman. This rate had declined to 1.7 in 2010.
- At close to 1.7 children per woman in 2010, Canada’s fertility rate was similar to the OECD average, but below the replacement level of 2.1.
- Only Israel (3.0) had a fertility rate significantly above the replacement level, while a few countries had a rate at about that level in 2010 (Iceland, New Zealand, Ireland and Mexico).
- Among G-7 countries, France (2.0), the United Kingdom (2.0) and the United States (1.9) had a fertility rate that is relatively close to the replacement level of 2.1.
- The Government of Canada already has a number of policies in place to assist families with the costs of raising children, such as parental benefits, the Universal Child Care Benefit, the Canada Child Tax Benefit, and tax deductions for child care expenses.



Canada already has one of the highest immigration rates in the industrialized world

Inflow of permanent immigration as a share of total population, OECD countries, 2010



Notes: Figures presented here are standardized across countries using the OECD definition of permanent-type migration, which includes migrants who arrive in the receiving country with (a) a permit for permanent residence or (b) a temporary residence permit that normally leads to permanent residence. However, due to differences across countries in how residence permits are granted, these figures are not completely comparable. OECD average based on 23 countries.

Source: OECD, International Migration Outlook, 2012.

- Canada already has the highest immigration rate in the G-7 and one of the highest in the industrialized world.
- In a context in which many countries will be considering increasing immigration rates to help offset the impacts of population aging, it is unlikely that all countries will be able to attract skilled immigrants in large numbers.
- If Canada were to significantly increase immigration, more rapid integration of immigrants into the labour market would be required.
- While stronger population growth through higher immigration rates would not prevent the aging of the Canadian population, public policy has an important role to play in improving the immigration system so that it is more effective and better aligned with the needs of the Canadian labour market.



Chapter 2

Economic Implications

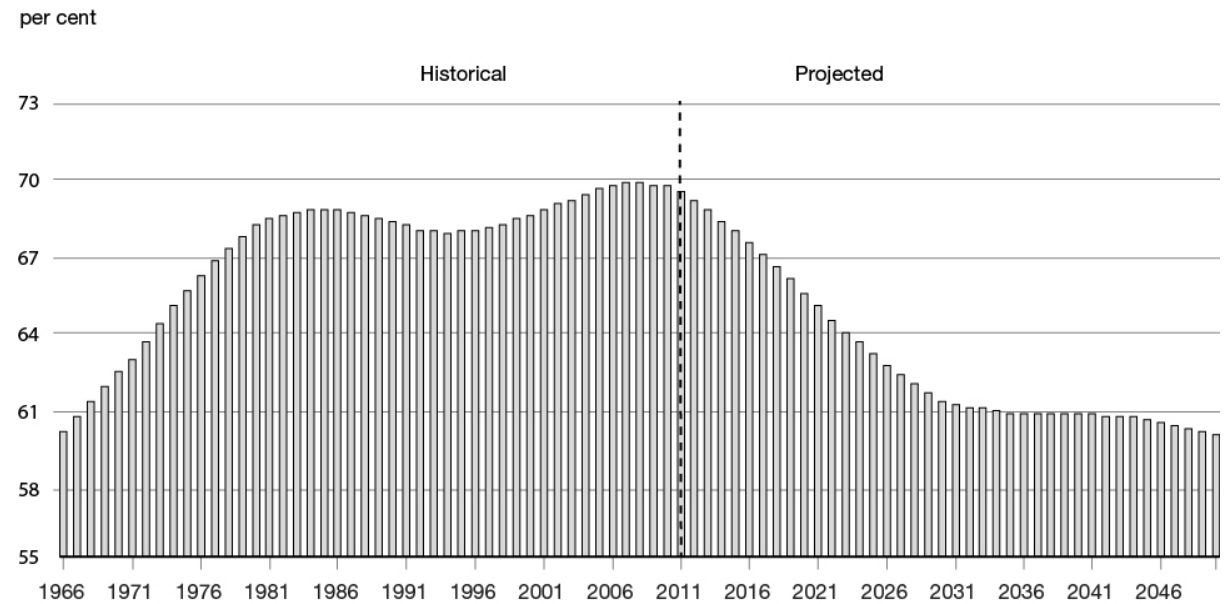
HIGHLIGHTS

- ✓ The aging of Canada's population will soon slow labour force growth.
- ✓ Over the next 20 years, the number of working-age Canadians for every senior will fall from about 5 today to 2.7 by 2030.
- ✓ Unless productivity growth and labour market participation improve, population aging is expected to lead to significantly slower increases in real output and income and increase the possibility of labour shortages.
- ✓ The Government has implemented and announced a number of important structural economic initiatives to create an environment conducive to higher productivity and support the participation of Canadians in the workforce, which should help offset some of the impacts of population aging.



Over time, population aging will dramatically reduce the share of the population that is of working age

Share of the working aged (15 to 64) in total population

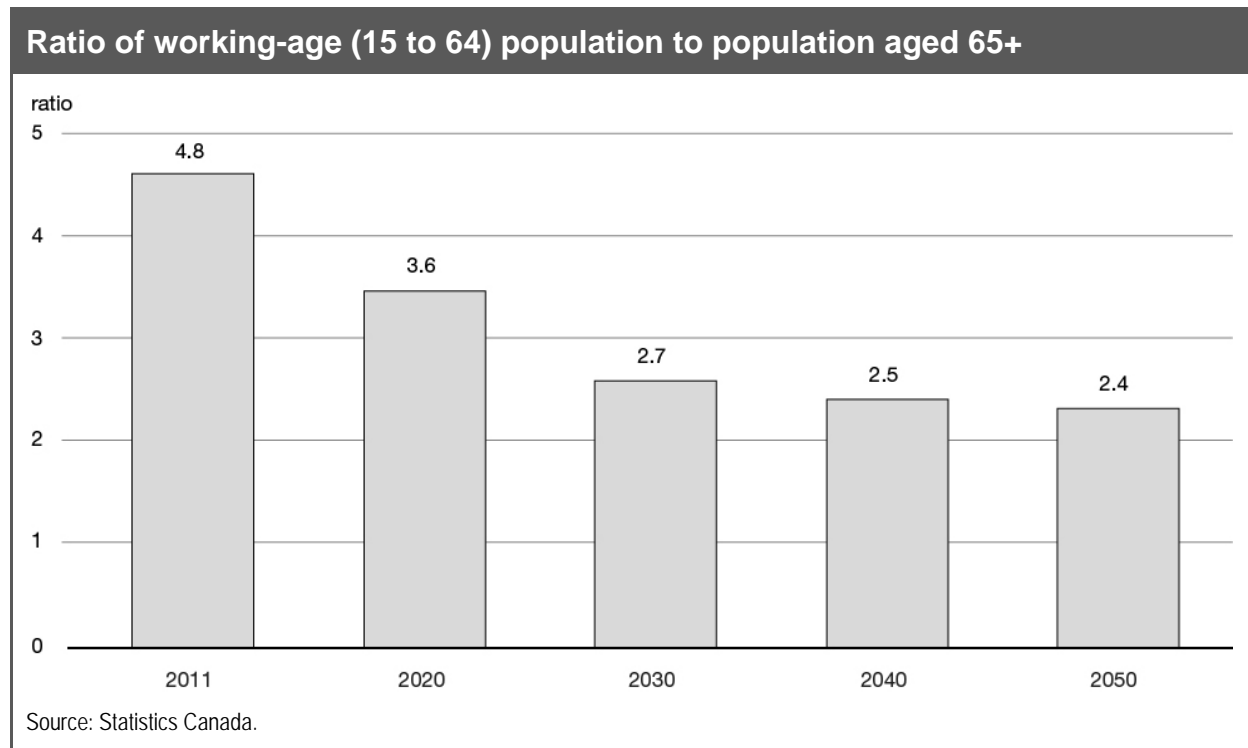


Source: Statistics Canada.

- With the oldest members of the large baby boom generation now reaching retirement age, Canada is at a demographic tipping point.
- 2008 marked a record high in the share of the population that is of working age.
- From the early 1920s until the mid-1960s, about 60 per cent of Canadians were of working age. Over the past three decades, the baby boomers have boosted this share to nearly 70 per cent.
- Going forward, this share is expected to decline rapidly, returning close to its mid-1960s levels by 2030.



By 2030 the number of working-age Canadians for every senior will fall by almost half

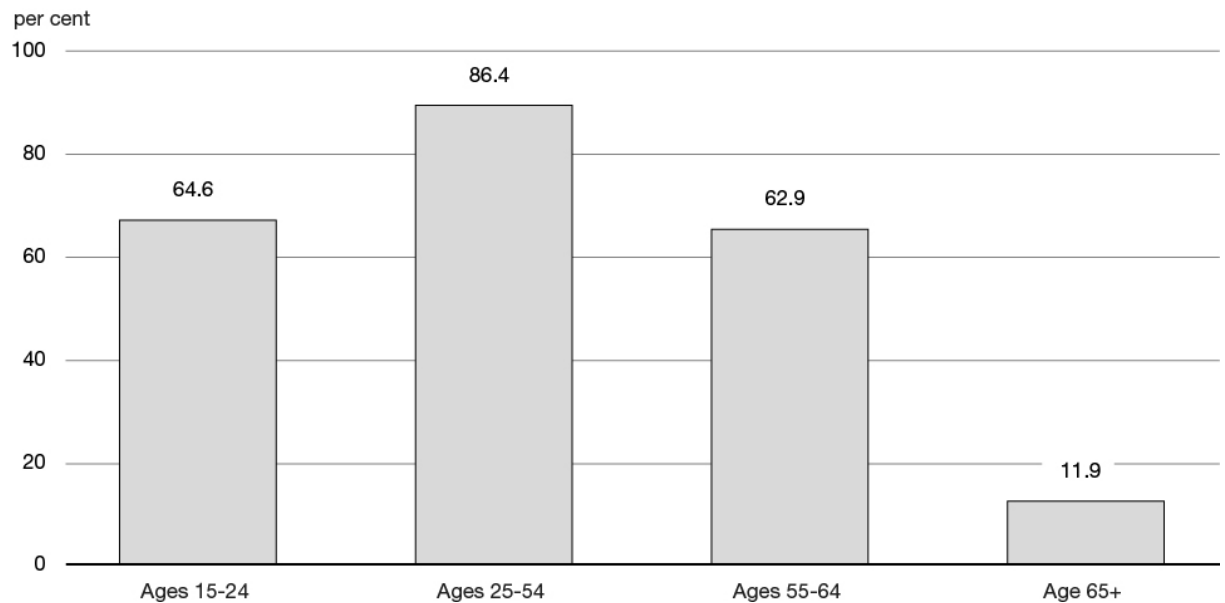


- In the mid-1960s, most Canadians not of working age were children. In the future, most people who are not of working age are expected to be seniors (65 or over).
- As a result, while there are currently about 5 Canadians of working age for every senior, by 2030 this ratio is expected to drop to under 3 and by 2050 it will be under 2.5.



Population aging is expected to increase the share of older workers, who have lower rates of labour force participation...

Labour force participation rate by age group, 2011

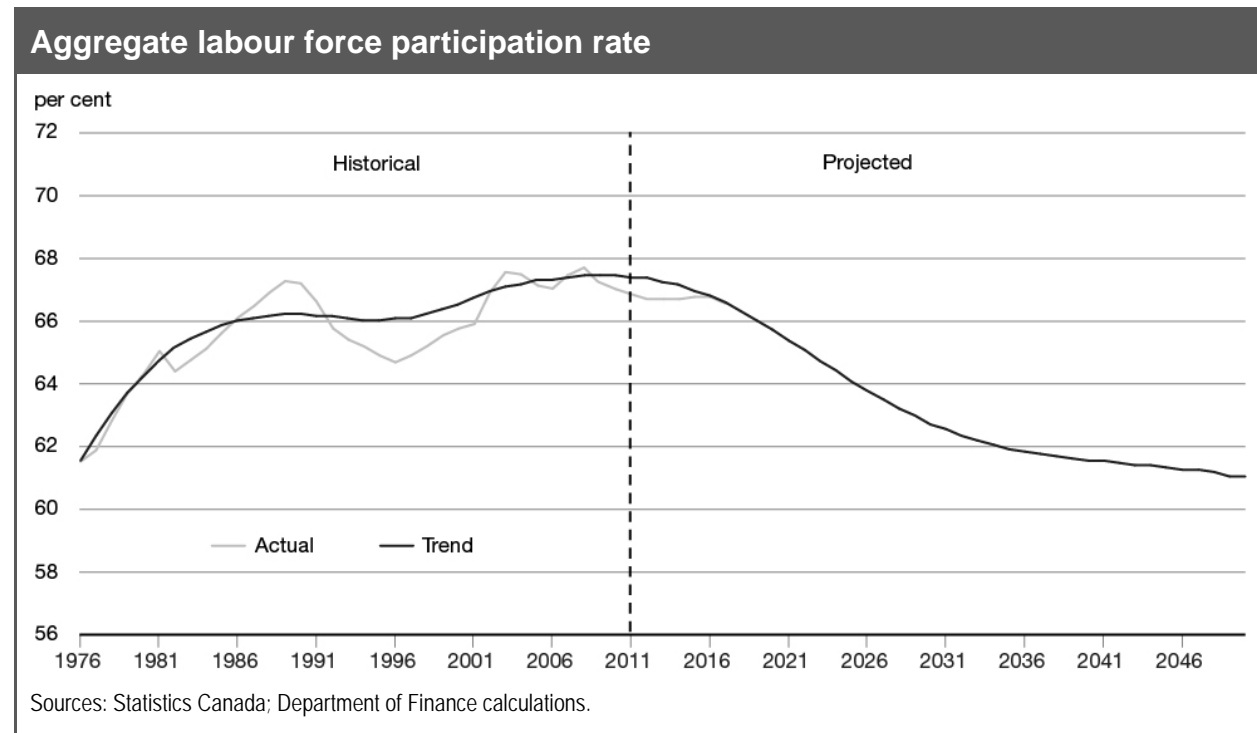


Source: Statistics Canada.

- Population aging is also expected to result in an increase in the share of older age groups in the labour force (the labour force includes those aged 15 and over who are either working or actively seeking a job).
- As shown above, labour force participation rates are low when individuals are young (ages 15 to 24), reach peak levels between the ages of 25 and 54 and begin to decline starting at age 55.
 - The participation rates of young (ages 15 to 24) and prime-age (ages 25 to 54) workers have been relatively stable since 2000 and are expected to remain close to current levels in coming decades.
 - On the other hand, labour force participation rates of older workers (age 55 and over) have increased by over 8 percentage points since 2000 as Canadians with a greater attachment to the labour market entered that age group.
 - While participation rates of older individuals are expected to continue to increase, they are expected to remain well below rates seen among younger age groups.



...which is expected to reduce the aggregate labour force participation rate

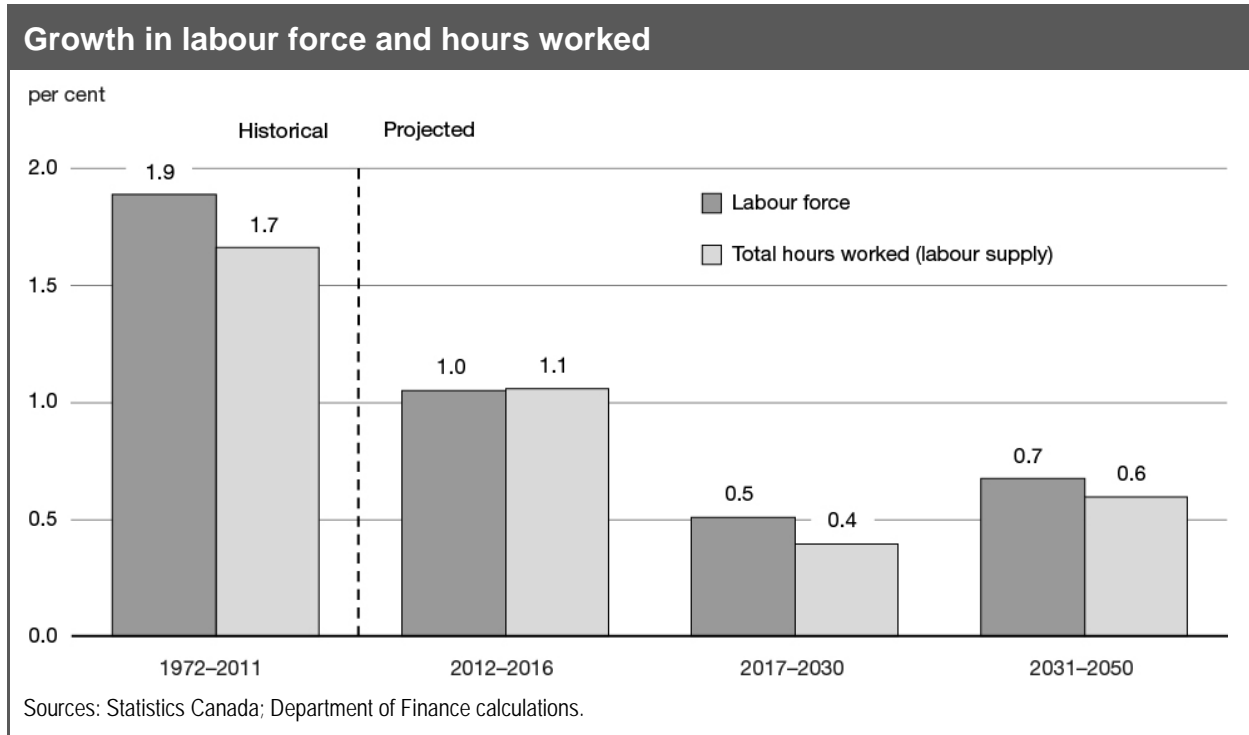


- As a result, an increasing number of older workers are expected to lead to a reduction in the overall rate of labour force participation.
- The impact of the shift toward an older population is already being felt, as the overall participation rate has already reached its peak.
 - This impact is anticipated to continue to weigh on labour force participation, particularly over the next two decades, with the overall participation rate expected to decline by approximately 6 percentage points from its current level by 2050.⁵
- As discussed at the end of this chapter, the Government has implemented and announced a number of structural economic initiatives to support the participation of Canadians in the workforce that will help offset some of the impact that population aging is expected to have on the overall rate of labour force participation.

⁵ Details on the labour force model and economic assumptions underlying the projection presented in this chapter can be found in Annex 1.



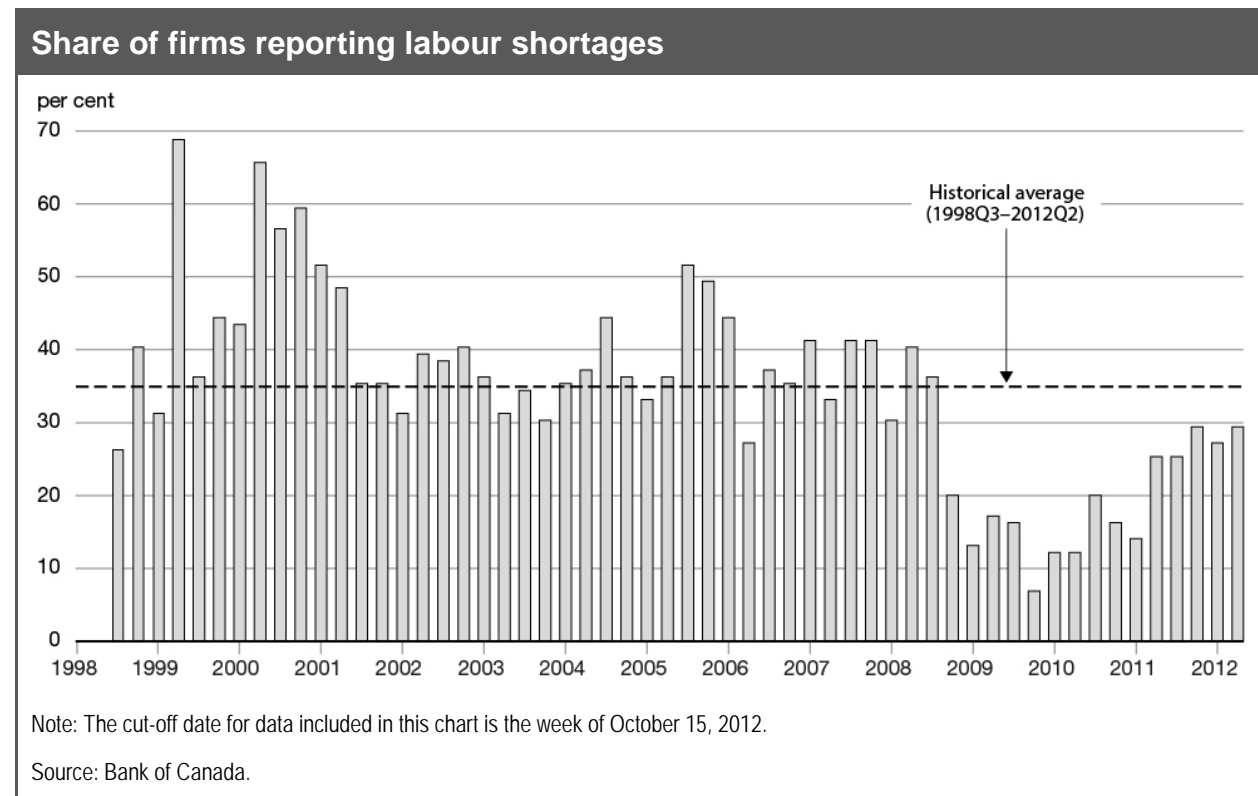
Reduced labour market participation, combined with slower growth in the 15+ population, is expected to reduce future labour supply growth



- Over the past four decades, strong increases in the population aged 15 and older and rising labour force participation rates resulted in growth in the labour force of just under 2 per cent a year.
- However, slower growth in the 15+ population, along with the projected reduction in labour force participation due to an older workforce, means labour force growth is projected to slow dramatically in coming years, falling to an average of just 0.6 per cent a year between 2017 and 2050.
- The expected reduction in labour force growth is expected to dampen growth in labour supply, or hours worked, with growth in hours worked expected to average just over 0.5 per cent per year over the 2017–2050 period, less than one-third of its pace over the 1972–2011 period.



Slower labour supply growth may exacerbate labour shortages



- The anticipated slowing in labour supply growth could contribute to larger labour shortages.
- The share of firms reporting labour shortages is expected to rise in coming years as the economy continues to recover from the global recession and the unemployment rate returns to pre-recession levels.
- However, unlike previous periods in which relatively strong labour supply growth could help offset underlying labour shortages, the slower expected growth in labour supply could exacerbate these shortages.
- This underscores the need for public policies, such as the structural economic initiatives implemented and announced by the Government (discussed at the end of this chapter), that encourage labour force participation, particularly of under-represented groups, increase the mobility of Canadians, and support skills development and training.



Unless productivity growth and labour force participation increase, slower labour supply growth will reduce GDP growth

Growth in GDP and income

Average annual growth rates

per cent, unless otherwise indicated

| | 1972–2011 | 2012–2016 | 2017–2030 | 2031–2050 |
|--|-----------|-----------|-----------|-----------|
| Real GDP growth | 2.9 | 2.3 | 1.6 | 1.8 |
| <i>Contributions of (percentage points):</i> | | | | |
| Labour supply growth | 1.7 | 1.1 | 0.4 | 0.6 |
| Labour productivity growth | 1.2 | 1.2 | 1.2 | 1.2 |
| <i>Addenda:</i> | | | | |
| Nominal GDP growth | 7.4 | 4.4 | 3.6 | 3.8 |
| Real income growth | 3.0 | 2.4 | 1.6 | 1.8 |
| Real per capita income growth | 1.8 | 1.3 | 0.6 | 1.0 |

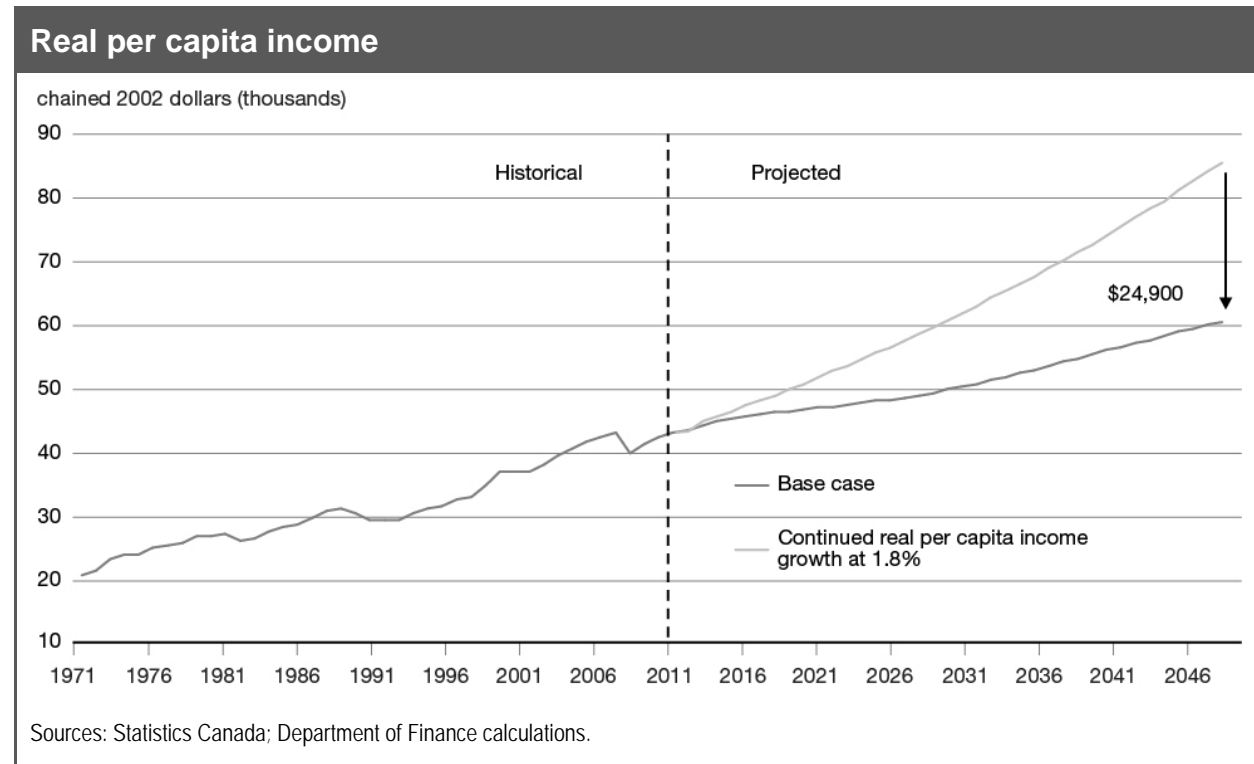
Note: Real income is defined as gross domestic income.

Sources: Statistics Canada; Department of Finance calculations.

- This expected slowing in labour supply growth will have significant implications for real and nominal GDP growth, unless productivity growth and labour force participation increase.
- Real GDP growth, in simple terms, arises from growth in either labour supply (hours worked) or labour productivity (real output per hour worked).
- As shown above, real GDP growth averaged 2.9 per cent per year over the 1972–2011 period, with over half of this growth resulting from increases in the labour supply.
- Going forward, if labour supply growth slows as expected, and labour productivity growth remains at its average pace of 1.2 per cent per year over the 1972–2011 period, real GDP growth would slow to less than two-thirds its historical pace over the 2017–2050 period.
- Slower real GDP growth would result in significantly lower growth in nominal GDP, the broadest single measure of the tax base, assuming that economy-wide prices grow by 2 per cent annually on average.



...which would significantly dampen growth in income

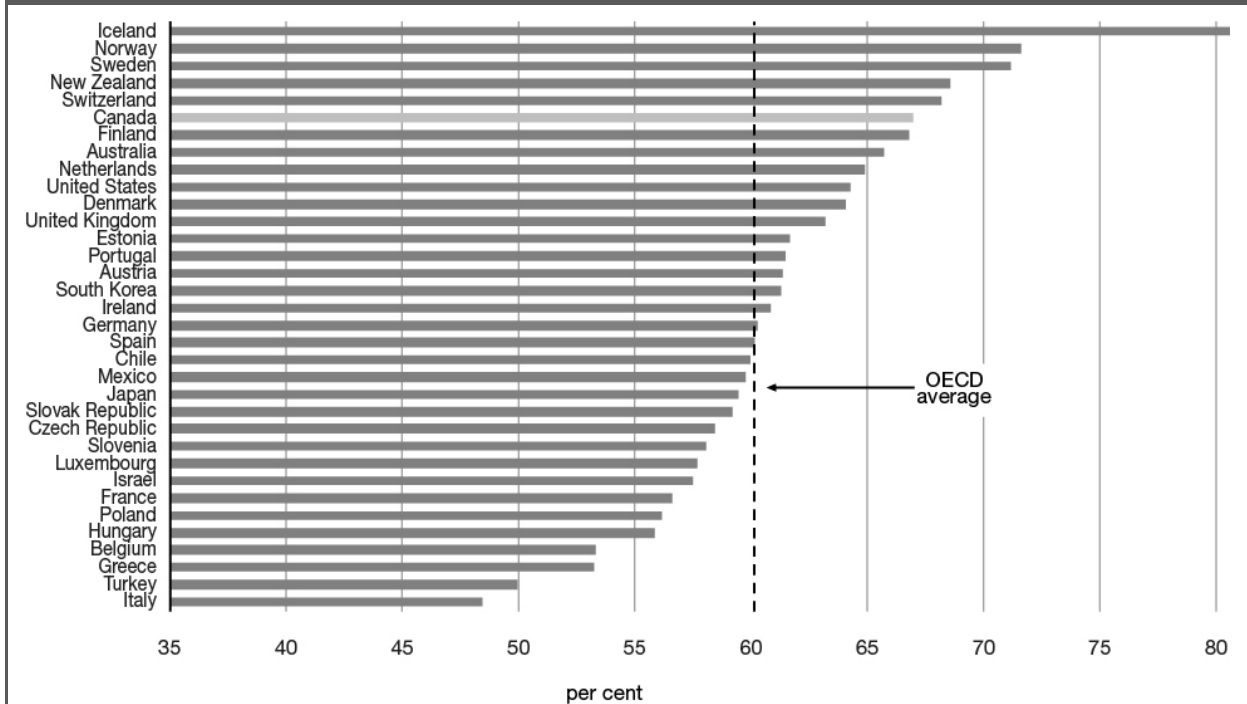


- Slower real GDP growth would imply that per capita income growth of Canadians would slow to about 0.9 per cent per year, just half its historical annual average growth of 1.8 per cent. By 2050, per capita income would be over \$85,000 in constant (2002) dollars if its growth was unaffected by population aging and it continued to grow at its historical average of 1.8 per cent per year.
- However, after accounting for the impacts of aging (and assuming no improvement in productivity growth from its historical average and baseline labour force participation), per capita income is projected to be about \$60,000—\$24,900, or close to 30 per cent, lower than would be the case without population aging.
- In this context, policies aimed at increasing labour supply through higher labour force participation, and, more importantly, boosting Canada's labour productivity growth, such as through structural economic initiatives implemented and announced by the Government (discussed at the end of this chapter), will be critical to achieve per capita income growth closer to its historical average.



Canada's labour force participation compares well internationally...

Labour force participation rates, OECD countries, 2011



Notes: Participation rates are for all individuals aged 15+ years except for: Finland (15 to 74 years); Iceland, Norway and Sweden (16 to 74 years); and United Kingdom and United States (16+ years). The OECD average, which is based on 34 countries, is not adjusted for age differences in participation rates across countries.

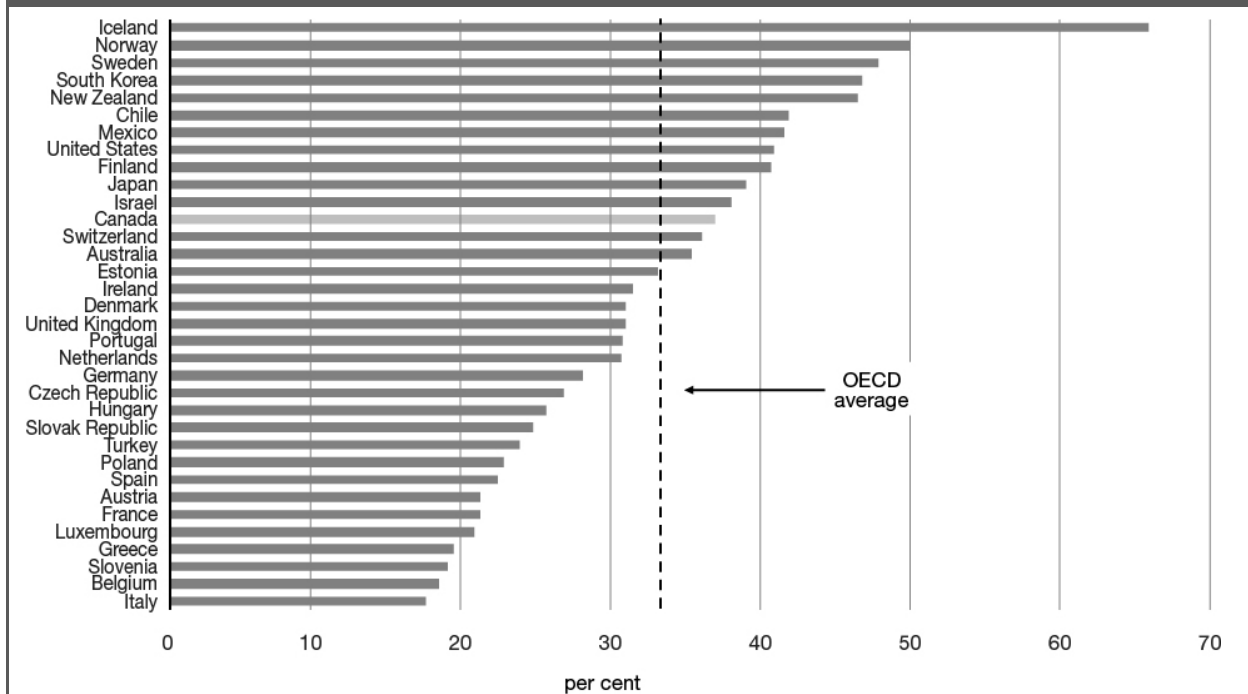
Source: OECD.

- An aging population will significantly reduce the proportion of Canadians participating in the labour market. In this context, it will be important to ensure that all Canadians that can and want to participate in the labour market have the opportunity to use their knowledge and experience to their full potential.
- By international standards, the rate at which Canadians participate in the workforce is high. In 2011, about two-thirds of Canadians aged 15 and over were engaged in the labour force. This rate was the sixth highest among OECD countries.
- Canada's high levels of labour force participation are observed for both men and women, but participation among Canadian women is particularly strong compared to women in other OECD countries.
- This high level of labour force participation reflects the high quality of the Canadian workforce and its capacity to adapt to changing economic circumstances. Canada needs to maintain and build on this strength.



... but there is room for improvement, particularly among older Canadians...

Labour force participation rates for people aged 55 and over, OECD countries, 2011



Notes: Participation rates for all individuals aged 55+ years, except Finland, Iceland, Norway and Sweden (55 to 74 years). OECD average, which is based on 34 countries, is not adjusted for differing population coverage.

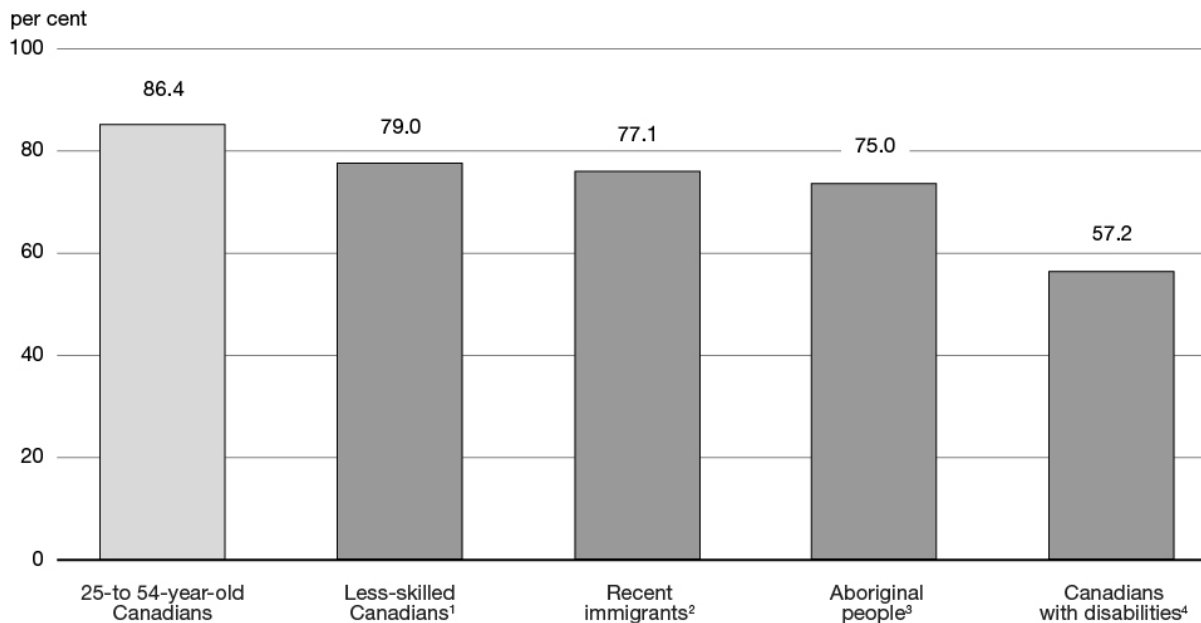
Source: OECD.

- Indeed, more can be done to increase workforce participation by a number of groups in Canada. One of these groups is older Canadians.
- In 2011 Canada ranked 12th out of 34 OECD countries in terms of workforce participation of those aged 55 and over. Participation rates among older Canadians are low compared to rates in countries such as Norway, Sweden, New Zealand, Japan and the United States.
- To raise the level of workforce participation of older workers, it is important that older Canadians who want to work are not confronted with institutional and financial disincentives to doing so.
- The Government has taken a number of steps to address this situation. For example, it has taken steps to ensure that Canada's retirement income system adequately accommodates the changing needs of older Canadians, including by providing them with a variety of retirement transition options. The Government has also implemented measures to ensure that the skills of older workers match the changing needs of the labour market. In addition, it has removed institutional obstacles that prevent willing older workers from remaining in the labour market, for example by prohibiting most federally regulated employers from setting a mandatory retirement age and allowing the voluntary deferral of the Old Age Security pension.



...and under-represented groups

Labour force participation rates for selected under-represented groups of Canadians, 2011



Note: Participation rates are for 2011, except for Aboriginal people (2010) and Canadians with disabilities (2006).

¹ Population aged 25-54 with high school graduation or less.

² Population aged 25-54 who came to Canada in the last 10 years.

³ Aboriginal population aged 25-54, excluding people living on reserves and in the territories.

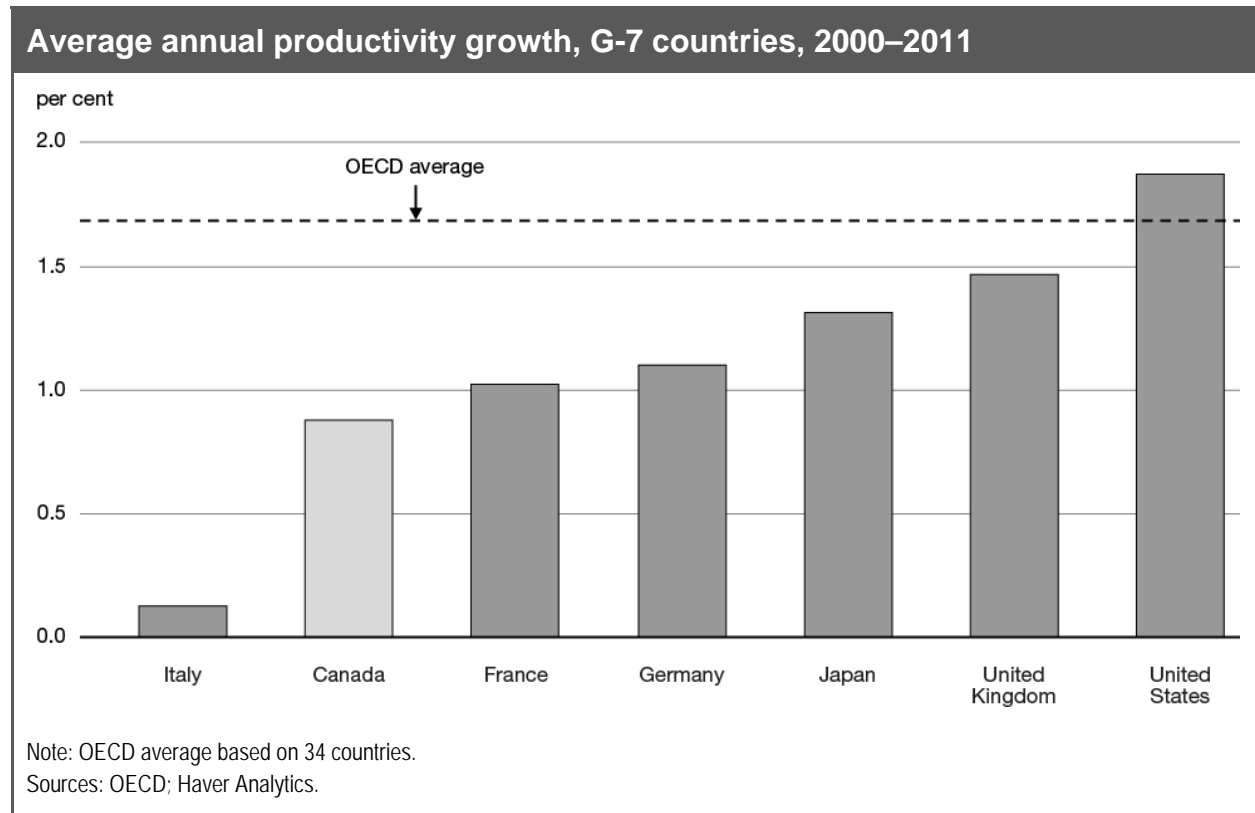
⁴ Population aged 25-54 with disabilities.

Sources: Statistics Canada Labour Force Survey and Participation and Activity Limitation Survey.

- Participation in the workforce is also a challenge for a number of Canadians, including recent immigrants, Aboriginal people, persons with disabilities, and less-skilled individuals, who have labour participation rates that are below those of other 25-to-54 year-old Canadians.
- These segments of the population represent an important resource, and increasing their workforce participation has the potential to boost Canada's labour force growth and help minimize labour shortages in years to come.
- Building on Government actions taken since 2006, a number of structural economic initiatives recently announced in Budget 2012 to support the participation of Canadians in the workforce will help meet this challenge (see the discussion at the end of this chapter).
- Bringing the workforce participation rate of under-represented groups more in line with that of other Canadians will also help ensure that there is opportunity for all Canadians to contribute and share in Canada's future prosperity.



Improving Canada's productivity performance will be key

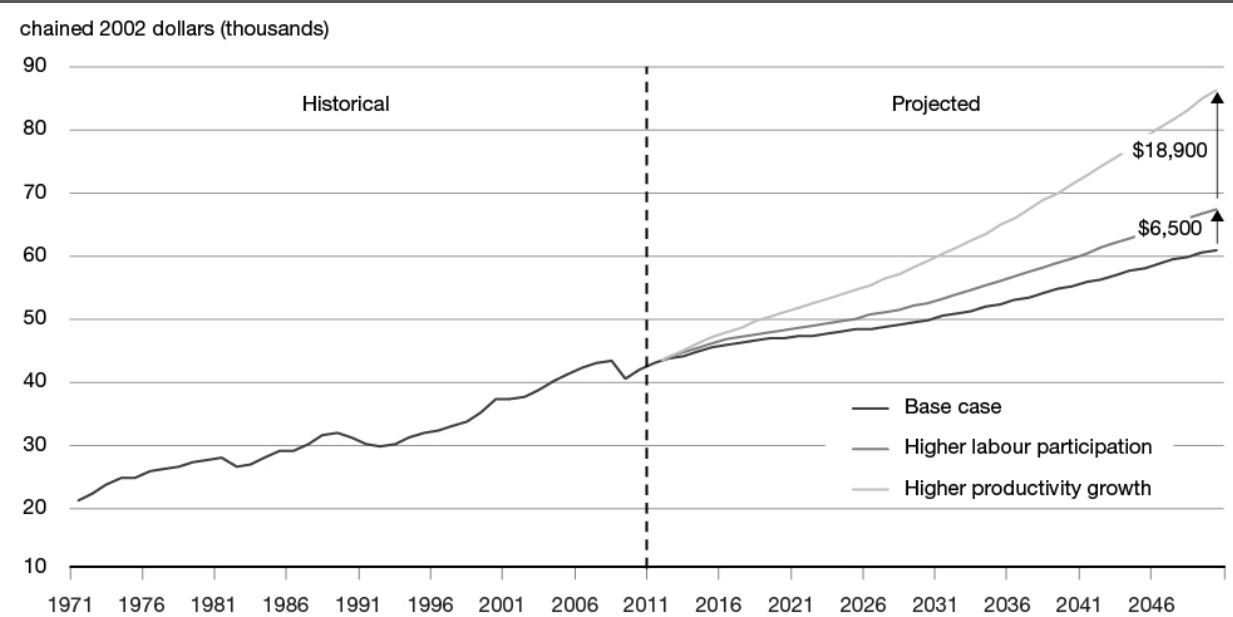


- Expanding Canada's workforce by making it more inclusive represents a great opportunity to boost economic growth and the income of Canadians. Going forward, however, demographic changes will make it increasingly difficult to continue to improve income through increases in the employment rate. This means that improvement in the living standards of Canadians will increasingly have to come from productivity growth.
- While Canada has had one of the strongest economic performances among advanced countries in recent years, it needs to improve its productivity performance.
- On average, Canadian businesses have not improved their productivity performance over the last decade and continue to lag a number of G-7 and OECD peers, ranking, respectively, sixth and 28th among them.
- Building on Government actions taken since 2006, Budget 2012 announced a number of important structural economic initiatives to create an environment conducive to higher productivity performance (see the discussion at the end of this chapter).



Higher productivity and labour market participation would help meet the aging challenge

Real per capita income



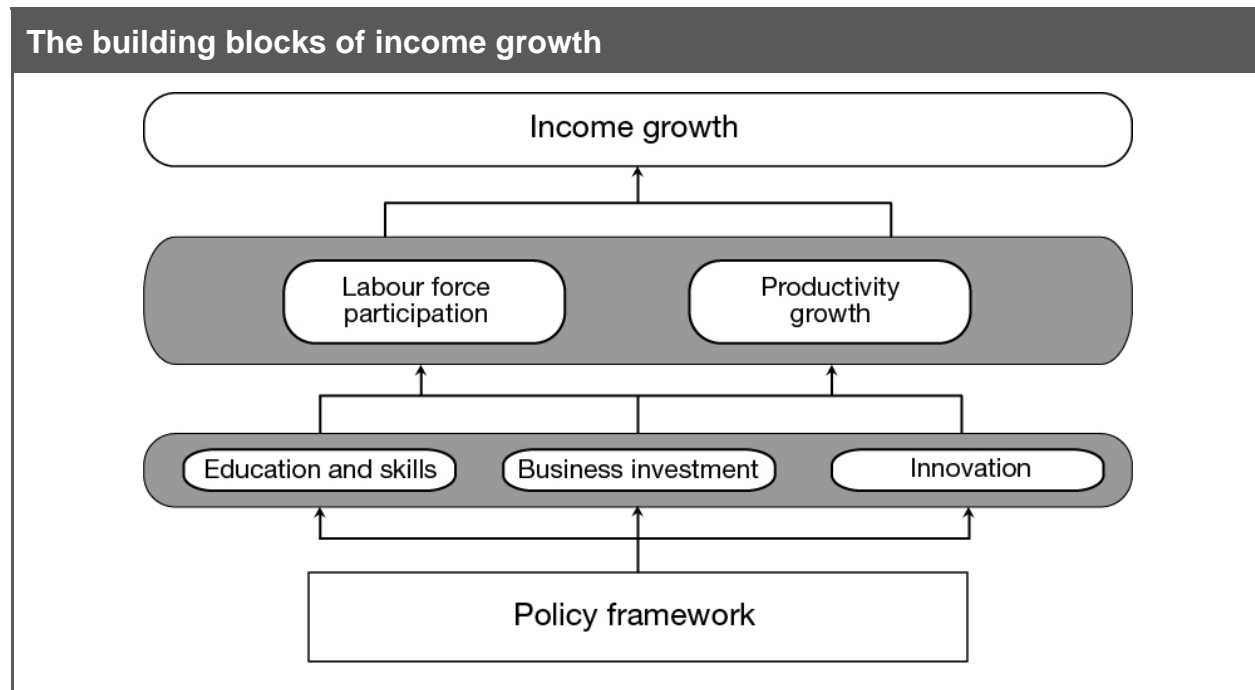
Note: The “higher labour participation” scenario assumes that the labour participation rate of Canadians aged 55 and over is raised to the average labour participation rate of their counterparts in five high-participation countries (Norway, Sweden, New Zealand, Japan and the U.S.) and that the participation rate of under-represented groups (Aboriginal people, Canadians with disabilities, recent immigrants and Canadians with less than a high school diploma) is raised to the participation rate of other Canadians aged 25-54. The “higher productivity growth” scenario assumes that Canada’s productivity growth is raised in line with the average productivity growth of the top G-7 performer over the past decade (from 1.2 per cent per year to 1.9 per cent per year).

Sources: Statistics Canada; Department of Finance calculations.

- Improving productivity growth and encouraging as many Canadians as possible to participate in the workforce would help to offset the challenge of an aging population.
- The benefits from higher participation rates among older Canadians and under-represented groups are not negligible.
 - Indeed, raising Canada’s labour force participation among individuals aged 55 and over to the level of high participation rate OECD countries and bringing the labour force participation of under-represented groups to the national average would increase Canada’s labour force participation rate by about 6 percentage points by 2050 and income per capita by 11 per cent (or \$6,500).
- But more importantly, the aging gap could be reduced substantially if Canada achieves higher productivity growth than the 1.2 per cent assumed under the baseline projection.
 - Increasing productivity growth to 1.9 per cent per year, in line with the average of the top G-7 performer (the United States) over the past decade, would increase real income per capita by another \$18,900, or 28 per cent, by 2050.
- The combined positive impact on real income per capita from these increases in labour force participation and productivity (\$25,400 in 2050) would offset all the expected negative impact of Canada’s aging population on income under the baseline projection presented in this document.



Key decisions driving productivity and labour force participation are made by individuals and businesses...



- Most decisions that will drive higher income growth through increased productivity growth and workforce participation are made by individuals and businesses across Canada.
- Fundamental to achieving higher productivity and labour force participation is to ensure that Canadian businesses and individuals improve their performance in the areas of skills and education, business investment and innovation.
- Over the medium term, a number of underlying economic forces and challenges may provide the impetus to increase productivity and labour force participation:
 - For instance, the anticipated slowing in labour supply growth could contribute to larger labour shortages and upward pressure on wages as firms compete for relatively fewer workers. This should induce individuals to participate more in the labour market and businesses to invest more in capital.
 - Rising competitive intensity of emerging-market firms and the relatively strong Canadian dollar, which reduces the cost of imported machinery and equipment, should also encourage businesses to become more productive in order to compete internationally.



...but sound public policies can foster higher productivity growth and labour force participation

Governments should aim to achieve:

- Low and stable inflation
 - Prudent fiscal planning and balanced budgets
 - Competitive tax systems
 - Excellence in post-secondary education and labour market training
 - Leadership in innovation and science and technology
 - Modern, world-class infrastructure
 - Openness to trade and foreign investment
 - Free flows of trade, investment and labour among provinces
 - Well-functioning capital markets and an efficient financial sector
 - Flexible labour markets and a sound pension system
 - An efficient immigration system
-
- For their part, governments can play an important role by putting in place policies that encourage productivity-enhancing investments and facilitate workforce participation.
 - Maintaining low and stable inflation and prudent fiscal planning with low debt and balanced budgets are among the best ways governments can contribute to creating an environment conducive to higher productivity growth and job creation. In this respect, the Government has:
 - Repaid over \$37 billion in debt from 2006 to 2008, contributing to a low net debt position that allowed Canada to respond forcefully to the 2008–2009 global recession.
 - A plan to return to balanced budgets over the medium term and ensure the sustainability of Canada’s public finances over the longer term.
 - Through a number of structural initiatives, Canada has also made progress in recent years to support productivity and participation in the workforce, including:
 - Reducing corporate income tax rates and improving the efficiency of the business tax system.
 - Providing, through the Building Canada plan, major support for infrastructure investments in areas such as highways, roads, bridges, public transit and broadband.
 - Introducing the Working Income Tax Benefit and the Tax-Free Savings Account.
 - Providing additional resources to support basic research and education.
 - Introducing a new approach to support innovation in private sector businesses.
 - Modernizing the regulatory regime for major economic projects.
 - Opening new markets for Canadian businesses.
 - Developing a faster and more flexible economic immigration system.
 - Expanding opportunities for under-represented groups to fully participate in the economy.
 - Improving the Employment Insurance program.



Chapter 3

Public Finance Implications

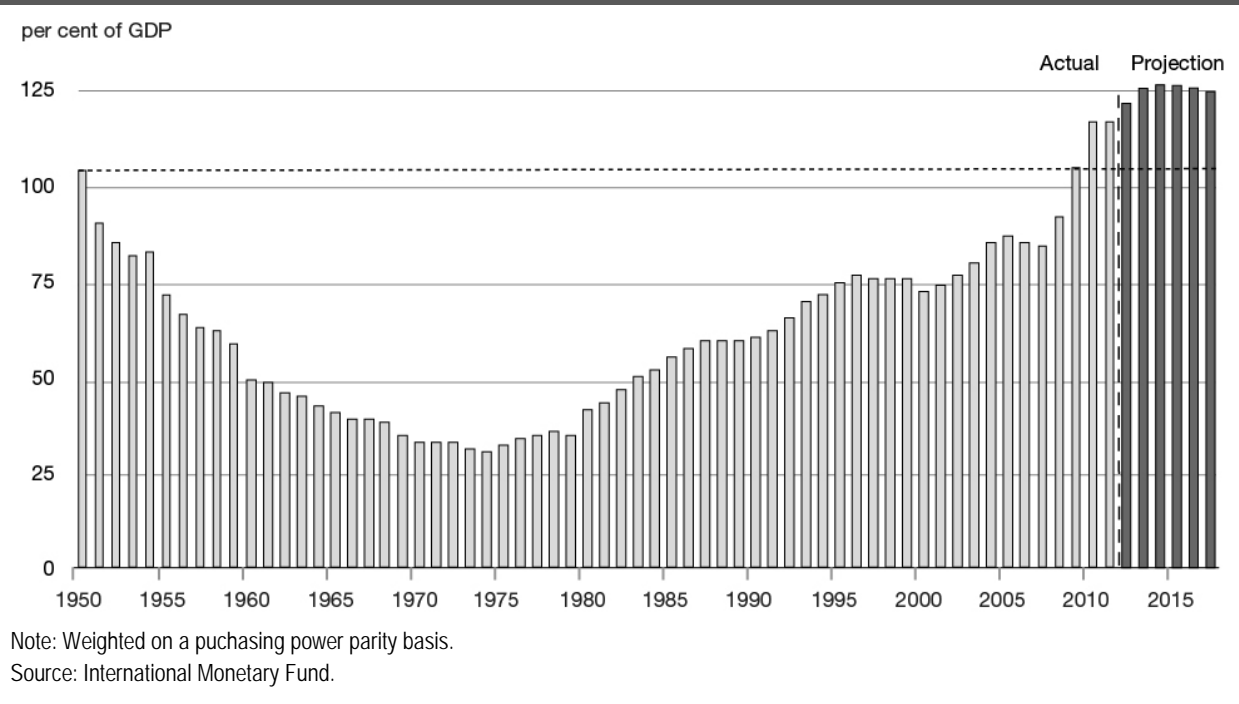
HIGHLIGHTS

- ✓ Through slower economic growth, population aging is expected to reduce the growth rate of government revenues, thereby limiting the capacity of governments to continue to finance growth in public expenditures at rates as high as in the past.
- ✓ At the same time, population aging will affect public finances by putting upward pressure on public expenditures, notably for age-related programs such as health care and elderly benefits.
- ✓ Fiscal pressures from population aging will occur against a backdrop of elevated public indebtedness among many advanced economies.
- ✓ Fiscal sustainability and flexibility will require returning to balanced budgets over the medium term and putting debt-to-GDP ratios on downward tracks.
- ✓ Canada is better prepared than most countries to achieve these goals and to adjust to the demographic changes now underway.
- ✓ Government actions to return to balanced budgets over the medium term and preserve social programs will help ensure that public finances remain sustainable, while maintaining flexibility to respond to unexpected economic shocks.



Public debt in major advanced economies is at historically high levels and rising

Gross government debt in G-7 economies



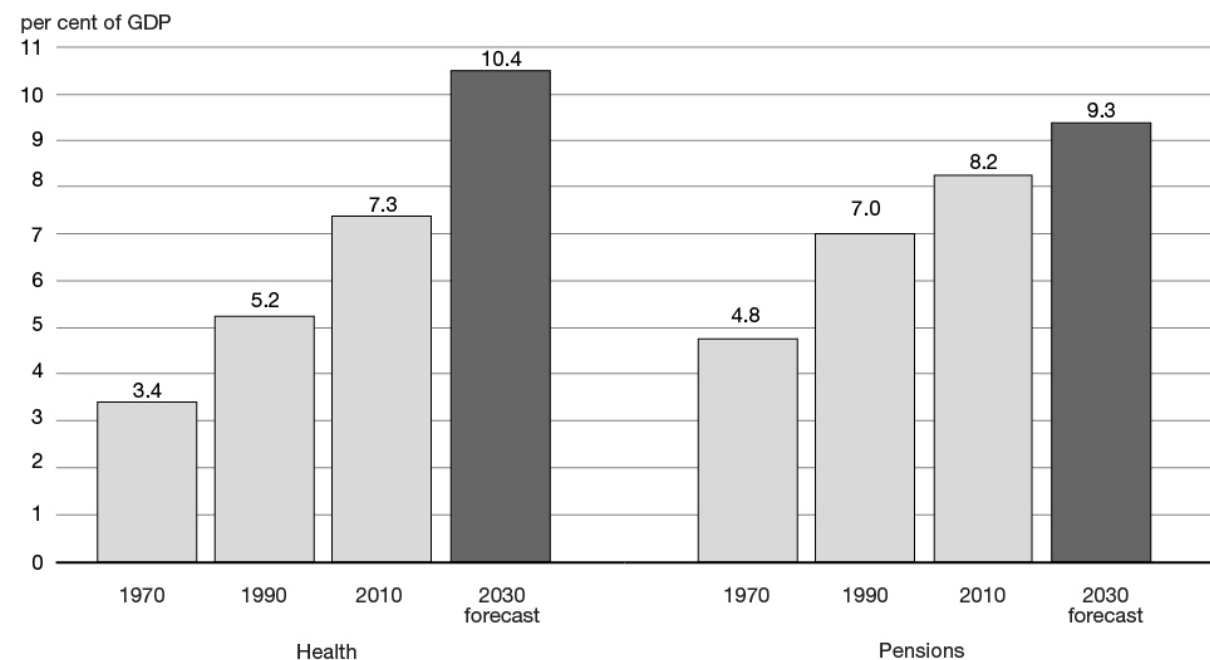
- Population aging across advanced economies will take place against a backdrop of elevated public indebtedness.
- At close to 120 per cent in 2011, the average gross debt-to-GDP ratio of G-7 economies is now higher than in the early 1950s.⁶
- While G-7 countries have plans to reduce their deficits and stabilize their debt ratios, continued significant deficits in a majority of these economies are expected to further increase this average debt ratio over the next five years.

⁶ While net debt (i.e. gross debt less financial assets) is a better indicator of public indebtedness, data limitations make impossible the use of this concept over such a long historical period. Over the past four decades, the net debt-to-GDP ratio of G-7 economies has also increased substantially, from about 25 per cent in 1970 to close to 85 per cent in 2011.



Population aging is expected to exert additional fiscal pressures

Historical and projected public health and pension spending in advanced economies



Note: Weighted averages of all advanced economies as defined by the International Monetary Fund for which data is available.
Source: International Monetary Fund.

- Through slower economic growth, population aging is expected to reduce the growth rate of government revenues, thereby limiting the capacity of governments to continue to finance growth in public expenditures at rates as high as in the past.
- At the same time, in the absence of cost control, population aging is expected to affect the public finances of advanced economies by putting upward pressure on public expenditures, notably for age-related programs such as health care and public pensions.
- An important trend observed in advanced economies over the past four decades has been the steady rise in health spending as a share of GDP. As populations in these economies become older, these spending pressures are expected to intensify, compounding the ongoing trend.
- Similarly, in many advanced economies, as large cohorts of baby boomers continue to reach retirement age, additional increases in public pension spending are projected over the next 20 years.



Government actions will be required to restore and maintain fiscal sustainability

Preparing long-term fiscal sustainability

- Eliminate deficits over the medium term
 - Put debt-to-GDP ratios on downward tracks
 - Focus on spending growth reductions
 - Initiate actions as soon as possible
-
- Significant fiscal adjustments will be required in many advanced economies to bring budgetary balances and debt ratios back to more appropriate levels over the medium term before the full impacts of population aging materialize.
 - In general, fiscal consolidation has been found to be more effective when it is achieved largely through expenditure restraint, rather than through government revenue-raising measures, while at the same time preserving or enhancing measures aimed at promoting long-term economic growth.⁷
 - In many cases, additional actions will be needed to ensure that deficits do not re-emerge and that debt-to-GDP ratios stay on downward tracks as fiscal pressure from population aging intensifies over the next two decades.
 - In many advanced economies, actions toward stabilizing public spending associated with health care and pensions in relation to GDP, and therefore government revenue, will be key to ensure long-term fiscal sustainability.
 - International experience shows the importance of taking early action, rather than delaying. Indeed, because of the build-up of vulnerable fiscal positions over time, many euro-area members have had to start drastically reducing transfers and services provided to their citizens.

⁷ See, for example, Guichard, S. et al. (2007), "What Promotes Fiscal Consolidation: OECD Country Experiences." OECD Economics Department Working Papers, No. 553, OECD Publishing.



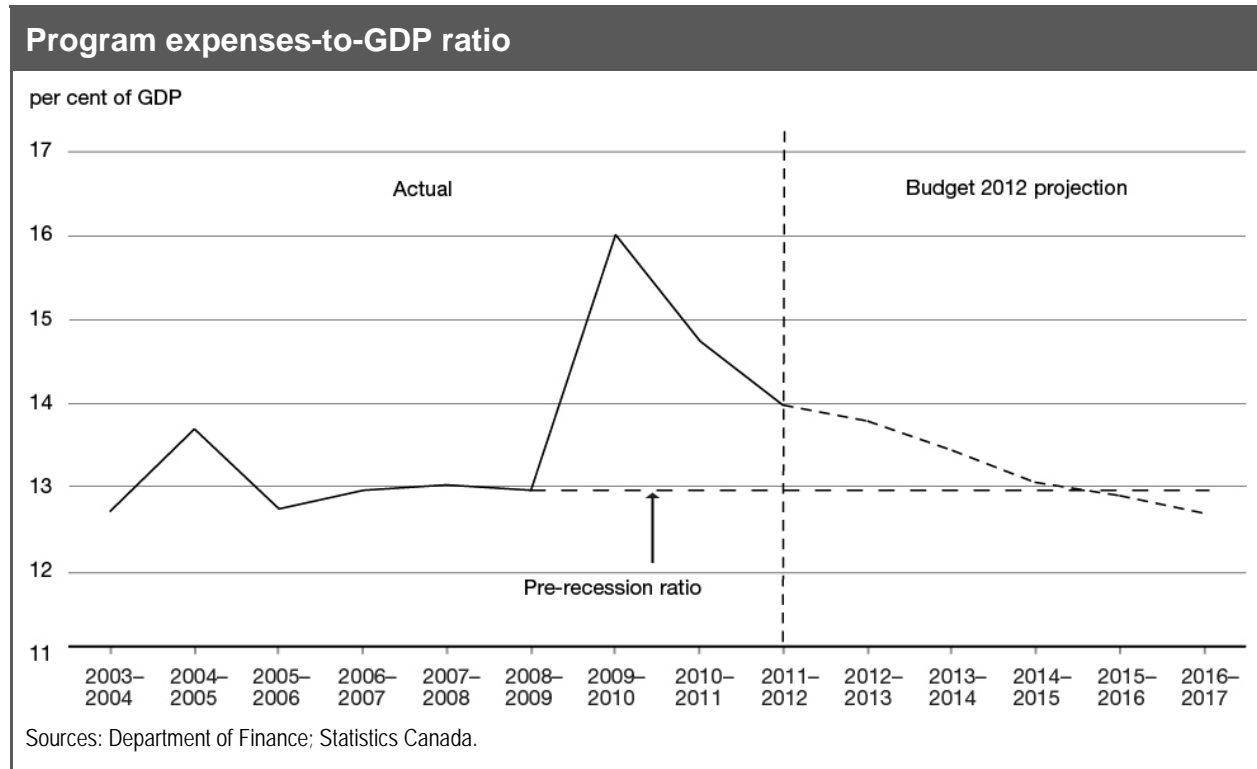
In Canada, Government actions to return to balanced budgets have largely focused on responsible expenditure management

Plan to return to balanced budgets over the medium term

- Wind down the stimulus phase of Canada's Economic Action Plan
 - Reduce departmental spending
 - Bring federal public service compensation in line with other public and private sector employees
-
- For its part, Canada has a plan to return to balanced budgets over the medium term and is better prepared than most countries to adjust to the demographic changes now underway.
 - The Government's plan to return to balanced budgets over the medium term, as implemented in recent budgets, has largely been focused on responsible expenditure management. In particular:
 - The Government has followed through on the “exit strategy” that was built into the stimulus phase of Canada's Economic Action Plan, which ensured that temporary stimulus measures ended as scheduled.
 - Early targeted actions were taken to restrain the growth in direct program spending, including: restraining growth in defence spending, capping the International Assistance Envelope, and freezing department operating budgets for two years and the salaries of all Members of Parliament and Senators until 2013. In addition, Budget 2012 announced the results of a comprehensive review of departmental spending, which identified a number of opportunities to enhance the efficiency and effectiveness of government operations, programs and services.
 - Building on the *Expenditure Restraint Act*, which limited the increase in annual wages for the federal public administration to 1.5 per cent per year through 2011, the Government eliminated the accrual of severance benefits for resignation and retirement, and proposed adjusting the Public Service Pension Plan so that public service employee contributions equal, over time, those of the employer. Comparable changes will be made to the contribution rates for the pension plans for the Canadian Forces, the Royal Canadian Mounted Police and Parliamentarians. In addition, for those employees who join the federal public service starting in 2013, the normal age of retirement will be raised from 60 to 65.



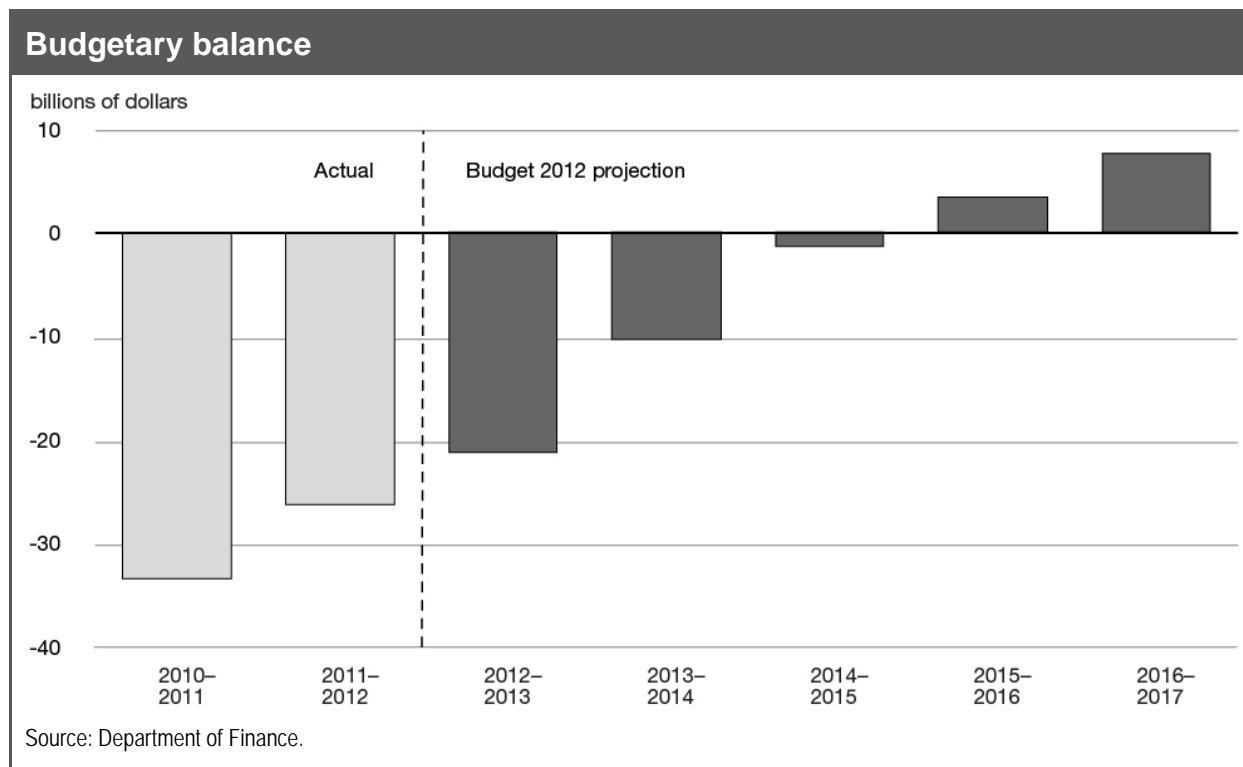
Modest spending restraint will bring the program expenses ratio back to its pre-recession level...



- The stimulus phase of Canada’s Economic Action Plan, which was designed to be temporary, supported Canadians and the Canadian economy during the 2008–2009 global recession, while resulting in only a temporary increase in the program expenses-to-GDP ratio.
- Measured actions taken by the Government since the end of the recession to restrain the growth in program spending will ensure that the program expenses-to-GDP ratio continues its downward trend and returns to its pre-recession level.
- These spending restraint measures are modest compared to those that are being, or will need to be, pursued by many countries around the world to improve their fiscal positions over the medium term.
- In addition, major transfers to persons, including those for seniors, children and the unemployed, and transfers to other levels of government in support of health care and social services were not included in the exercise to restrain spending.



...which will help ensure a return to balanced budgets over the medium term



- Combined with measures taken to close tax loopholes and improve the fairness and integrity of the tax system, spending reductions will contribute to a projected return to balanced budgets over the medium term.⁸
- The gradual return to budgetary surpluses is expected to bring Canada's federal debt in relation to the economy to its pre-recession level (28.5 per cent of GDP) by 2016–17.
- As a result, it is expected that Canada will achieve, well ahead of schedule, its G-20 commitments to halve deficits by 2013 and stabilize or reduce total government debt-to-GDP ratios by 2016, as agreed to by G-20 leaders at their summit in Toronto in June 2010.
- This will allow Canada to maintain a fiscal advantage over other G-7 economies. The International Monetary Fund projects that Canada's total government net debt-to-GDP ratio (which includes the net debt of the federal, provincial/territorial and local governments, as well as the net assets held in the Canada Pension Plan and Québec Pension Plan) will remain the lowest among G-7 countries, falling to 36.3 per cent in 2017.

⁸ Government actions to return to balanced budgets are summarized in Table 6.7 of Budget 2012.



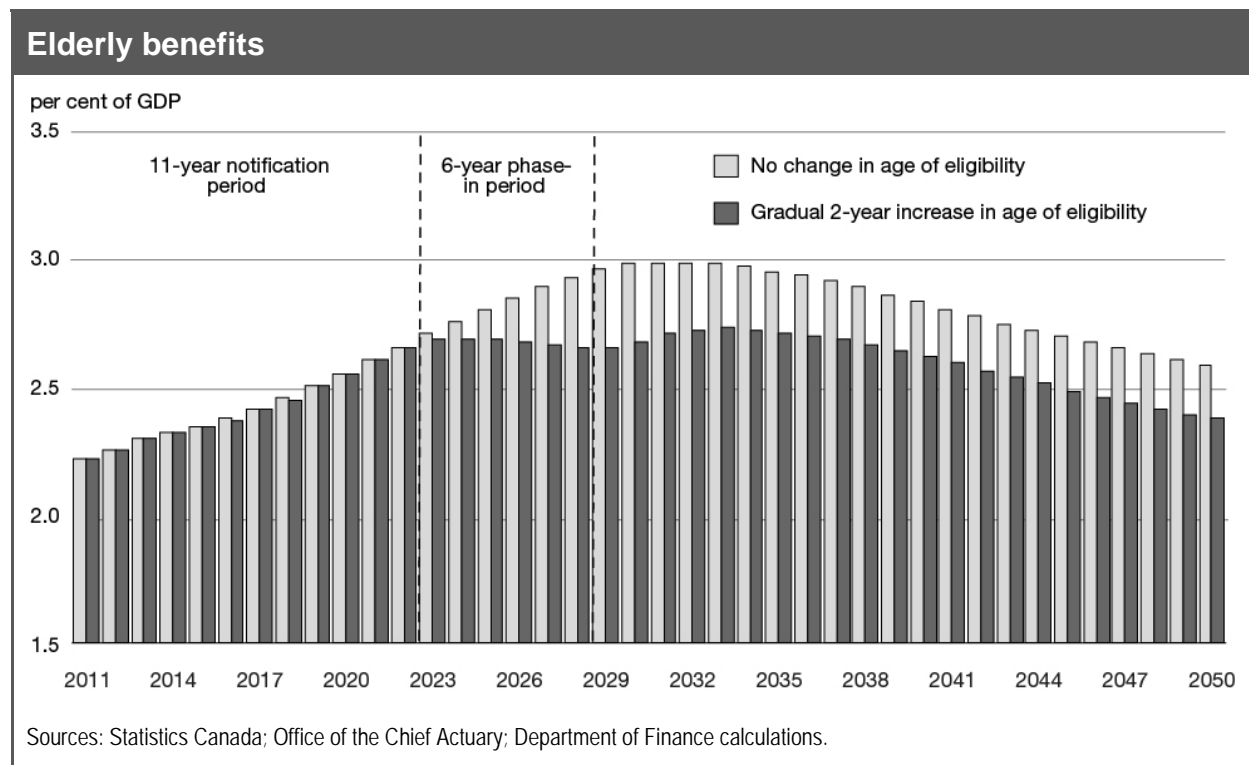
The Canada Health Transfer has been put on a sustainable track...

New Canada Health Transfer (CHT) growth path

- Federal funding for health care through the CHT will continue to grow:
 - at 6 per cent past 2013–14; and
 - at the rate of growth of nominal GDP or 3 per cent, whichever is greater, starting in 2017–18.
 - The new CHT growth path beyond 2013–14 will provide certainty and stability to the provinces and territories as they take action to put their respective health care systems on sustainable spending paths.
-
- Government actions to return to balanced budgets over the medium term have been accompanied by measures to ensure that public finances and social programs remain sustainable over the longer term.
 - The legislation governing the CHT was set to expire in 2013–14. There was no legislated growth path after that date. In December 2011 (and confirmed in Budget 2012), the Government announced the growth path of the CHT beyond 2013–14: it will continue to grow at 6 per cent per year until 2016–17, and then starting in 2017–18, it will grow in line with a three-year moving average of nominal GDP growth, with funding guaranteed to increase by at least 3 per cent per year. This means that federal funding for health care will continue to grow past 2016–17, but at a rate that is no longer significantly above the rate of growth of nominal GDP or government revenue.
 - Combined with growth in the Canada Social Transfer for 2014–15 and subsequent years, and Equalization and Territorial Formula Financing that will continue to grow based on their current formulas, this new CHT growth path beyond 2013–14 will provide certainty and stability to the provinces and territories as they take action to put their respective health care systems on sustainable spending paths.



...and the age of eligibility for the Old Age Security program will be gradually increased



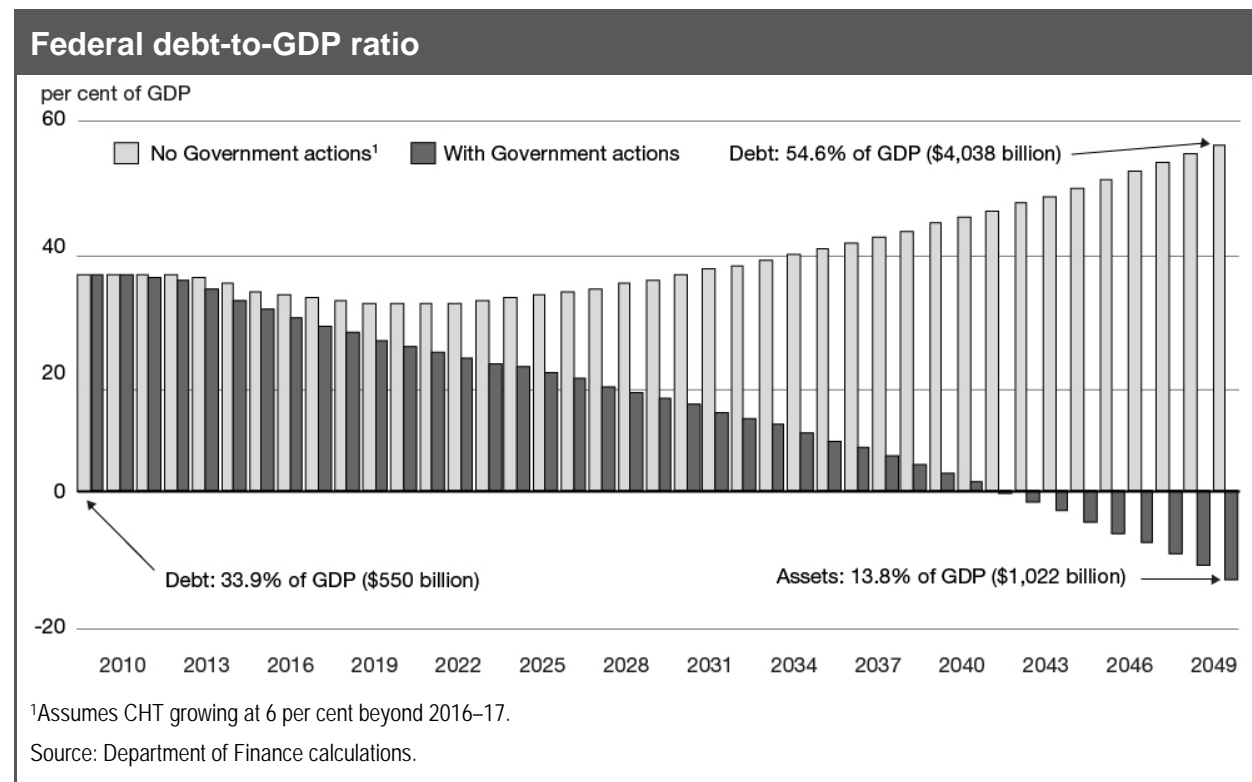
- The Old Age Security (OAS) program is the single largest program of the Government of Canada. It was put in place at a time when Canadians were not living the longer, healthier lives that they are now and was thus designed for a much different demographic future than Canada faces today.
- Over the next five years alone, costs associated with the OAS program, which is available to most Canadians aged 65 and older, are projected to increase by more than \$10 billion as the first baby boomers start reaching retirement age.
- To help ensure that Canada's social programs remain sustainable over the long term and are reflective of ongoing demographic realities, Budget 2012 announced that, starting in April 2023, the age of eligibility for OAS and Guaranteed Income Supplement (GIS) benefits will be gradually increased from 65 to 67, with full implementation by January 2029. In line with this increase in the age of eligibility, the ages at which the Allowance and the Allowance for the Survivor are provided will also gradually increase from 60-64 today to 62-66 starting in April 2023.
- As a result of these changes, OAS expenses as a share of the economy are expected to be 0.3 percentage points of GDP lower than they would have been by the end of the 2020s, the years during which aging pressures on the OAS program are expected to be the strongest.



- Starting on July 1, 2013, Budget 2012 also announced the voluntary deferral of the OAS pension, for up to five years, allowing Canadians the option of deferring take-up of their OAS pension to a later time and receiving a higher, actuarially adjusted, annual pension. While this measure will not produce fiscal savings on an ongoing basis, it could help meet the aging challenge through higher labour force attachment and participation.
- In addition, Budget 2012 announced that the 2010–2012 triennial review of the Canada Pension Plan (CPP) confirms the financial sustainability of the Plan, as reported by the Chief Actuary of the CPP, for at least the next 75 years at the current contribution rate.
- Combined with recent changes to the OAS program, a sustainable CPP will ensure that Canada's public retirement income system remains strong in the future.



Under “status quo” assumptions, recent Government actions would put the federal debt ratio on a downward track...



- While long-term fiscal projections are not predictions, they are nevertheless useful to help assess the long-term impact of public policies based on “status quo” assumptions, including:
 - sustained growth in economic activity that reflects the absence of economic shocks; and,
 - no new spending and/or tax measures beyond those included in Budget 2012.
- Under these conditions, Government actions to return to balanced budgets over the medium term and to ensure the sustainability of Canada’s social programs would, taken together, be sufficient to put the federal debt-to-GDP ratio on a downward track.
- In the absence of these actions, the debt burden would return to an upward trend within the next 10 years and reach close to 55 per cent of GDP by 2050–51, 68 percentage points of GDP higher than with Government actions.⁹

⁹ Actions taken to put the CHT on a sustainable track, actions taken to return to balanced budgets over the medium term, and changes to the age of eligibility for the OAS program are expected to represent, respectively, 47 per cent, 43 per cent and 10 per cent of the improved fiscal outlook in 2050–51.

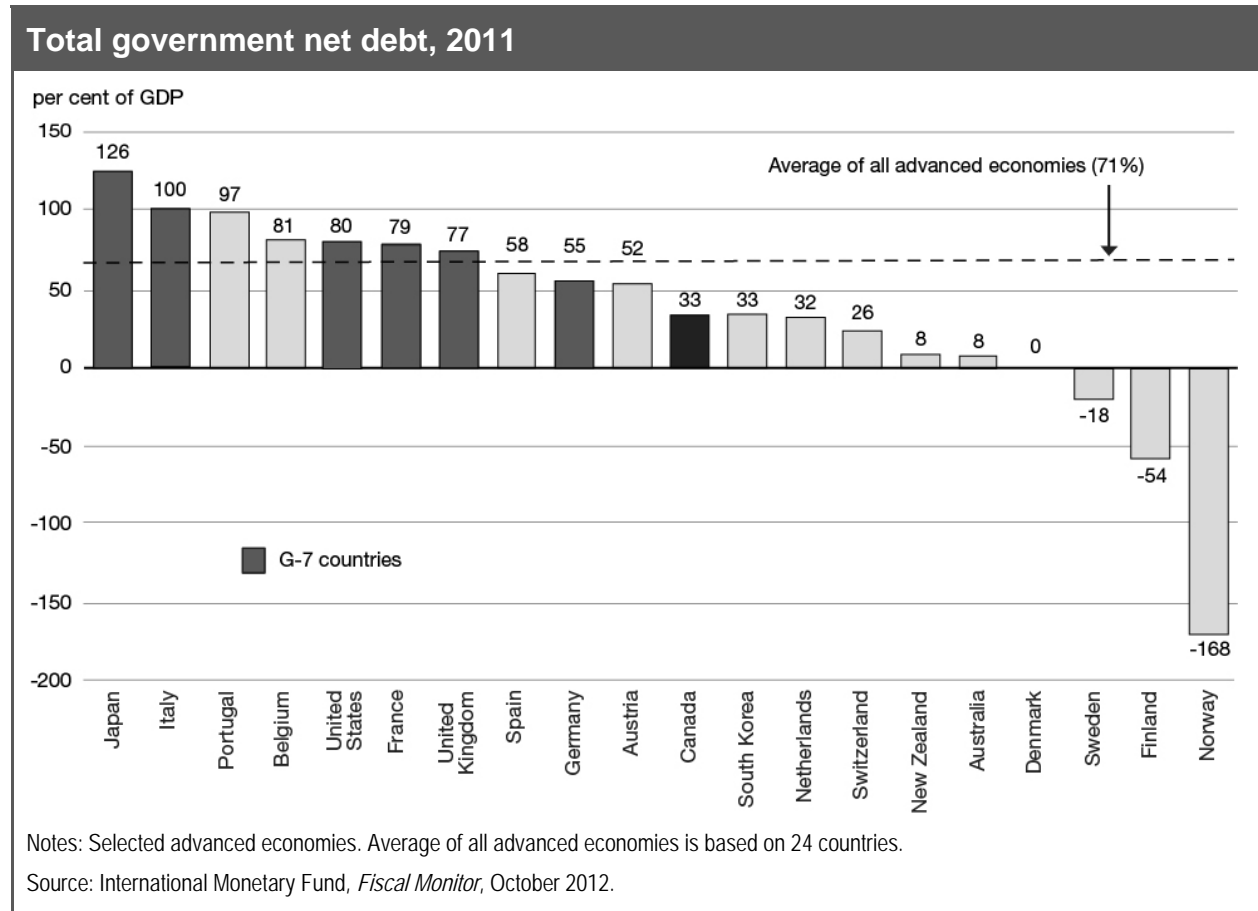


- As this simulation shows, the fiscal impact associated with the absence of Government actions increases rapidly over time. Acting before the full impacts of population aging materialize thus helps to minimize the required adjustment and will avoid the need to take drastic or inequitable actions in the future, such as significant tax increases or service reductions.
- This is why the Government will follow through on its plan to put the debt-to-GDP ratio on a downward track, so that it has the flexibility to respond to unexpected economic shocks.¹⁰

¹⁰ Under the baseline scenario, fiscal flexibility is projected to represent 1 per cent of GDP. This means that, in 2017–18, the Government would be able to withstand an unexpected shock that would permanently reduce its revenue or increase its spending by about 1 per cent of GDP while at the same time maintaining the debt-to-GDP ratio close to its 2016–17 projected level of 28.5 per cent over the whole projection horizon.



...and help Canada remain among the group of advanced economies with low debt burdens



- Canada's total government net-debt-to-GDP ratio (which includes the net debt of the federal, provincial/territorial and local governments, as well as the net assets held in the Canada Pension Plan and Québec Pension Plan) is currently lower than that of all other G-7 countries. However, it is higher than the ratios of other medium-sized advanced economies, such as Australia, Denmark and Sweden.
- Government actions taken since the end of the recession will help ensure that Canada remains among the group of advanced economies with low debt burdens.



- A low debt burden has many advantages beyond providing flexibility to deal with unexpected economic shocks:
 - Reducing debt frees up funds that would otherwise be absorbed by interest costs so that they may be dedicated to more productive uses—to invest in emerging priorities or to reduce taxes.
 - Low government debt levels help to keep interest rates and tax rates low, encouraging businesses to invest in new facilities and machinery and equipment. New business investment contributes to raising the productivity of Canadian workers, resulting in improved Canadian competitiveness and, ultimately, higher wages for Canadian workers.
 - Low and declining government debt levels instill confidence that tax levels will not increase and that public services are sustainable over the long term, allowing Canadians and businesses to plan for the future.
- Continued debt reduction in coming decades would allow the country to reap more of these tangible benefits. It would also contribute to intergenerational equity by limiting the amount of debt that will be transferred to future generations.



Conclusion

A central conclusion of this document is that Canada must plan and act now to prepare for the challenge of an aging population by putting in place policies to further strengthen the Canadian economy and public finances. Early intervention will avoid the need to take drastic or inequitable actions in the future, such as significant tax increases or service reductions.

While returning to balanced budgets over the medium term is crucial in that respect, it is only one of the steps that the Government has taken to help ensure long-term fiscal sustainability. In addition to bringing federal public sector compensation in line with that of other public and private sector employers and restraining growth in direct program spending, the Government has also announced actions to preserve social programs.

Combined, these actions will help ensure the sustainability of Canada's public finances and social programs over the longer term as the Canadian population ages. Building on Government actions taken since 2006, the structural economic initiatives announced in Budget 2012 to support productivity and participation in the workforce will further help improve Canada's long-term economic and fiscal prospects.

However, continuing to restrain government spending and ensuring existing spending is as efficient as possible are necessary to maintain a sustainable track for Canada's fiscal framework.

The payoff from starting to plan and act now is potentially very large, as these policies will tend to reinforce each other over time. By paving the way for macroeconomic stability and low interest rates, fiscal sustainability lays the foundation for jobs and growth, which in turn increases the resources available to continue to invest in the priorities of Canadians and maintains the ability of the Government to respond to unexpected economic shocks.



Annex 1

Methodology

This annex presents the main assumptions and models underlying the demographic, economic and fiscal projections presented in this document. The objective is to provide the reader with a better understanding of the channels through which population aging is expected to impact Canada's demographic structure, the economy and public finances over the coming decades.

DEMOGRAPHIC PROJECTIONS

The demographic projections used in this document are based on medium-growth scenario projections produced by Statistics Canada.¹¹ Using the latest population data available as a starting point, Statistics Canada projects the structure of the population by age and sex from one year to the next by adding births and net migrants and subtracting deaths. The demographic assumptions behind these projections are outlined in *Population Projections for Canada, Provinces and Territories—2009 to 2036*, published in 2010. The main assumptions are:

- Life expectancy at birth for females is expected to increase from 82.9 years in 2006 to 87.3 years in 2036. For males the life expectancy at birth is expected to rise from 78.2 years in 2006 to 84.0 years in 2036.
- The fertility rate for Canada used for the entire projection period is 1.70 children per woman.
- Except for the first three years, where data used are drawn from the immigration plan as formulated by Citizenship and Immigration Canada, the annual immigration rate is assumed to represent 0.75 per cent of the total population. When accounting for emigration and returning emigrants, the net immigration rate for Canada is assumed to range between 0.60 and 0.66 per cent over the projection period.

For the purposes of this document, the population projections produced by Statistics Canada have been adjusted to reflect the most recent population data available.

ECONOMIC PROJECTIONS

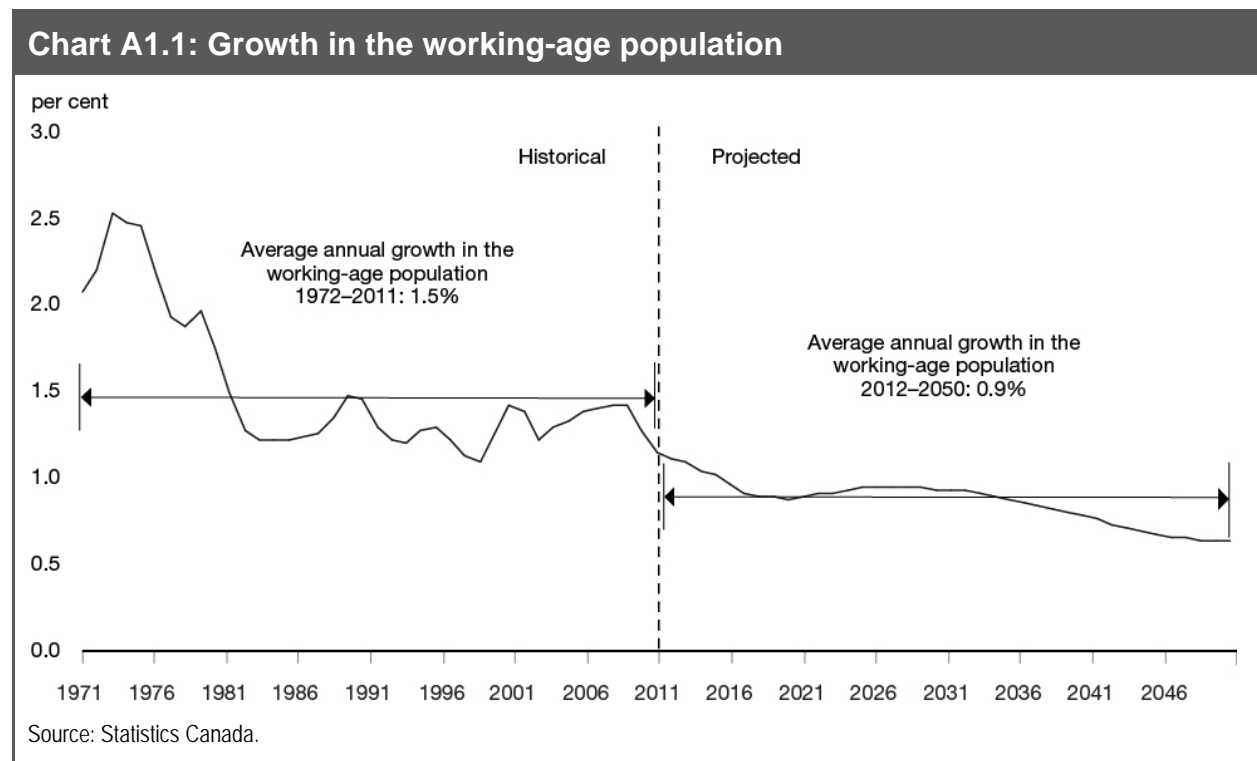
Over the first five years of the projection (2012–2016), key economic indicators (e.g. real GDP growth and interest rates) are taken from the Department of Finance March 2012 survey of private sector economists, which formed the basis for the fiscal forecast presented in the March 2012 budget.

¹¹ Statistics Canada produces three long-term population projections based on low-, medium- and high-growth scenarios.



These results are benchmarked to the Department of Finance long-term projection model. In this model, real GDP growth is assumed to depend on labour productivity growth and labour input growth. Labour input growth is determined by age- and gender-specific labour force participation and average hours worked models using population projections from Statistics Canada by age and gender.

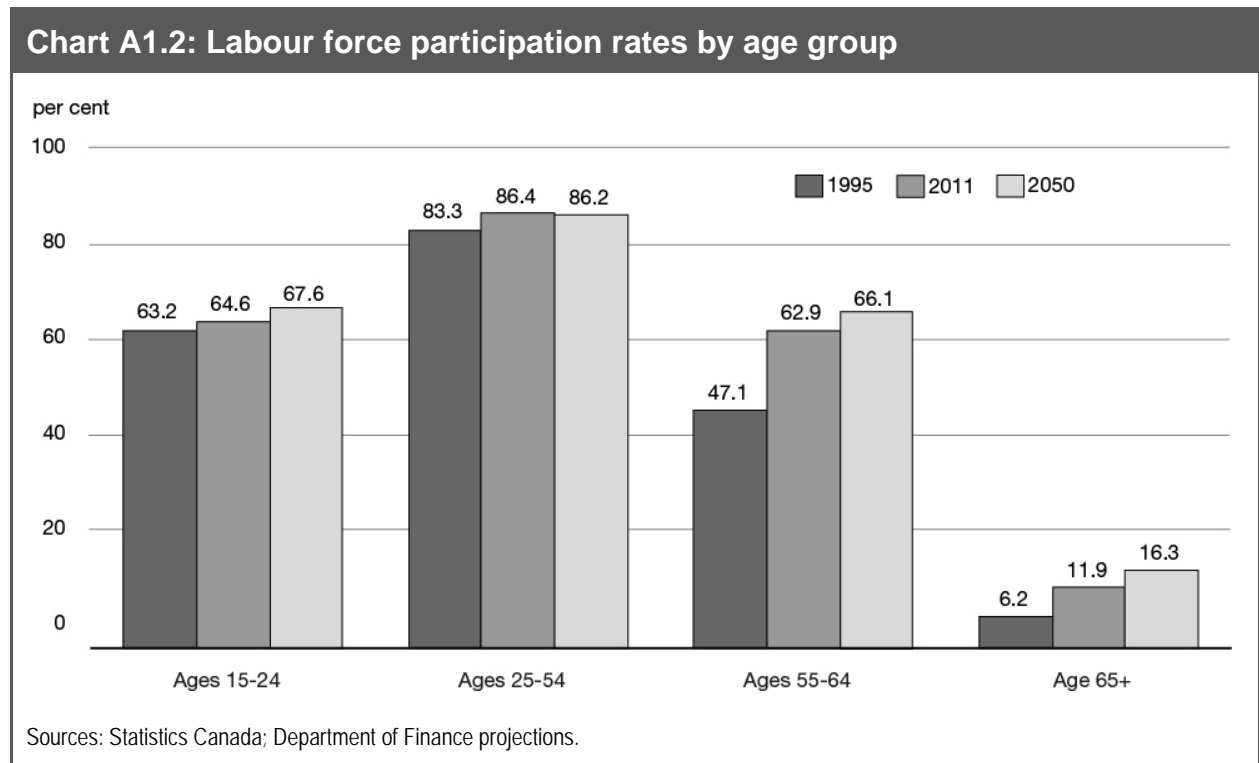
As shown in Chart A1.1, Statistics Canada anticipates that overall growth in the working-age population will slow from an average of 1.5 per cent per year over the 1972–2011 period to less than two-thirds that pace, on average, over the coming four decades.



Labour force participation rates and average hours worked are then projected using detailed econometric estimates developed by the Department of Finance. These estimates allow for an assessment of the impact of aging in isolation, as they control for the impact of economic variables and, in the case of labour force participation, year of birth.

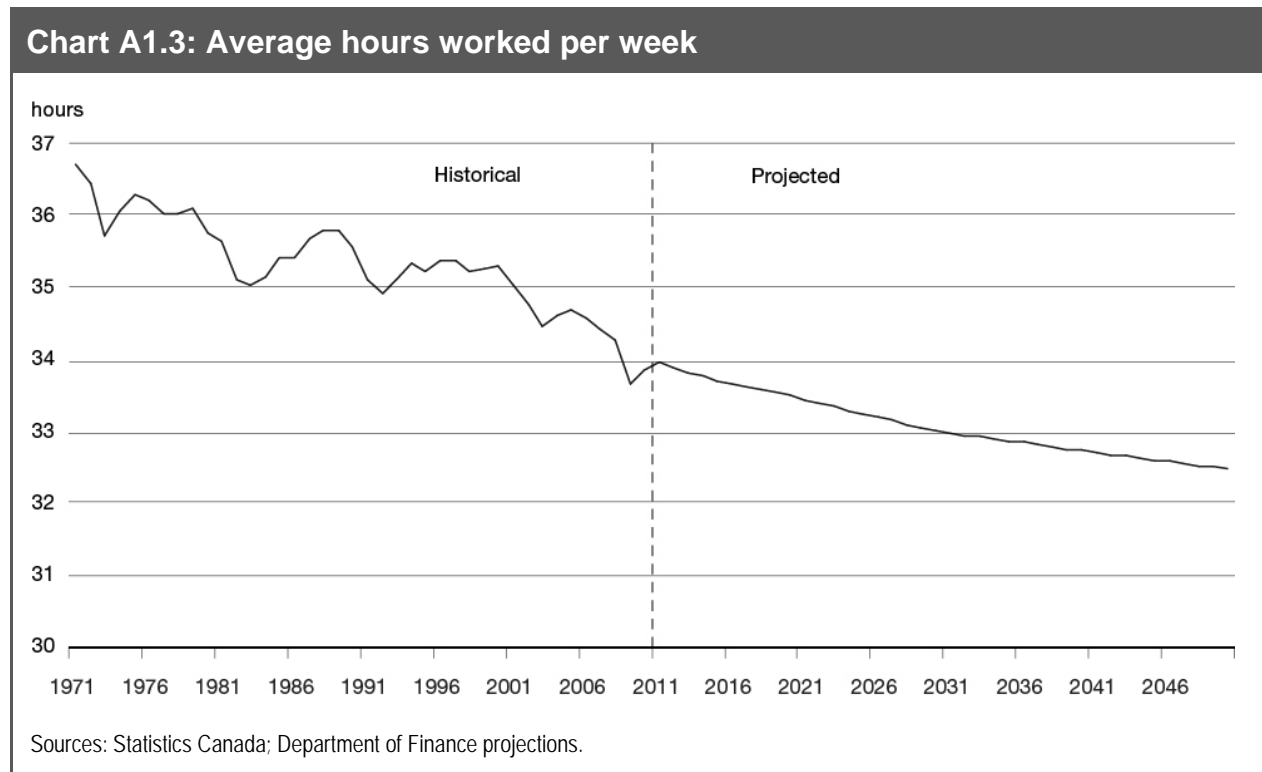
- Labour force participation rates by age and gender are based on a birth “cohort” model. This approach accounts for the phenomenon whereby individuals born in different eras have different levels of attachment to the labour force. This approach also accounts for cyclical and structural factors that affect the participation rate, including age, net wealth, labour demand, real interest rates, youth dependency ratios and institutional factors. Because of the cohort framework, the impact of these variables differs over the lifecycle of an individual.
- Average hours worked by age and gender are modelled using a similar set of cyclical and structural factors as in the labour force participation model, but without the cohort effect.

Charts A1.2 and A1.3 below show the projected labour force participation rates and average hours worked. The participation rate has risen notably for older workers over the last 15 years. A significant portion of this trend is explained by the cohort effect, which captures the increasing tendency of successive generations, particularly females, to participate in the labour market. This trend is projected to continue, although at a much slower rate (Chart A1.2). In spite of this, the increase in the proportion of older workers is expected to reduce the overall rate of labour force participation in the future, as the average participation rate of older workers remains well below that of younger age groups.





While the participation rate has increased, average hours worked have gradually declined over the last four decades. This decline reflects several factors, including: rising post-secondary school enrolment, which limits the number of hours that younger individuals can work; the rise in part-time work, which is related to the increasing share of the service sector in the overall economy, characterized by a shorter and more flexible work week; and rising incomes, which have enabled the substitution of some work hours for some increased leisure time. This longer-term downward trend is anticipated to continue over the 2012–2050 period, albeit at a lower rate than over the last 40 years (Chart A1.3).





Aside from the Department of Finance, other organizations in Canada also project the labour force participation rate. Table A1.1 compares these projections (Statistics Canada produces a range of scenarios). The different projections reflect differing assumptions regarding future paths of demographic changes and labour market conditions. Overall, the projections are broadly similar, with Department of Finance estimates for 2016 and 2030 closely in line with those of other organizations.

Table A1.1: Labour force participation rate projections

| per cent | 2016 | 2030 | 2050 |
|--------------------------------|-----------|-----------|------|
| Department of Finance | 66.7 | 62.7 | 61.0 |
| Statistics Canada ¹ | 64.9-66.8 | 60.1-63.0 | n.a. |
| University of Toronto (PEAP) | 66.4 | 62.6 | n.a. |
| Conference Board of Canada | 67.1 | 62.9 | n.a. |

¹ Statistics Canada produces labour force participation projections under five different scenarios. The table presents a range of estimates under those five scenarios.

Sources: Statistics Canada; University of Toronto Policy and Economic Analysis Program (PEAP); the Conference Board of Canada; Department of Finance calculations.

Over the 2012–2016 period, labour productivity is derived from the private sector forecast for real GDP growth and the Department of Finance projection of labour input. This yields average productivity growth of 1.2 per cent per year, consistent with its historical (1972–2011) average. Labour productivity growth is assumed to continue at this pace over the 2017–2050 period. The unemployment rate over the 2012–16 period is taken from the private sector forecast, which projects a gradual decline to 6.6 per cent by 2016. The unemployment rate is then assumed to decline to 6.3 per cent by 2019, near its level prior to the 2008–2009 recession.

As shown in Table A1.2 below, over the 1972–2011 period over half of the growth in real GDP (1.7 percentage points of 2.9 per cent average growth) was a result of relatively strong growth in the labour supply, which entirely reflected growth in the working-age population and increased labour force participation.

Over the near term (2012–2016), growth in the labour supply is projected to continue to contribute significantly to overall GDP growth, albeit somewhat less than over the last four decades (1.1 percentage points of the 2.3 per cent real GDP growth expected). However, this in part reflects the positive effect of the ongoing recovery in labour markets from the 2008–2009 recession, translating into a falling unemployment rate (which contributes positively to labour supply growth). Labour force participation, on the other hand, is projected to be flat over the period, while average hours worked are anticipated to decline, dampening labour supply growth.



Beyond 2016, however, the positive impacts of the current labour market recovery on labour supply are expected to disappear, while the unemployment rate is assumed to stabilize and average hours worked are projected to continue their trend decline. At the same time, an increasing rate of retirement among the baby boom generation is expected to result in a decline in labour force participation, and the overall rate of growth of the working-age population is projected to continue to decelerate. Combined, these factors suggest that the contribution of labour supply to real GDP growth will decline significantly to an average of just 0.5 percentage points per year over the 2017–2050 period. Given assumed average productivity growth of 1.2 per cent per year, growth in real GDP would average 1.7 per cent per year over the same period.

The projected slowdown in real GDP growth would also translate into lower income growth. Over the 1972–2011 period, per capita income grew an average of 1.8 per cent per year. Slower projected growth in real GDP going forward is expected to result in a deceleration in per capita income growth to 0.9 per cent per year over the 2017–2050 period.

Table A1.2: Growth in GDP and income

Average annual growth rates
per cent, unless otherwise indicated

| | 1972–2011 | 2012–2016 | 2017–2030 | 2031–2050 |
|--|-----------|-----------|-----------|-----------|
| Real GDP growth | 2.9 | 2.3 | 1.6 | 1.8 |
| <i>Contributions of (percentage points):</i> | | | | |
| Labour supply growth | 1.7 | 1.1 | 0.4 | 0.6 |
| Working-age population | 1.5 | 1.1 | 1.0 | 0.8 |
| Labour force participation | 0.3 | 0.0 | -0.4 | -0.1 |
| Unemployment rate | 0.0 | 0.2 | 0.0 | 0.0 |
| Average hours per worker | -0.2 | -0.2 | -0.1 | -0.1 |
| Labour productivity growth | 1.2 | 1.2 | 1.2 | 1.2 |
| <i>Addenda:</i> | | | | |
| Real income growth | 3.0 | 2.4 | 1.6 | 1.8 |
| Real per capita income growth | 1.8 | 1.3 | 0.6 | 1.0 |

Notes: Real income is defined as gross domestic income. Contributions may not add due to rounding.

Sources: Statistics Canada; Department of Finance calculations.



FISCAL PROJECTIONS

Using the fiscal projections up to 2016–17 presented in Budget 2012 as the starting point, the fiscal projections contained in this document are obtained through an accounting model in which each revenue and expense category is determined independently and is modeled as a function of the underlying demographic and economic projections, with the relationships defined either by current and already announced future government policies or assumptions. The model provides a detailed examination of the fiscal implications of population aging on government revenues and expenditures and provides an assessment of long-run fiscal sustainability by simulating long-run debt and deficit paths.

The principal assumptions underlying the fiscal projections from 2017–18 through 2050–51 are:

- The Canada Social Transfer increases by 3 per cent annually, and the Canada Health Transfer and fiscal transfers (i.e. primarily Equalization and Territorial Formula Financing) payments grow as per formulas linked to nominal GDP growth.
- Old Age Security program benefits grow with the targeted population (which is assumed to gradually change from 65 years old and over before 2023 to 67 years old and over in 2029) and inflation to reflect increases in the cost of living.
- Children’s benefits grow with the targeted population (less than 18 years old) and inflation to reflect increases in the cost of living.
- Direct program spending is linked to nominal GDP growth.
- Employment Insurance (EI) benefits grow in line with the projected number of beneficiaries and the projected growth in average weekly earnings.
- The EI premium rate grows according to current program parameters, i.e., EI revenues and expenditures (benefits and administration costs) break even over time.
- All tax revenues, including personal income tax, corporate income tax and Goods and Services Tax revenues, as well as other revenues, are assumed to grow in line with nominal GDP. This assumption is equivalent to assuming a constant implicit aggregate tax burden.
- Each year, the deficit (surplus) is added to (subtracted from) the stock of market debt, which is subject to an average interest rate that is assumed to gradually increase from about 4 per cent in 2016–17 to 5 per cent by 2026–27, roughly in line with the expected average interest rate on renewed government bonds and treasury bills, and remain constant thereafter. The average interest rate on non-market debt (e.g. federal employee pension liabilities) is assumed to remain constant at 5.1 per cent over the whole projection period. Investment returns on financial assets (which are included in other revenues) are assumed to equal the borrowing costs (which are included in public debt charges) associated with their purchase.



Annex 2

Detailed Long-Term Fiscal Projections

Table A2.1 Long-term fiscal projections

billions of dollars

| | 2016– 2017 | 2020– 2021 | 2025– 2026 | 2030– 2031 | 2035– 2036 | 2040– 2041 | 2045– 2046 | 2050– 2051 |
|--|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Revenues | 312.5 | 357.1 | 424.2 | 507.0 | 611.9 | 740.9 | 894.4 | 1,075.3 |
| Personal income tax | 157.0 | 181.6 | 216.0 | 258.5 | 312.1 | 377.9 | 456.3 | 548.7 |
| Corporate income tax | 39.9 | 46.1 | 54.9 | 65.6 | 79.2 | 96.0 | 115.9 | 139.3 |
| Goods and Services Tax | 37.3 | 43.1 | 51.3 | 61.4 | 74.1 | 89.7 | 108.4 | 130.3 |
| EI premium revenues | 23.6 | 23.1 | 26.8 | 31.6 | 37.9 | 45.8 | 55.0 | 66.0 |
| Other revenues | 54.6 | 63.2 | 75.2 | 89.9 | 108.6 | 131.5 | 158.8 | 190.9 |
| Program expenditures | 268.6 | 313.4 | 375.2 | 446.0 | 536.4 | 641.2 | 763.2 | 907.0 |
| Transfers to individuals | 84.0 | 99.8 | 121.5 | 143.4 | 172.4 | 201.8 | 233.6 | 271.3 |
| Elderly benefits | 50.1 | 62.3 | 78.0 | 93.1 | 113.9 | 133.1 | 152.5 | 175.4 |
| Children's benefits | 14.1 | 16.0 | 18.6 | 21.0 | 23.5 | 26.4 | 30.2 | 34.8 |
| EI benefits | 19.8 | 21.4 | 24.9 | 29.4 | 35.1 | 42.3 | 50.9 | 61.0 |
| Major transfers to other levels of government | 68.5 | 79.5 | 94.2 | 111.8 | 133.7 | 160.6 | 192.9 | 230.9 |
| Canada Health Transfer | 36.1 | 42.4 | 50.4 | 60.2 | 72.4 | 87.6 | 106.0 | 127.6 |
| Canada Social Transfer | 13.3 | 15.0 | 17.4 | 20.2 | 23.4 | 27.1 | 31.5 | 36.5 |
| Fiscal transfers | 19.1 | 22.1 | 26.4 | 31.5 | 37.9 | 45.8 | 55.4 | 66.7 |
| Direct program expenses | 116.1 | 134.1 | 159.5 | 190.8 | 230.3 | 278.8 | 336.7 | 404.9 |
| Public debt charges | 36.1 | 39.2 | 43.7 | 45.0 | 43.5 | 37.6 | 23.5 | -2.7 |
| Budgetary balance | 7.8 | 4.5 | 5.3 | 16.0 | 32.0 | 62.1 | 107.7 | 171.0 |
| Federal debt (accumulated deficits) | 602.6 | 582.3 | 561.7 | 503.6 | 381.7 | 138.1 | -301.8 | -1,022.1 |
| Nominal GDP | 2,116.1 | 2,447.1 | 2,911.0 | 3,482.8 | 4,205.2 | 5,092.1 | 6,148.8 | 7,393.9 |

**Table A2.2 Long-term fiscal projections, share of GDP**

per cent

| | 2016– 2017 | 2020– 2021 | 2025– 2026 | 2030– 2031 | 2035– 2036 | 2040– 2041 | 2045– 2046 | 2050– 2051 |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Revenues | 14.8 | 14.6 | 14.6 | 14.6 | 14.6 | 14.6 | 14.5 | 14.5 |
| Personal income tax | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 |
| Corporate income tax | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| Goods and Services Tax | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| EI premium revenues | 1.1 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| Other revenues | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 |
| Program expenditures | 12.7 | 12.8 | 12.9 | 12.8 | 12.8 | 12.6 | 12.4 | 12.3 |
| Transfers to individuals | 4.0 | 4.1 | 4.2 | 4.1 | 4.1 | 4.0 | 3.8 | 3.7 |
| Elderly benefits | 2.4 | 2.5 | 2.7 | 2.7 | 2.7 | 2.6 | 2.5 | 2.4 |
| Children's benefits | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.5 |
| EI benefits | 0.9 | 0.9 | 0.9 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Major transfers to other levels of government | 3.2 | 3.3 | 3.2 | 3.2 | 3.2 | 3.2 | 3.1 | 3.1 |
| Canada Health Transfer | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 |
| Canada Social Transfer | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.5 |
| Fiscal transfers | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| Direct program expenses | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 |
| Public debt charges | 1.7 | 1.6 | 1.5 | 1.3 | 1.0 | 0.7 | 0.4 | 0.0 |
| Budgetary balance | 0.4 | 0.2 | 0.2 | 0.5 | 0.8 | 1.2 | 1.8 | 2.3 |
| Federal debt (accumulated deficits) | 28.5 | 23.8 | 19.3 | 14.5 | 9.1 | 2.7 | -4.9 | -13.8 |

Table A2.3 Long-term fiscal projections, annual growth

per cent

| | 2016– 2017 | 2020– 2021 | 2025– 2026 | 2030– 2031 | 2035– 2036 | 2040– 2041 | 2045– 2046 | 2050– 2051 |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Revenues | 4.1 | 3.5 | 3.5 | 3.7 | 3.9 | 3.9 | 3.8 | 3.7 |
| Personal income tax | 4.9 | 3.6 | 3.5 | 3.7 | 3.9 | 3.9 | 3.8 | 3.7 |
| Corporate income tax | 5.2 | 3.6 | 3.5 | 3.7 | 3.9 | 3.9 | 3.8 | 3.7 |
| Goods and Services Tax | 4.7 | 3.6 | 3.5 | 3.7 | 3.9 | 3.9 | 3.8 | 3.7 |
| EI premium revenues | -2.3 | 3.1 | 3.1 | 3.2 | 3.9 | 4.2 | 3.8 | 3.7 |
| Other revenues | 3.9 | 3.6 | 3.5 | 3.7 | 3.9 | 3.9 | 3.8 | 3.7 |
| Program expenditures | 2.6 | 3.9 | 3.4 | 3.8 | 3.7 | 3.6 | 3.5 | 3.5 |
| Transfers to individuals | 3.7 | 4.7 | 3.3 | 4.3 | 3.4 | 3.0 | 3.0 | 3.1 |
| Elderly benefits | 5.5 | 5.6 | 3.5 | 5.0 | 3.5 | 2.9 | 2.7 | 3.0 |
| Children's benefits | 1.3 | 3.2 | 2.8 | 2.3 | 2.2 | 2.5 | 2.8 | 2.9 |
| EI benefits | 1.1 | 3.0 | 3.1 | 3.5 | 3.7 | 3.8 | 3.8 | 3.7 |
| Major transfers to other levels of government | 4.5 | 3.6 | 3.4 | 3.5 | 3.7 | 3.8 | 3.7 | 3.6 |
| Canada Health Transfer | 6.0 | 3.7 | 3.5 | 3.7 | 3.8 | 3.9 | 3.8 | 3.8 |
| Canada Social Transfer | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Fiscal transfers | 2.9 | 3.7 | 3.5 | 3.7 | 3.8 | 3.9 | 3.8 | 3.8 |
| Direct program expenses | 0.8 | 3.5 | 3.5 | 3.7 | 3.9 | 3.9 | 3.8 | 3.7 |
| Nominal GDP | 4.2 | 3.6 | 3.5 | 3.7 | 3.9 | 3.9 | 3.8 | 3.7 |



Annex 3

Sensitivity Analysis

Because long-term projections and the range of possible results are inherently uncertain, the baseline projections presented in this document are not intended to be exact forecasts. Rather, they provide a plausible baseline that follows from a reasonable set of demographic, economic and fiscal assumptions, which, as this sensitivity analysis shows, is fairly accurate around a number of small changes to individual assumptions. On the other hand, larger changes to some of these assumptions, a combination of changes to these assumptions, a large change in the expected evolution of the medium-term economic and fiscal outlook, or a significant permanent shock to the Government's revenue or spending would have more significant implications for the long-term economic and fiscal outlooks.

Table A3.1

Description of alternative assumptions¹

alternative assumption less baseline

| | High | Low |
|--|-------------|-------------|
| Demographic: | | |
| Fertility rate (average births per woman) | +0.2 births | -0.2 births |
| Net immigration (per cent of population) | +0.1 p.p. | -0.1 p.p. |
| Life expectancy at 65 | +3 years | -3 years |
| Economic: | | |
| Total labour force participation rate (per cent) | +1.0 p.p. | -1.0 p.p. |
| Average weekly hours worked | +0.5 hours | -0.5 hours |
| Unemployment rate (per cent) | +0.5 p.p. | -0.5 p.p. |
| Labour productivity (per cent) | +0.1 p.p. | -0.1 p.p. |
| Interest rates (per cent) | +0.5 p.p. | -0.5 p.p. |

Note: p.p. = percentage point.

¹ These alternative assumptions are applied starting in 2017 except for changes in life expectancy, which are gradually applied over the projection horizon.



Table A3.2
**Impact of alternative assumptions on nominal GDP
and per capita income growth, 2017 to 2050**

average annual growth, per cent

| | Baseline | | High | | Low | |
|---------------------------------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|
| | Nominal GDP | Per Capita Income | Nominal GDP | Per Capita Income | Nominal GDP | Per Capita Income |
| Demographic: | | | | | | |
| Fertility rate | 3.7 | 0.9 | 3.8 | 0.8 | 3.7 | 0.9 |
| Net immigration | 3.7 | 0.9 | 3.9 | 0.9 | 3.6 | 0.8 |
| Life expectancy at 65 | 3.7 | 0.9 | 3.8 | 0.8 | 3.7 | 0.9 |
| Economic: | | | | | | |
| Total labour force participation rate | 3.7 | 0.9 | 3.8 | 0.9 | 3.7 | 0.9 |
| Average weekly hours worked | 3.7 | 0.9 | 3.8 | 0.9 | 3.7 | 0.9 |
| Unemployment rate | 3.7 | 0.9 | 3.7 | 0.8 | 3.7 | 1.0 |
| Labour productivity | 3.7 | 0.9 | 3.9 | 1.0 | 3.6 | 0.8 |

Table A3.3
**Impact of alternative assumptions on nominal GDP
and per capita income levels in 2050**

per cent difference relative to baseline

| | High | | Low | |
|---------------------------------------|-------------|-------------------|-------------|-------------------|
| | Nominal GDP | Per Capita Income | Nominal GDP | Per Capita Income |
| Demographic: | | | | |
| Fertility rate | 2.5 | -1.4 | -2.8 | 1.1 |
| Net immigration | 4.0 | 0.3 | -4.5 | -0.8 |
| Life expectancy at 65 | 0.2 | -2.4 | -0.7 | 1.9 |
| Economic: | | | | |
| Total labour force participation rate | 1.6 | 1.6 | -1.6 | -1.6 |
| Average weekly hours worked | 1.5 | 1.5 | -1.5 | -1.5 |
| Unemployment rate | -0.5 | -0.5 | 0.5 | 0.5 |
| Labour productivity | 3.4 | 3.4 | -3.3 | -3.3 |



Table A3.4
**Impact of alternative assumptions on the federal deficit
 and debt-to-GDP ratio in 2050–51**
 per cent of GDP

| | Baseline | | High | | Low | |
|---------------------------------------|----------|-------|---------|-------|---------|-------|
| | Deficit | Debt | Deficit | Debt | Deficit | Debt |
| Demographic: | | | | | | |
| Fertility rate | -2.3 | -13.8 | -2.3 | -12.8 | -2.3 | -14.7 |
| Net immigration | -2.3 | -13.8 | -2.5 | -16.5 | -2.0 | -10.4 |
| Life expectancy at 65 | -2.3 | -13.8 | -1.8 | -8.4 | -2.8 | -18.3 |
| Economic: | | | | | | |
| Total labour force participation rate | -2.3 | -13.8 | -2.5 | -17.0 | -2.1 | -10.5 |
| Average weekly hours worked | -2.3 | -13.8 | -2.5 | -16.9 | -2.1 | -10.7 |
| Unemployment rate | -2.3 | -13.8 | -2.2 | -12.8 | -2.4 | -14.9 |
| Labour productivity | -2.3 | -13.8 | -2.6 | -16.9 | -2.0 | -10.6 |
| Interest rates | -2.3 | -13.8 | -2.3 | -12.1 | -2.3 | -15.2 |