Department of Finance Canada
Ministère des Finances Canada

2017

Update of Long-Term Economic and Fiscal Projections

Canada

Cette publication est également disponible en français.

Cat. No.: F2-252/2017E-PDF
ISBN: 978-0-660-07207

Introduction

This document provides updated long-term economic and fiscal projections[1] to 2055–56, using the medium-term forecast presented in the 2017 *Fall Economic Statement* as the starting point.

Since the publication of the 2016 *Update of Long-Term Economic and Fiscal Projections*, Canadian economic growth has accelerated sharply. The recent resurgence in gross domestic product (GDP) makes Canada the fastest growing economy in the Group of Seven. Reflecting this recent economic strength, the medium-term fiscal outlook has improved—with projected budgetary balances and debt-to-GDP ratio improving across the forecast horizon.

The recent acceleration and broadening of growth has coincided with robust job gains for Canada as a whole, as nearly 600,000 net jobs have been created since 2015. The pace of job creation so far in 2017—31,000 jobs per month—has been among the fastest in the past decade. These recent gains in the labour market have contributed to lowering the unemployment rate from 7.2 per cent at the beginning of 2016 to 5.9 per cent in November 2017, its lowest level since January 2008. Together, stronger, broader-based growth and significant improvements in the labour market have resulted in strong gains in both consumer and business confidence.

Going forward, despite strengthening economic activity and declining unemployment rates, the Canadian economy continues to face a number of challenges that are likely to weigh on growth—in particular, pressures from changing demographics as a result of population aging.

This report outlines Canada's long-term economic and fiscal projections taking into consideration current trends and a reasonable set of demographic, economic, and fiscal assumptions and scenarios. A technical description of the methodology and key assumptions underlying this analysis is provided at the end of this document.

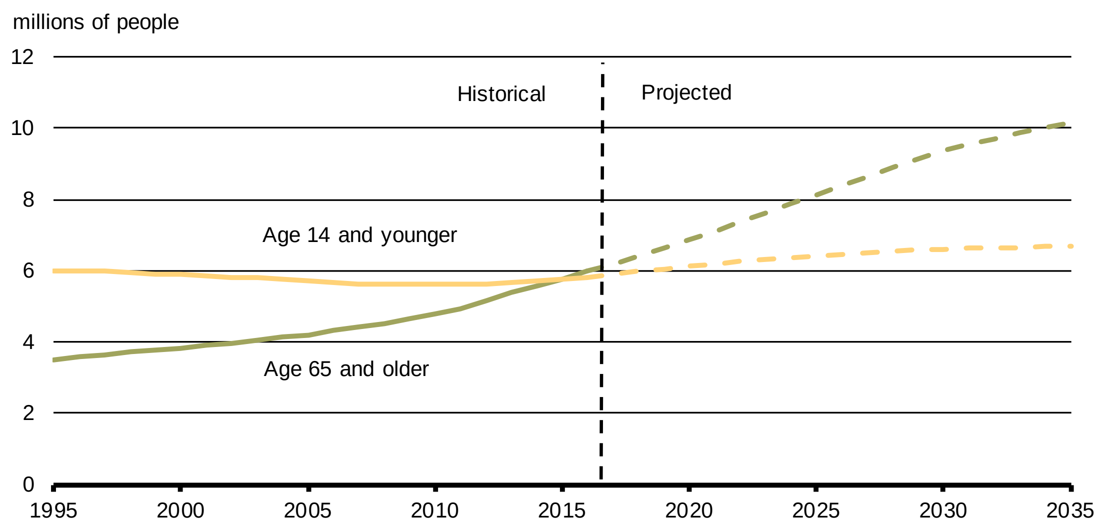
[1] As with any projections that extend over several decades, those presented in this document are subject to a fair degree of uncertainty. Rather than being viewed as a forecast of the future, these projections should be taken as scenarios that could occur based on current trends and policies and a reasonable set of demographic, economic and fiscal assumptions. They are intended to provide a broad analysis of the Government's fiscal position, to allow the Government to respond more effectively to upcoming challenges and protect the long-term sustainability of public finances.

Canada's Demographic Transition

Canadians are living longer than ever and have one of the highest life expectancies in the world. Combined with falling fertility rates, these positive developments in longevity have resulted in the Canadian population gradually growing older. Indeed, there are now more seniors aged 65 and over than there are children under the age of 15 (Chart 1).

The Canadian population has been gradually growing older

Chart 1
Canadian Population Projection by Age Group



Source: Statistics Canada.

Labour Market Impacts

With the oldest members of the large baby boom generation now reaching retirement age, Canada has passed a demographic tipping point. As this large generation retires from the labour market and is replaced by relatively smaller generations of new workers, the ratio of Canada's workers to our elderly population is expected to decrease dramatically over the coming decades.

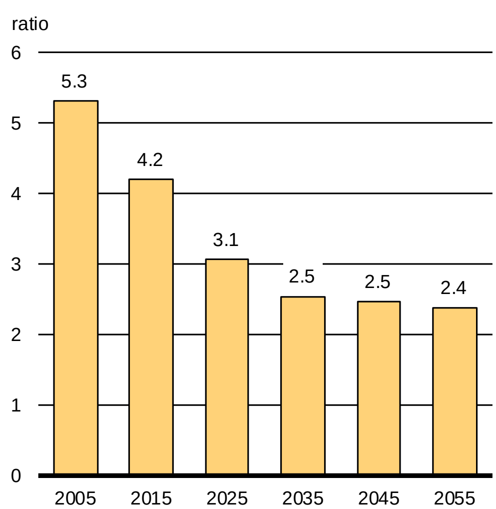
Indeed, the number of working-age Canadians (aged 15 to 64) for every senior (aged 65 and over) is expected to fall from close to 5 over the past decade to 2.5 in less than 20 years (Chart 2), one of the largest projected decreases among Organisation for Economic Co-operation and Development (OECD) countries.

Population aging will also result in an increase in the share of older workers in the labour force. Because older workers participate less in the labour market than younger workers, an aging population is expected to lead to a reduction in the overall rate of labour force participation.[2] In fact, the impact of the shift toward an older population is already being felt, as the overall participation rate has now passed its peak.

Population aging will have dramatic effects on the Canadian labour force

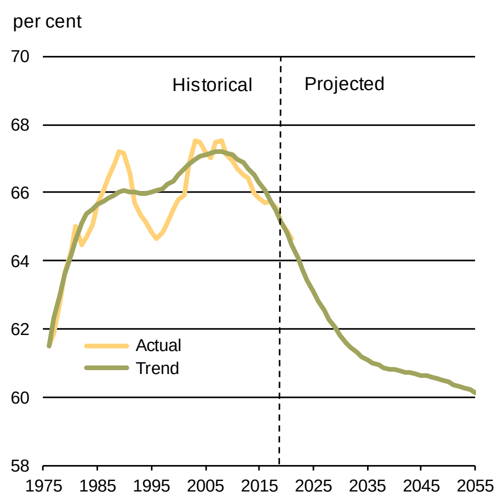
Chart 2

Ratio of Working-Age (15 to 64) Population to Population Aged 65+



Sources: Statistics Canada; Department of Finance Canada calculations.

Labour Force Participation Rate



Sources: Statistics Canada; Department of Finance Canada calculations.

[2] The labour force includes non-institutionalized individuals aged 15 and over who are either working or actively seeking a job. 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. 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.

Economic Growth Impacts

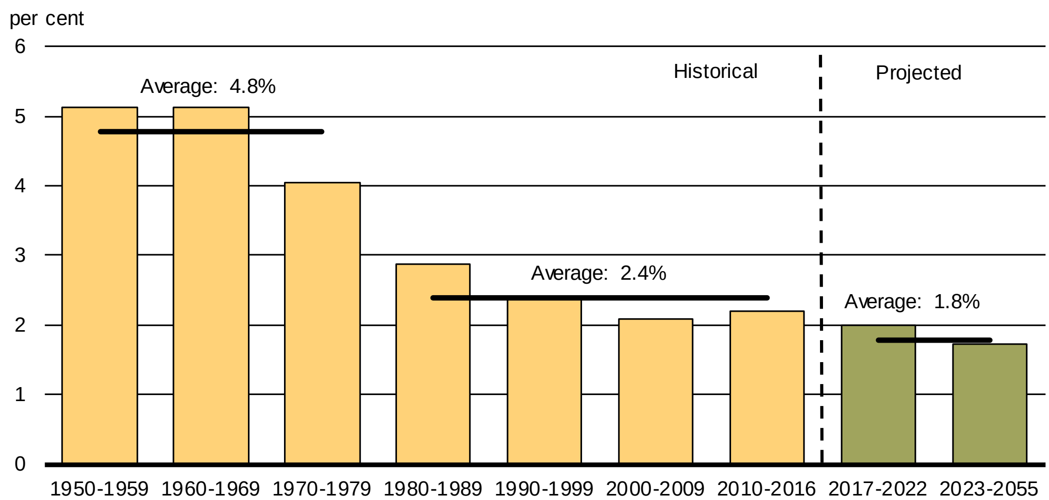
Economic growth stems from growth in either labour supply or labour productivity (real output per hour worked). Reduced labour force participation due to population aging has already started and is expected to continue to reduce growth in labour supply—that is, the total number of hours worked by Canadians.

In this context, under baseline assumptions for labour force participation and productivity, the increase in the pace of population aging will have a negative impact on economic growth over the coming decades (Chart 3).

The age-related deceleration in economic growth in Canada will take place amidst other powerful, slow-moving global forces. As in Canada, the world population is aging and productivity growth has slowed across OECD countries. These structural forces are paving the way to slower global growth for the next number of years.

Population aging will further dampen economic growth

Chart 3
Real Gross Domestic Product Growth



Sources: Statistics Canada; Department of Finance Canada calculations.

Public Finance Impacts

Recent economic strength has led to an improvement in the fiscal outlook—with projected budgetary balances and debt-to-GDP ratio improving across the medium-term forecast horizon. This medium-term fiscal forecast, which is based on the average of the September private sector economic outlook survey, shows a gradual reduction in the deficit as well as a continuously declining federal debt-to-GDP ratio over the forecast horizon (Table 1). However, it is expected that, beyond the medium-term, population aging will exert downward pressures on this outlook.

Assuming a constant 2 per cent annual rate of inflation, population aging will lead to lower nominal GDP, the broadest single measure of the tax base. Slower nominal GDP growth will reduce the growth rate of government revenues, thereby limiting the capacity of governments to continue to maintain the growth rates of public expenditure at levels as high as in the past. At the same time, population aging is also expected to put upward pressure on public expenditures, notably for age-related programs such as elderly benefits.

Table 1
2017 *Fall Economic Statement* Budgetary Balance and Debt

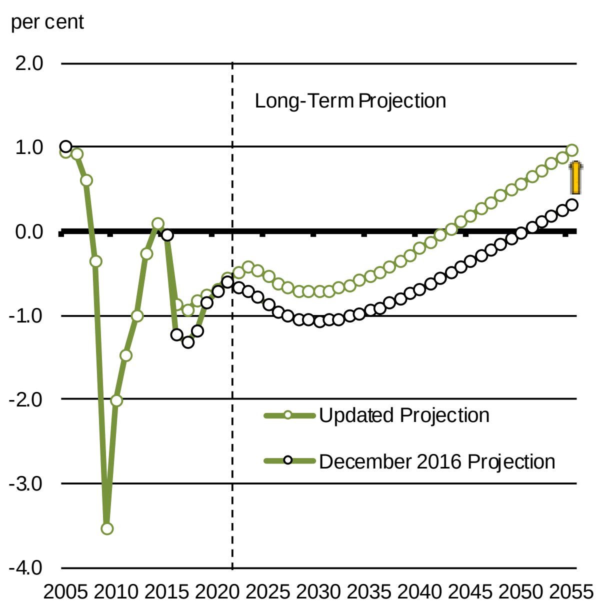
		Projection					
	2016–2017	**2017–2018**	**2018–2019**	**2019–2020**	**2020–2021**	**2021–2022**	**2022–2023**
Budgetary balance (billions of dollars)	-17.8	-19.9	-18.6	-17.3	-16.8	-13.9	-12.5
Federal debt (per cent of GDP)	31.2	30.5	30.2	29.9	29.5	29.1	28.5

Starting from the medium-term forecast, and assuming key current policy parameters remain the same, the federal budgetary balance-to-GDP ratio is expected to slightly deteriorate during the 2020s as population aging pressures increase. With the subsequent easing of these pressures, the budgetary balance-to-GDP ratio is projected to significantly improve to reach a surplus representing 1 per cent of GDP by the end of the projection horizon (Chart 4). This projected budgetary balance path means that the debt-to-GDP ratio is still projected to continue to be on a downward track over the whole projection horizon. These updated long-term fiscal projections are improved compared to those presented in December of last year, mostly due to the better medium-term outlook for the budgetary balance.

Federal public finances are sustainable over the long term

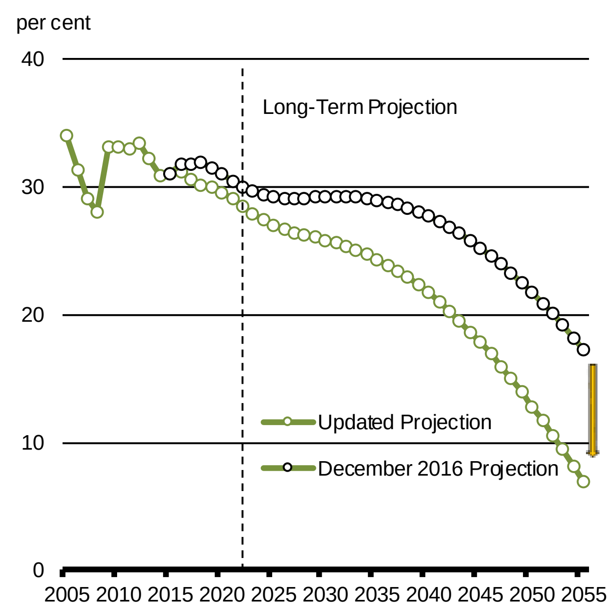
Chart 4

Federal Budgetary Balance-to-GDP Ratio



Sources: Statistics Canada; Department of Finance Canada calculations.

Federal Debt-to-GDP Ratio



Sources: Statistics Canada; Department of Finance Canada calculations.

However, there are both upside and downside alternative scenarios around the baseline projection. In particular, in part because the impact of future government action is not accounted for, there is significant uncertainty regarding future economic growth and, therefore, the path of nominal GDP (the broadest measure of the tax base). Changes in economic growth assumptions over the medium term can have large impacts on the budgetary balance and debt-to-GDP profile over an extended projection horizon.

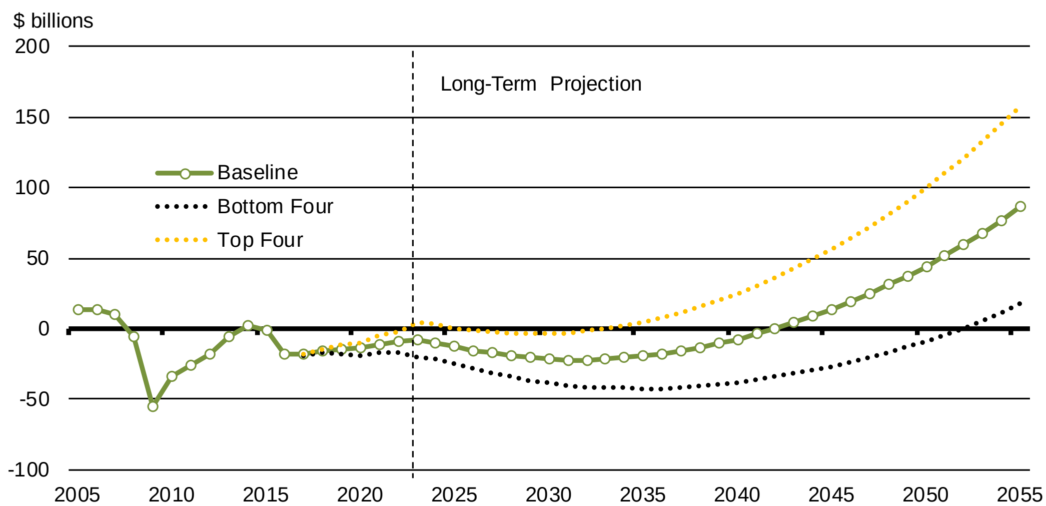
For example, if the Government based current fiscal projections on the average of the top four individual forecasts for nominal GDP growth—which is equivalent to nominal GDP growth being 0.3 percentage points per year higher, on average, over the next five years than in the full September survey—this would lead the federal budgetary balance to reach a surplus of $3.9 billion in 2023–24 and remain about balanced or better thereafter (Chart 5). Under this scenario, the debt-to-GDP ratio would decline more rapidly and the federal debt would be eliminated by the end of the projection horizon. Conversely, basing fiscal projections on the average of the bottom four individual forecasts for nominal GDP growth—which is equivalent to nominal GDP growth being 0.3 percentage points per year lower, on average, over the next five years than in the full September survey—would lead the federal budgetary balance to reach a deficit of $19.8 billion in 2023–24, growing to $42.3 billion in 2035–36 before gradually improving thereafter. Under this scenario, the debt-to-GDP ratio would remain relatively stable until the late 2030s before gradually declining to about 20 per cent by the end of the projection horizon.

It is therefore imperative to continue to grow the economy by investing in the middle class and in the skills and technology that will make Canada more productive, competitive and fair. While no single initiative can guarantee sustainable growth in our prosperity, the potential payoff from acting now in a broad range of policy areas is very large, as measures tend to reinforce themselves over time. In particular, improving the economic participation of groups traditionally under-represented in the labour market, including women, Indigenous peoples, older workers, newcomers and persons with disabilities, is key to Canada's long-term fiscal and economic performance. It is also important to ensure that women have the same opportunities as men in the economy.

Significant uncertainty surrounds the baseline long-term projection

Chart 5

Federal Budgetary Balance



Notes: Alternative forecasts between 2017–18 and 2022–23 are based on the average private sector economists' projection for nominal GDP and excluding the adjustment for risk. The top (bottom) four scenarios are based on the average of the most optimistic (pessimistic) projections for nominal GDP among the economists surveyed. Baseline long-term assumptions are applied beyond 2022–23. The baseline projection does not account for the impact of future government action or changes, or the most optimistic (pessimistic) projections for nominal GDP among the economists surveyed.

Sources: Statistics Canada; Department of Finance Canada calculations.

Methodology and Key Assumptions

Demographic Projections

The demographic projections used in this document are based on medium-growth scenario projections produced by Statistics Canada.[3] 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 (2013 to 2063), Provinces and Territories (2013 to 2038)*, published in 2015. The main assumptions are:

- Life expectancy at birth for females is projected to increase from 83.8 years in 2013 to 88.5 years in 2055. For males, the life expectancy at birth is projected to rise from 79.6 years in 2013 to 86.7 years in 2055.
- The fertility rate for Canada used for the entire projection period is 1.67 children per woman.
- The annual immigration rate is assumed to represent about 0.75 per cent of the total population. When accounting for emigration and returning emigrants, the net immigration rate for Canada is assumed to stand around 0.6 per cent over the projection period.

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

Economic Projections

Over the first six years of the projection (2017–2022), key economic indicators (e.g. real GDP growth and interest rates) are taken from the Department of Finance Canada September 2017 survey of private sector economists, which forms the basis for the fiscal forecast presented in the 2017 *Fall Economic Statement*. These results are then extended using the Department of Finance Canada 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. Both are based upon population projections from Statistics Canada by age and gender.

Labour productivity is assumed to grow at about its historical average over the 2023–2055 period (Table 2). The unemployment rate over the 2017–2022 period is taken from the private sector forecast, which projects a gradual decline to 6.1 per cent by 2022, near its level prior to the 2008–2009 recession. It is assumed to be somewhat below 6 per cent over the long term.

Over the medium term (2017–2022), growth in labour supply is projected to continue to contribute significantly to overall GDP growth, albeit somewhat less than over the 1970–2016 period. This in part reflects the positive effect of Canada's continued economic expansion projected over the coming years, translating into a falling unemployment rate (which contributes positively to labour supply growth).

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

However, after 2022, the contribution of labour force participation is projected to decline slightly each year (-0.2 percentage points annually) given the increasing rate of retirement among the baby boom generation, dampening labour supply growth. Beyond 2022, average hours worked are projected to continue their trend decline.

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 2023–2055 period, from the 1.5 percentage points over the 1970–2016 period. Given assumed trend productivity growth of 1.2 per cent per year, the same as over the 1970–2016 period, overall growth in real GDP would average 1.7 per cent per year over 2023–2055.

Table 2

Real GDP Growth Projection, Average Annual Growth Rates

per cent, unless otherwise indicated

	1970–2016	2017–2022	2023–2035	2036–2055
Real GDP growth	2.7	2.0	1.7	1.8
Contributions of (percentage points):				
Labour supply growth	1.5	0.7	0.4	0.6
Working-age population	1.5	1.0	0.9	0.7
Labour force participation	0.3	-0.3	-0.4	-0.1
Unemployment rate	-0.1	0.2	0.0	0.0
Average hours per worker	-0.2	-0.1	-0.1	0.0
Labour productivity growth	1.2	1.3	1.2	1.2

Note: Contributions may not add due to rounding.
Sources: Statistics Canada; Department of Finance Canada calculations.

Fiscal Projections

Using the fiscal projections up to 2022–23 presented in the 2017 *Fall Economic Statement* 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 modelled as a function of the underlying demographic and economic projections, with the relationships defined either by current 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 budgetary balance paths.

The principal assumptions underlying the fiscal projections from 2023–24 through 2055–56 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 in line with nominal GDP.
- Old Age Security (OAS) program benefits grow with the targeted population (65 and over for the OAS pension and the Guaranteed Income Supplement) 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 expenses are 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.
- With respect to federal debt charges, new (and maturing) federal debt is (re)financed each year consistent with the Government's medium-term debt strategy at new rates. The effective interest rate on interest-bearing federal debt is assumed to gradually increase from about 3 per cent in 2022–23 to 3.8 per cent by 2035–36 and remain broadly stable around this level thereafter. 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.

Detailed Baseline Fiscal Projections[4]

Table 3
Long-Term Fiscal Projections
billions of dollars

	2022–23	2025–26	2030–31	2035–36	2040–41	2045–46	2050–51	2055–56
Revenues	371.3	412.2	491.2	591.7	715.6	864.2	1,039.4	1,247.2
Program expenses	347.9	388.4	467.3	557.5	662.8	785.8	930.2	1,100.6
Public debt charges	32.8	39.3	48.7	56.5	63.2	67.4	67.9	63.2
Adjustment for risk	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Budgetary balance	-12.5	-15.5	-24.8	-22.3	-10.4	10.9	41.4	83.4
Federal debt	732.0	771.5	881.3	1,001.5	1,081.5	1,073.0	930.7	603.5
Nominal GDP[1]	2,567.6	2,857.8	3,413.5	4,116.9	4,986.1	6,025.1	7,247.0	8,700.5

[1] On a calendar-year basis.

Table 4
Long-Term Fiscal Projections, Share of GDP
per cent

	2022–23	2025–26	2030–31	2035–36	2040–41	2045–46	2050–51	2055–56
Revenues	14.5	14.4	14.4	14.4	14.4	14.3	14.3	14.3
Program expenses	13.5	13.6	13.7	13.5	13.3	13.0	12.8	12.6
Public debt charges	1.3	1.4	1.4	1.4	1.3	1.1	0.9	0.7
Adjustment for risk	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Budgetary balance	-0.5	-0.5	-0.7	-0.5	-0.2	0.2	0.6	1.0
Federal debt	28.5	27.0	25.8	24.3	21.7	17.8	12.8	6.9

[4] The baseline projection does not account for the impact of future government action or changes, or the most optimistic (pessimistic) projections for nominal GDP among the economists surveyed.

Table 5
Long-Term Fiscal Projections, Annual Growth
per cent

	2022–23	2025–26	2030–31	2035–36	2040–41	2045–46	2050–51	2055–56
Revenues	3.2	3.3	3.7	3.8	3.9	3.8	3.7	3.7
Program expenses	2.7	3.8	3.7	3.6	3.5	3.5	3.4	3.5
Nominal GDP[1]	3.8	3.5	3.7	3.9	3.9	3.8	3.7	3.7

1 On a calendar-year basis.

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 forecasts. Rather, they provide a plausible baseline that follows from a reasonable set of demographic, economic and fiscal assumptions, and which, as this sensitivity analysis shows, is fairly robust to a number of reasonable changes to individual assumptions. On the other hand, larger changes to assumptions or a combination of changes to some of these assumptions can result in a large change in the expected evolution of the long-term economic and fiscal outlook.

Table 6
Description of Alternative Assumptions[1]
alternative assumption less baseline

	High	Low
Demographic:		
Fertility rate (average births per woman)	+0.5 births	-0.5 births
Immigration (per cent of population)	+0.25 p.p.	-0.25 p.p.
Life expectancy at 65	+3 years	-3 years
Economic:		
Total labour force participation rate (per cent)	+2.0 p.p.	-2.0 p.p.
Average weekly hours worked	+1.0 hour	-1.0 hour
Unemployment rate (per cent)	+1.0 p.p.	-1.0 p.p.
Labour productivity (per cent)	+0.5 p.p.	-0.5 p.p.
Interest rates (per cent)	+1.0 p.p.	-1.0 p.p.

Note: p.p. = percentage point.
1 These alternative assumptions are applied starting in 2023 except for changes in life expectancy, which are gradually applied over the projection horizon.

Table 7

Impact of Alternative Assumptions on Nominal GDP and Real Per Capita GDP Growth, 2023 to 2055

average annual growth, per cent

	Baseline		High		Low	
	Nominal GDP	Real Per Capita GDP	Nominal GDP	Real Per Capita GDP	Nominal GDP	Real Per Capita GDP
Demographic:						
Fertility rate	3.8	1.0	3.9	0.9	3.6	1.1
Immigration	3.8	1.0	4.1	1.1	3.4	1.0
Life expectancy at 65	3.8	1.0	3.8	1.0	3.8	1.1
Economic:						
Total labour force participation rate	3.8	1.0	3.9	1.1	3.7	0.9
Average weekly hours worked	3.8	1.0	3.9	1.1	3.7	0.9
Unemployment rate	3.8	1.0	3.7	1.0	3.8	1.0
Labour productivity	3.8	1.0	4.3	1.5	3.3	0.5

Table 8

Impact of Alternative Assumptions on Nominal GDP and Real Per Capita GDP Levels in 2055

per cent difference relative to baseline

	High		Low	
	Nominal GDP	Real Per Capita GDP	Nominal GDP	Real Per Capita GDP
Demographic:				
Fertility rate	6.0	-3.1	-5.8	3.3
Immigration	10.6	1.4	-10.6	-1.7
Life expectancy at 65	0.4	-2.2	-0.4	2.0
Economic:				
Total labour force participation rate	3.3	3.3	-3.3	-3.3
Average weekly hours worked	3.0	3.0	-3.0	-3.0
Unemployment rate	-1.1	-1.1	1.1	1.1
Labour productivity	17.7	17.7	-15.1	-15.1

Table 9

Impact of Alternative Assumptions on the Federal Budgetary Balance and Debt in 2055–56

per cent of GDP

	Baseline		High		Low	
	Budgetary Balance	Debt	Budgetary Balance	Debt	Budgetary Balance	Debt
Demographic:						
Fertility rate	1.0	6.9	0.9	9.1	1.0	4.6
Immigration	1.0	6.9	1.4	0.6	0.4	14.8
Life expectancy at 65	1.0	6.9	0.6	11.3	1.3	3.4
Economic:						
Total labour force participation rate	1.0	6.9	1.3	1.7	0.6	13.1
Average weekly hours worked	1.0	6.9	1.2	2.1	0.6	12.6
Unemployment rate	1.0	6.9	0.9	8.7	1.1	5.2
Labour productivity	1.0	6.9	2.0	-6.3	-0.2	23.3
Interest rates	1.0	6.9	0.5	15.6	1.2	0.9