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Fiscal Sustainability Report 2016

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Executive summary

Medium-term budget plans are insufficient to evaluate the long-term prospects for public debt under current fiscal policy. This report extends PBO's medium-term analysis to assess the fiscal sustainability of Canada's federal government, subnational governments and public pension plans.

Fiscal sustainability means that government debt does not grow continuously as a share of the economy. The goal is to identify if policy changes are required to avoid unsustainable public debt accumulation, after considering the economic and fiscal impacts of population ageing.

Conclusions

Federal government

PBO's 2015 Fiscal Sustainability Report concluded that the federal government had room to increase spending or reduce taxes. Measures in Budget 2016 have reduced this room. However, the government continues to have flexibility to expand policy while maintaining fiscal sustainability.

To maintain net debt at its current level of 33.7 per cent of gross domestic product (GDP) over the long term, PBO estimates that the federal government could permanently increase spending or reduce taxes by 0.9 per cent of GDP ($19.2 billion in current dollars). This is down from 1.4 per cent in last year's assessment.

PBO's federal sustainability assessment concludes:

- Federal fiscal room has been reduced as a result of reversing the increase in the age of eligibility for the Old Age Security program. The higher long-run cost as a result of the change is expected to reduce federal fiscal room by 0.2 per cent of GDP.
- Removing existing children's benefits and introducing the Canada Child Benefit are expected to reduce fiscal room by 0.1 per cent of GDP. However, a complete picture of the impact is uncertain, as no details have been announced describing the indexation of benefits or eligibility thresholds beyond the medium term. Parliamentarians may wish to seek further clarification.
- Other Budget 2016 spending measures, including Phase 1 and Phase 2 of Canada's New Infrastructure Plan, reduce fiscal room by 0.1 per cent of GDP.

Fiscal sustainability and the fiscal gap defined

Fiscal sustainability means that government debt does not grow continuously as a share of the economy.

PBO assesses sustainability using the fiscal gap—the difference between current fiscal policy and a policy that is sustainable over the long term.

The fiscal gap represents the immediate and permanent change in revenues, program spending, or combination of both (expressed as a share of GDP) that is required to stabilize the net debt-to-GDP ratio at its current level over the long term.

PBO refers to a negative fiscal gap (that is, net debt is expected to fall as a share of GDP) as fiscal room.

Subnational governments

The outlook for subnational governments (that is, combined provincial, territorial, local and Aboriginal governments) is little changed from last year's assessment. Permanent policy actions amounting to 1.5 per cent of GDP ($30.2 billion in current dollars) would be required to stabilize the subnational government net debt-to-GDP ratio at its current level (32.5 per cent) over the long term. The required fiscal consolidation has increased marginally from 1.4 per cent in last year's assessment.

PBO's subnational government sustainability assessment concludes:

- The slight increase in the fiscal gap is the result of higher-than-projected program spending in 2015.
- Health care spending outpaced nominal GDP growth in 2015. This, along with historical revisions to the national accounts, has raised PBO's projection for excess cost growth.[1] Excess cost growth refers to the increase in health spending that cannot be accounted for by general inflation, real per capita income growth, population growth and ageing.
- Although provinces cannot meet the challenges of population ageing under current policy, the required fiscal consolidation is not insurmountable if compared to previous consolidation episodes. Furthermore, the changes do not need to occur immediately. However, the longer they are delayed, the greater the adjustment that is required.

Canada Pension Plan and Quebec Pension Plan

The fiscal gap for the public pension sector represents the immediate and permanent change in contributions and/or expenses that returns the net asset-to-GDP ratio to its current level over the long term. PBO estimates that public pension plans are sustainable over the long term.

The long-term projection of the Canada Pension Plan (CPP) does not incorporate the agreement in principle signed by Canada's Finance Ministers on 20 June 2016.[2] PBO will assess the changes to the CPP when further details on implementation are released.

Total general government sector

The total general government sector in Canada (that is, the combined federal and subnational governments and public pension plans) is not fiscally sustainable without permanent increases in revenues or reductions in program spending of at least 0.6 percentage points of GDP.

Changes could be made at any level of government to eliminate the total government fiscal gap. However, ensuring the sustainability of each government sector on its own would require a consolidation at the subnational level and/or higher transfers from the federal government.

1. Introduction

A government's budget plan is heavily influenced by the current economic cycle and short-term policy objectives. The medium-term outlook is not, on its own, enough to evaluate the health of current fiscal policy and the ultimate path of government debt. To assess whether the government's fiscal policy is sustainable requires projecting current policy beyond the budget's planning horizon.

This report provides parliamentarians with our latest assessment of the long-term fiscal sustainability of the Canadian government sector. To evaluate fiscal sustainability, we take a snapshot of current policy and our interpretation of government intentions for the ongoing structure of policy. We then roll that policy forward over the next 75 years using demographic and economic projections.

It is difficult to forecast the economy and public finances next year, let alone over the next 75 years. The analysis is not intended to be a forecast of what will happen over the coming decades. Instead, it is designed to assess the underlying sustainability of the government sector by looking beyond the current headline budgetary balance, which is affected by the economic cycle and temporary or one-off fiscal policy measures.

Sustainability depends crucially on whether current fiscal policy can cope with expected long-term demographic challenges, particularly the rising cost of supporting an ageing population. While there is a great deal of uncertainty with respect to the economy, we can be more certain about the demographic outlook, particularly the transition of the post-war "baby boom" out of the labour force and into retirement.

Finally, the economy and public finances are unlikely to turn out the way we project. However, the framework can provide a useful assessment of the long-term financial costs and benefits of *changes* in government policy, such as the recent reversal of the age of eligibility for the Old Age Security program, regardless of the path of the underlying economy and budgetary balance.

Structure of the report

Sections 2 and 3 describe the demographic and economic projections on which the long-term fiscal projections are based.

Section 4 describes the path of federal revenues and spending when the current fiscal structure is extended over the long term.

Because of the interconnected nature of federal and subnational governments' finances, it is important to look at the entire public sector in Canada. Section 5 discusses the path of Canada's subnational government revenues and spending within PBO's long-term framework.

Section 6 describes the long-term prospects for contributions and expenses of the Canada Pension Plan and Quebec Pension Plan.

With the projections of revenues and program spending for each government sector, PBO then determines the path of government debt and calculates the fiscal gap. The projected path of government debt and the resulting fiscal gap is calculated for each government sector in Section 7.

To help gauge the sensitivity of the estimates, PBO calculates fiscal gaps for each sector under alternative demographic, economic and fiscal policy assumptions in Section 8.

2. Demographic projection

The evolving demographic profile of the Canadian population is one of the key drivers of PBO's long-term economic and fiscal projection. Our baseline demographic projection was produced by Statistics Canada's Demography Division using assumptions consistent with Statistics Canada (2014) until 2061. PBO provided assumptions thereafter. PBO's demographic projection depends on assumptions for fertility, mortality (life expectancy) and immigration rates.

PBO's long-term baseline demographic assumptions are unchanged from our 2015 Fiscal Sustainability Report, henceforth referred to as FSR 2015.[3] The long-term total fertility rate is 1.67 children for every woman of child-bearing age (Table 2-1).

Under the baseline demographic scenario, male life expectancy at birth is projected to increase from 79.3 years in 2011 to 87.8 years in 2065 and 90.1 years by 2090. Female life expectancy at birth is projected to increase from 83.6 years in 2011 to 89.3 years in 2065 and 91.1 years by 2090.

The immigration rate is 7.5 immigrants per thousand persons to 2061. Thereafter, the level of immigration is assumed to remain constant and the rate falls to 6.3 immigrants per thousand in 2090.

Table 2-1 Key baseline demographic assumptions

	2011	2040	2065	2090
Total fertility rate (children per woman of child-bearing age)	1.61	1.67	1.67	1.67
Male life expectancy at birth (years)	79.3	84.6	87.8	90.1
Female life expectancy at birth (years)	83.6	87.0	89.3	91.1
Immigration rate (immigrants per 1,000 persons)	7.2	7.5	7.3	6.3

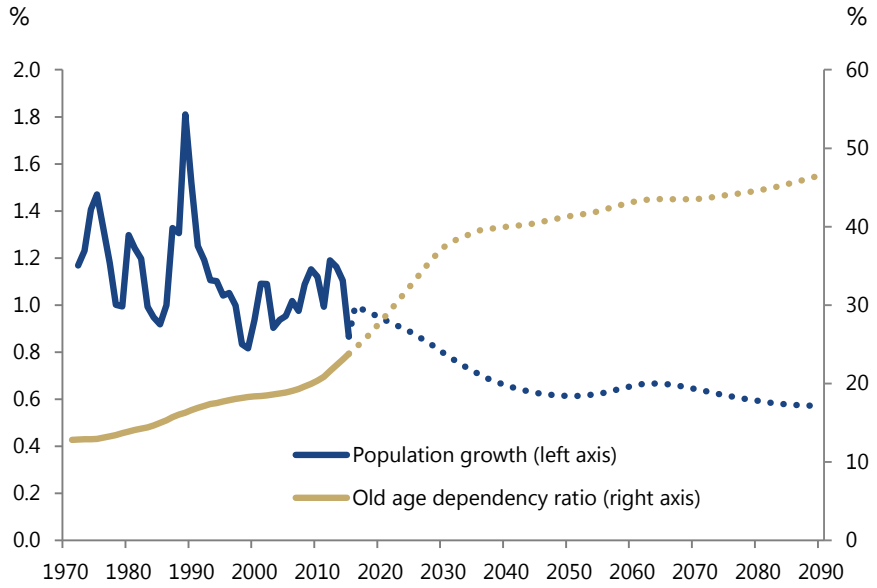
Sources: Statistics Canada and Parliamentary Budget Officer.

Population growth is projected to decline from 1.1 per cent annually, on average, over the past 10 years to 0.6 per cent by 2041 as the contribution of natural increase (the difference between births and deaths) falls (Figure 2-1).

The ageing of the population is projected to intensify. The old-age dependency ratio (the number of individuals aged 65 and over as a share of the population between aged 15 to 64) is projected to rise from 23.8 per cent in 2015 to 40.0 per cent by 2040.

Thereafter, the ratio is projected to continue to rise at a slower pace, reaching 43.5 per cent by 2065 and 46.6 per cent by 2090.

Figure 2-1 Population growth and population ageing



Sources: Statistics Canada and Parliamentary Budget Officer.

Expressed differently, there were 4.2 people aged between 15 and 64 for every individual aged 65 and over in 2015. By 2040, this ratio is projected to

fall to 2.5 and decline to 2.1 by 2090, which would be half its current level. Appendix A provides a summary and comparison of the demographic projections in the 2016 and 2015 FSRs.

3. Long-term economic projection

PBO's April 2016 medium-term outlook (2016 to 2021) provides the starting point for the long-term economic projection.[4] Beyond 2021, PBO's economic projection is determined by trends in labour input and labour productivity growth, as well as assumptions about inflation and interest rates.

Over the long term, the economy is assumed to operate at its productive capacity or potential GDP. This is projected to grow in line with trend labour input (total hours worked) and trend labour productivity (output per hour worked).

Consequently, real GDP, labour input and labour productivity are projected to remain at their respective trends.

Trend labour input is determined by the working-age population, trends in age and gender-specific employment rates, and average weekly hours worked.

Over the long term (2022 to 2090), projected growth in labour input is due entirely to growth in the working-age population, which is 0.7 per cent annually on average (Table 3-1). Shifts in the age composition of the population continue to push the aggregate employment rate lower, subtracting 0.2 percentage points a year, on average, from labour input growth.

Table 3-1 Summary of the economic projection

%	1982-2015	2016-2021	2022-2090
Real GDP growth	2.4	1.8	1.6
Labour input growth	1.2	0.6	0.5
Labour productivity growth	1.1	1.2	1.1
Nominal GDP growth	5.1	3.8	3.7
CPI inflation	2.8	2.1	2.0
3-month treasury bill	5.3	2.1	3.5
10-year government bond rate	6.6	3.2	4.6

Sources: Statistics Canada and Parliamentary Budget Officer.

To maintain consistency with our approach to estimating potential GDP, we apply the steady-state (constant) labour productivity growth derived within

our production function framework. Consequently, steady-state labour productivity growth is determined by growth in total factor productivity and the share of labour income in GDP.

Trend labour productivity growth is assumed to converge to its steady-state level of 1.1 per cent over the long term. This rate of growth is also equivalent to the historical average annual growth in labour productivity observed between 1982 and 2015.

PBO's long-term assumptions for GDP inflation and inflation as measured by the Consumer Price Index (CPI)—2 per cent annually—are consistent with the Bank of Canada's inflation target. Based on previous Bank of Canada analysis and PBO assumptions, three-month treasury bill and 10-year government bond rates are set at, respectively, 3.45 per cent and 4.55 per cent over the long term, which is unchanged from FSR 2015.[5]

Appendix A provides a summary and comparison of the economic projections in the 2016 and 2015 FSRs.

4. Federal government

PBO's latest fiscal outlook forecasts federal deficits averaging $18.2 billion over the medium-term outlook to 2020-21.[6] Although this outlook has deteriorated since FSR 2015, it is largely the result of transitory factors, such as weak GDP growth and temporary spending measures. There are, nonetheless, several policy measures in Budget 2016 that have long-term consequences for the sustainability of federal fiscal policy.

Elderly benefits

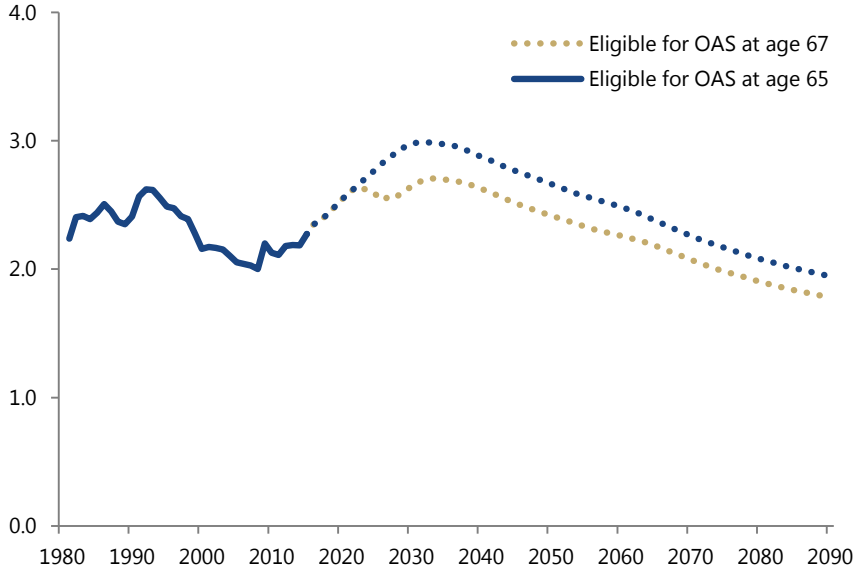
The policy change in Budget 2016 with the greatest consequence for sustainability was the reversal of the increase in the OAS age of eligibility. The future age of eligibility was returned to 65, after being scheduled to increase to 67 during a phase-in period from 2023 to 2029.

Figure 4-1 illustrates the impact of the policy change on federal spending as a share of GDP. Spending on elderly benefits (which includes OAS, the Guaranteed Income Supplement and Allowances) was 2.3 per cent of GDP in 2015. This is projected to reach its highest point at 3.0 per cent in 2032, before steadily declining to 1.9 per cent by the end of the projection.

The change is estimated to cost an additional 0.3 per cent of GDP in 2029—the first full year the increase would have been implemented. However, the cost falls quickly to 0.2 per cent by the end of the outlook.

Figure 4-1 **Reversal of increase in OAS age of eligibility boosts elderly benefits**

% of GDP



Sources: Statistics Canada and Parliamentary Budget Officer.

Children's benefits

Removing existing children's benefits and introducing the Canada Child Benefit has only a small effect on the long-term outlook; however, a complete picture of the impact is uncertain. No details have been announced regarding indexation of benefits or eligibility thresholds beyond 2020-21.

Figure 4-2 shows the impact of PBO's baseline scenario and possible alternative scenarios for the path of spending. The program that existed before the introduction of the Canada Child Benefit is also shown.

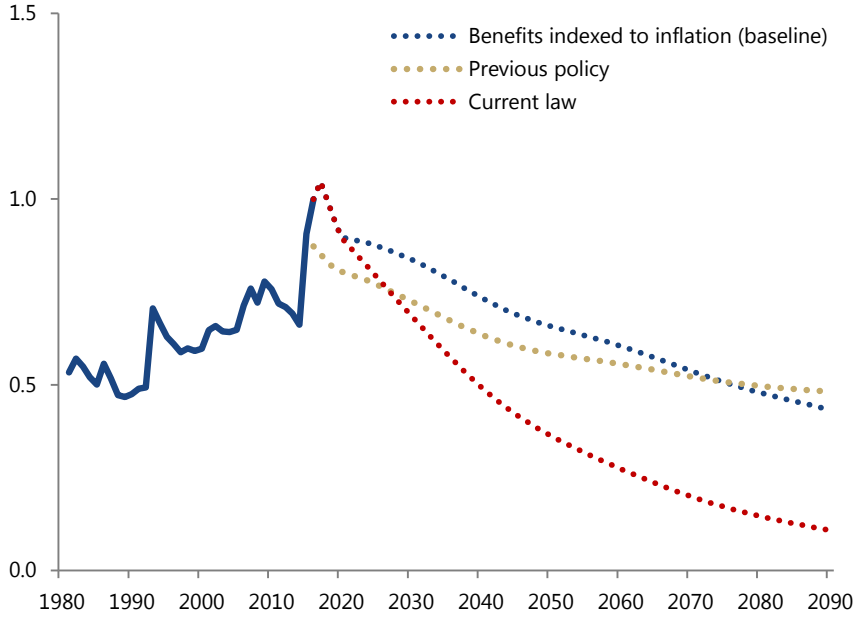
PBO assumes in its baseline scenario that payments and eligibility thresholds will be indexed to inflation beyond 2020. Spending rises to 1.0 per cent of GDP in 2017, the first full year of the program. But it falls quickly over 2018 to 2021 as neither benefits, nor eligibility thresholds, are indexed to inflation. After assumed indexation in 2021, spending declines gradually to 0.4 per cent of GDP because of the declining share of the population under the age of 18.

If current legislation is not changed to index payments and the eligibility threshold, spending will quickly fall as a share of GDP. This will occur because of a loss in both the real value of payments and because fewer and fewer

families will be eligible for benefits as nominal incomes rise (see the current law projection in Figure 4-2).

Figure 4-2 Introducing the Canada Child Benefit

% of GDP



Sources: Statistics Canada and Parliamentary Budget Officer.

Other policy changes

- Budget 2016 enriched the accessibility and generosity of Employment Insurance benefits. The increase is inconsequential as a share of GDP and has no implications for sustainability, as revenues are also increased to cover the costs of enrichment as part of the breakeven premium rate policy.
- Phase I and Phase II of Canada's New Infrastructure Plan increase annual federal spending by less than 0.2 per cent of GDP between 2016 and 2025. PBO assumes the additional spending is not continued after 2025 and the program, therefore, has little impact on fiscal sustainability over the long term.
- The recent reversal of the expansion of tax-free savings accounts increases federal revenues by 0.2 per cent of GDP in 2030, reaching 0.3 per cent by the end of the projection horizon. The policy change does not affect fiscal sustainability under PBO's assessment framework; the savings are assumed to be used for offsetting tax reductions or to forego other tax increases (the constant future tax burden assumption).

Other assumptions underlying the federal projection

- Spending on elderly and children's benefits is driven by the long-term demographic profiles of beneficiaries and legislated program parameters.[7]
- Employment Insurance (EI) benefits are projected such that, over the long term, the EI benefit payment grows in line with the average wage and the number of beneficiaries, which is assumed to grow with the unemployed.
- Transfers to subnational governments are grown by legislated escalators. Most transfers are indexed to nominal GDP growth and spending remains constant as a share of GDP. The exception is the Canada Social Transfer (CST), which is legislated to grow at 3 per cent annually. The CST declines from 0.6 per cent of GDP to 0.4 per cent by the end of the projection.
- All other federal spending is assumed to grow with GDP.
- The government adjusts tax policy over the long term so that the tax burden on households and businesses remains at a constant 14.3 per cent of GDP from the end of the medium-term forecast (2021) to the end of the projection period (2090). If this assumption were not used, more and more people would be pushed into higher personal income tax brackets, revenue would rise over the outlook, and the tax system would lose its progressivity.

Federal revenues, program spending and primary balance

Definition: primary balance

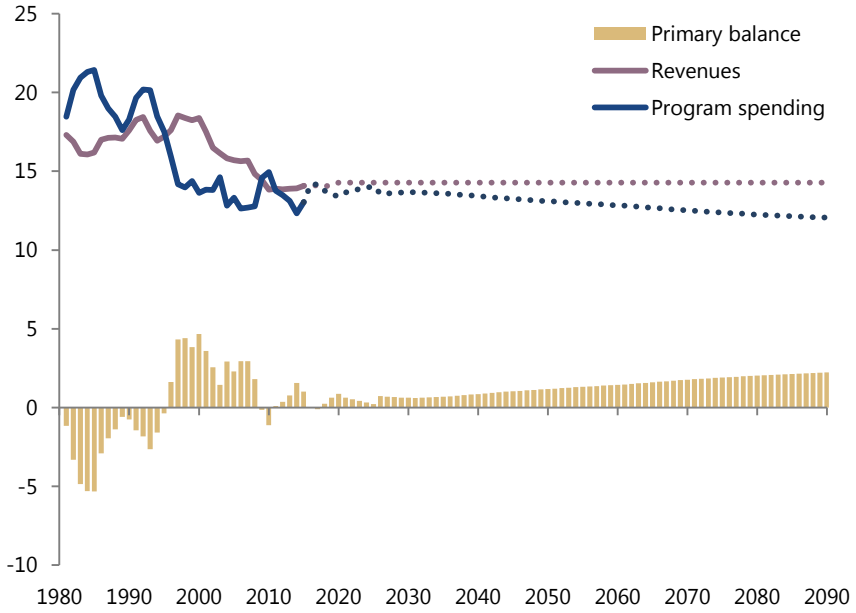
The primary balance is defined as revenues less non-interest spending, It represents the contribution to debt accumulation that is directly influenced by fiscal policy. Subtracting public debt charges from the primary balance yields the more familiar budgetary balance or "net lending".

After the end of Canada's New Infrastructure Plan in 2025, federal program spending (that is, spending other than debt service) reaches its highest as a share of GDP in 2031, at 13.7 per cent. This is the year in which the cost pressure of the baby boom cohort on elderly benefits is greatest. Federal spending falls afterward, reaching 12.0 per cent in the final year of the projection.

Subtracting program expenses from revenues gives the government's *primary balance*. The primary balance is the direct contribution of the government's fiscal policy to debt dynamics and serves as the basis for PBO's fiscal gap calculation.[8] Revenues exceed program spending over the entire projection horizon. After spending on elderly benefits reaches its peak, the primary surplus grows from 0.6 per cent of GDP in 2031 to 2.2 per cent at the end of the projection (Figure 4-3). Tables containing full results are available in Appendix B.

Figure 4-3 **Federal revenues, program spending and primary balance**

% of GDP



Sources: Statistics Canada and Parliamentary Budget Officer.

5. Subnational government

Subnational government is composed of provincial, territorial, local and Aboriginal governments. PBO's long-term outlook for subnational government borrowing is little changed from our assessment in 2015. That said, some factors have contributed to a modest deterioration in the subnational outlook:

- Health care spending in 2015 grew 1.5 per cent, which is faster than nominal GDP growth of 0.6 per cent.
- Other spending related to subnational public sector administration increased faster than projected and faster than nominal GDP.

Excess cost growth

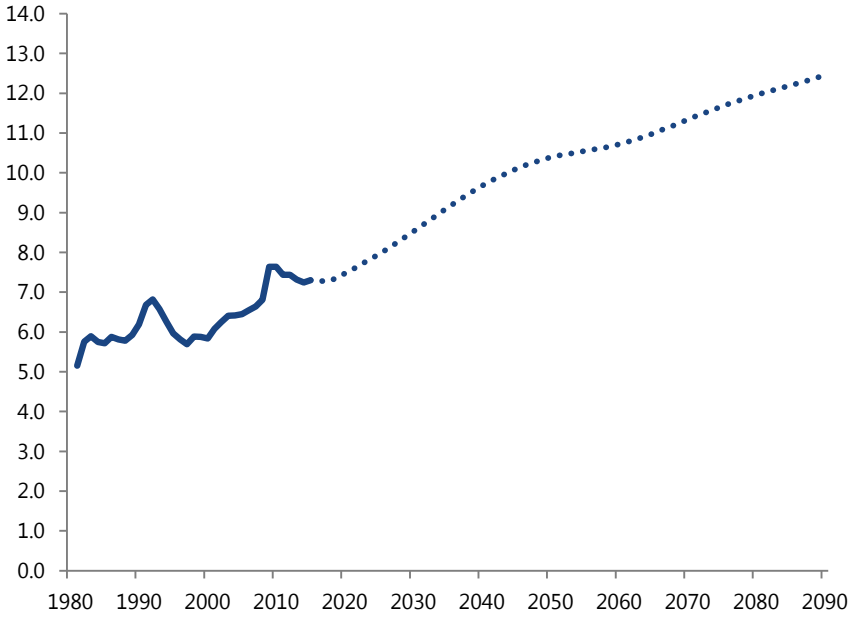
Excess cost growth is the increase in spending that cannot be accounted for by increases in population, an ageing population, real per capita income growth and general price inflation.

Health care spending

The primary driver of subnational spending growth as a share of GDP is health care, which is in turn driven by ageing demographics and excess cost growth.[9] Health spending rises from 7.3 per cent of GDP in 2015 to 12.5 per cent at the end of the projection period. (Figure 5-1).

Figure 5-1 **Health spending increases with population ageing and excess cost growth**

% of GDP



Sources: Statistics Canada and Parliamentary Budget Officer.

Health care spending has been revised upwards in recent years relative to the preliminary estimates by the Canadian Institute for Health Information in PBO's sustainability assessment last year. Average annual spending growth from 2012 to 2015 is now estimated to have been 2.6 per cent; previously it was estimated at 2.3 per cent.

The revised estimates for growth in health care spending, along with new GDP data and historical revisions, have also increased PBO's assumptions for excess cost growth of health care. Excess cost growth is assumed to be equal to its 1982-2015 average of 0.29 per cent, up from 0.26 in FSR 2015.

Education and social welfare benefits

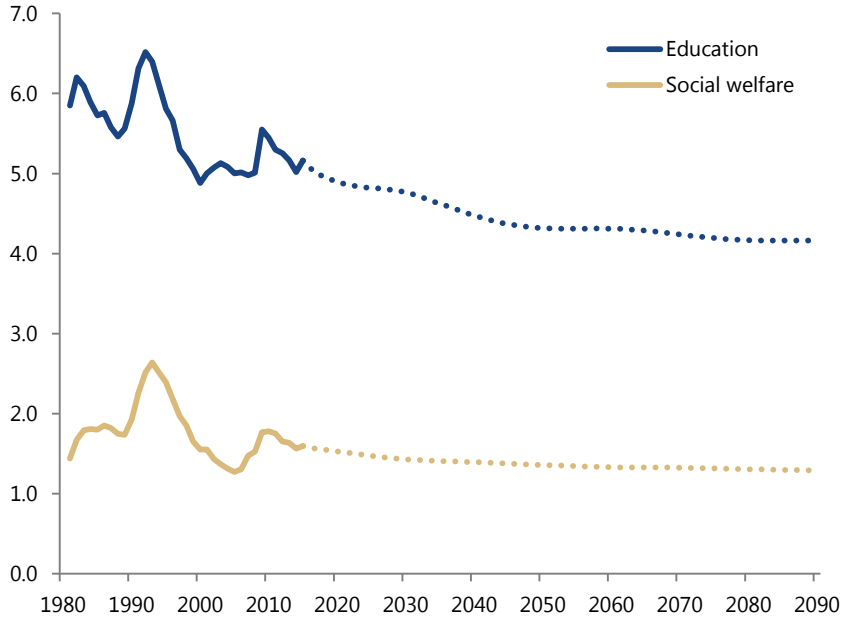
Spending on education and social welfare benefits is shown in Figure 5-2. Education spending declines as a share of GDP from 5.2 per cent in 2015 to 4.6 per cent at the end of the projection.[10] However, the decline is interrupted twice by cohorts of the school-aged grandchildren and great grandchildren of the baby boom generation.

Spending on social welfare benefits decreases from 1.6 per cent of GDP in 2015 to 1.4 per cent in 2044. The population aged 15 to 64 declines as a

share of the total population over this period, before stabilizing and growing such that social spending increases at roughly the same rate.

Figure 5-2 Developments in education and social welfare benefits

% of GDP



Sources: Statistics Canada and Parliamentary Budget Officer.

Other assumptions underlying the subnational projection

- Spending on programs other than health, education and social welfare is assumed to decline over the medium term, falling from 11.6 per cent of GDP to 10.5 per cent. This would be close to its level prior to the global financial crisis. This spending is assumed to remain constant thereafter.
- Subnational government own-source revenues are projected to increase over the medium term, returning to their 1981-2015 historical average of 21.9 per cent of GDP and remaining at that ratio over the projection. This has been revised upward from 21.7 per cent in FSR 2015 as a result of revisions to the National Accounts.

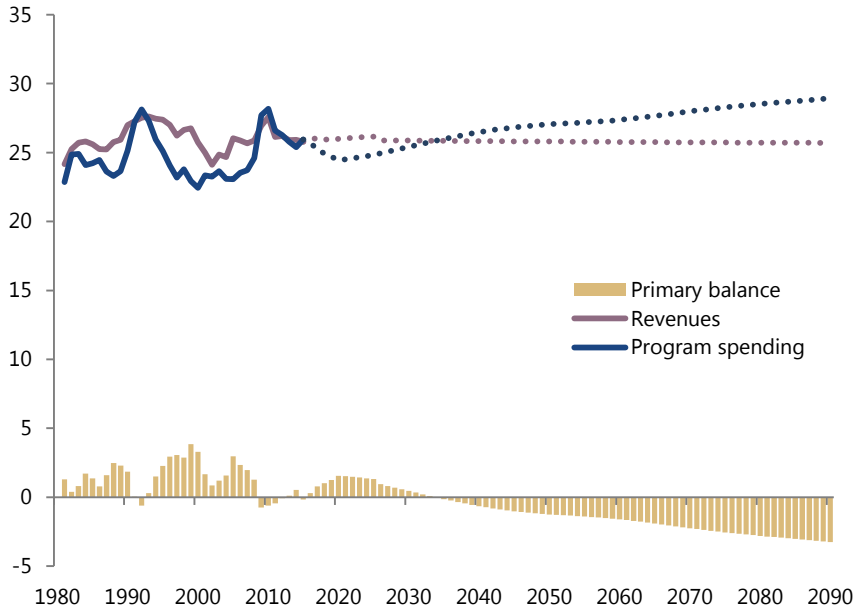
Subnational revenues, program spending and primary balance

For subnational governments, program expenses are projected to exceed revenues over the long term (Figure 5-3). The primary balance is in surplus at

the end of the medium term, at 1.6 per cent of GDP. Soon after, population ageing and escalating health care costs result in steadily deteriorating finances. The primary balance reaches a deficit of 3.3 per cent of GDP at the end of the projection.

Figure 5-3 **Subnational government own-source revenues, total program spending and primary balance**

% of GDP



Sources: Parliamentary Budget Officer and Statistics Canada.

6. Public pension plans

The public pension sector includes the Canada Pension Plan (CPP) and the Quebec Pension Plan (QPP). CPP and QPP contributions and benefits payments are projected separately. The long-term projection of the Canada Pension Plan (CPP) does not incorporate the agreement in principle signed by Canada's Finance Ministers on 20 June 2016.

The methodology used to project contributions and benefits is described in Annex E of the 2014 FSR. However, the plans are combined to project the financial position of the public pension sector over the long term.[11]

As part of its comprehensive revision of the Canadian System of Macroeconomic Accounts (CSMA), Statistics Canada revised the plans'

revenue and expenditure data. The revision primarily reflects the availability of better source data from the Canadian Government Finance Statistics (CGFS) program.

As a result, historical contributions and expenditures of the CPP were revised in the recent period. CPP expenditures were revised up partly to correct for an omission of a portion of the CPP administrative expenses since 1997.

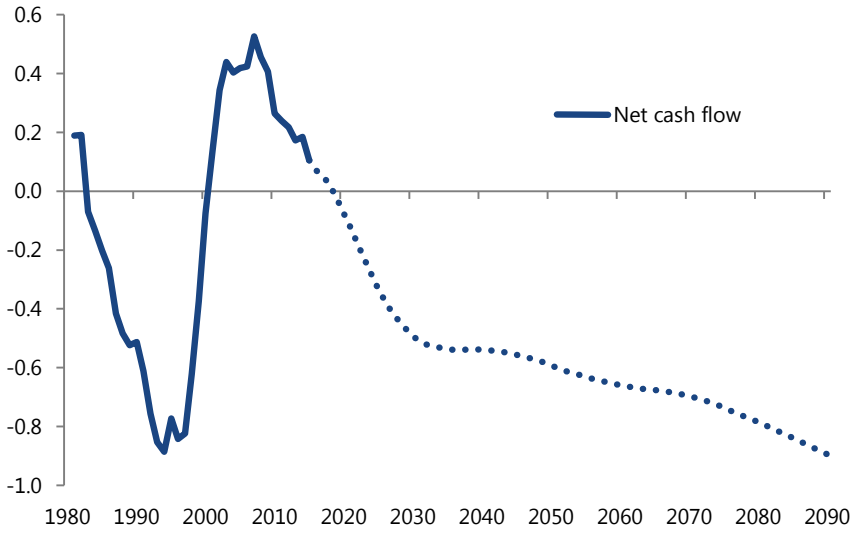
On balance, the net cash flow (that is, contributions less expenses) of the public pension plans in 2014 is 0.2 per cent of GDP, about 0.1 percentage points of GDP lower compared to FSR 2015 (Figure 6-1).

The net cash flow of the public pension plans is projected to decrease as the result of increased payments of retirement benefits. Net cash flow was 0.1 per cent of GDP in 2015. It is projected to turn negative in 2018, declining to -0.6 per cent of GDP by 2030. Ultimately, it is is projected to fall to -1.0 per cent by the end of the projection horizon.

Compared to FSR 2015, the net cash flow of the pension plans is projected to be 0.2 percentage points of GDP lower annually, on average, between 2016 and 2090 (Figure 6-1).

Figure 6-1 Public pension plan net cash flow

% of GDP



Note: Net cash flow is defined as contributions less benefit payments and administrative expenses.

Sources: Statistics Canada and Parliamentary Budget Officer.

Contributions to the public pension plans are projected to grow with pensionable earnings and contribution rates. Pensionable earnings are projected to grow in line with employment, inflation and labour productivity.

The contribution rate of the CPP is fixed at 9.9 per cent of maximum pensionable earnings. For the QPP, the contribution rate is 10.65 per cent in 2016 and is set to increase to 10.8 per cent in 2017. Contributions of the combined pension plans are projected to be relatively stable at around 3.1 per cent of GDP over the long term.

In contrast, public pension plan expenses are projected to increase steadily as population ageing drives retirement benefits. Benefit payments are projected to increase from 2.7 per cent of GDP in 2015 to 3.4 per cent in 2032 to 3.8 per cent in 2090.

Administrative expenses are assumed to equal 1.0 per cent of financial assets over the projection horizon.[12] Relative to GDP, administrative expenses are projected to increase from 0.2 per cent of GDP in 2015 to 0.3 per cent over the long term.

In total, expenses of the public pension plans are projected to increase from 2.9 per cent of GDP in 2015 to 3.6 per cent in 2030. By the end of the projection period, they are expected to reach 4.1 per cent of GDP.

7. Fiscal sustainability assessment

Fiscal sustainability means that government debt does not grow continuously as a share of the economy. PBO assesses fiscal sustainability of the federal and subnational governments by projecting net debt using the outlook for revenues and program spending discussed in Sections 4 and 5, along with annual interest charges. If a government's net debt-to-GDP ratio is projected to continuously rise above its current level over the long term, fiscal policy is not sustainable.[13]

To quantify the degree to which fiscal policy is not sustainable, PBO calculates the fiscal gap. The fiscal gap measures the difference between current fiscal policy and a policy that stabilizes the debt-to-GDP ratio at some point over the long term.

Specifically, the baseline fiscal gap is calculated as the immediate and permanent improvement in the primary balance (that is, revenues less program spending) required to stabilize the debt-to-GDP ratio at its current level 75 years hence. An improvement in the primary balance can be achieved by increasing revenues, decreasing spending on programs, or a combination of the two.

To assess the sustainability of the public pension sector, PBO projects the financial assets of the CPP and QPP over the long term, given their current benefit structures, legislated contribution rates and an assumed rate of

Interest rates, growth rates, and sustainability

When the effective interest rate on debt (i) exceeds GDP growth (g) maintaining a stable debt-to-GDP ratio (D/Y) requires running primary balance (PB) surpluses. As a share of GDP, the size of the primary balance surplus necessary to maintain a stable debt-to-GDP ratio depends on the difference between the interest rate and the GDP growth rate as well as the current debt ratio:

$$\frac{PB}{Y} = (i - g) \cdot \left(\frac{D}{Y}\right)$$

This relationship says that the debt-to-GDP ratio will increase if the primary balance as a share of GDP is smaller than the difference between the interest rate and growth rate multiplied by the current debt ratio.

return on their investments.[14] The assets of the public pension plans generate investment income that, combined with contributions, is used to fund benefit payments and administrative expenses.

Similar to the other government sectors, PBO calculates a fiscal gap for the public pension sector based on its net asset-to-GDP ratio. This represents the change in contributions and/or expenses required to stabilize the net asset-to-GDP ratio at its current level after 75 years.

The CPP/QPP and sustainability

When the rate of return (r) exceeds GDP growth (g), maintaining a stable asset-to-GDP ratio (A/Y) requires negative net cash flows (NCF) to offset investment income. As a share of GDP, the size of the net cash flow (contributions less expenditures) necessary to maintain a stable asset ratio depends on the difference between the rate of return and the GDP growth rate as well as the current asset ratio.

$$\frac{NCF}{Y} = -(r - g) \cdot \left(\frac{A}{Y}\right)$$

Fiscal gap estimates

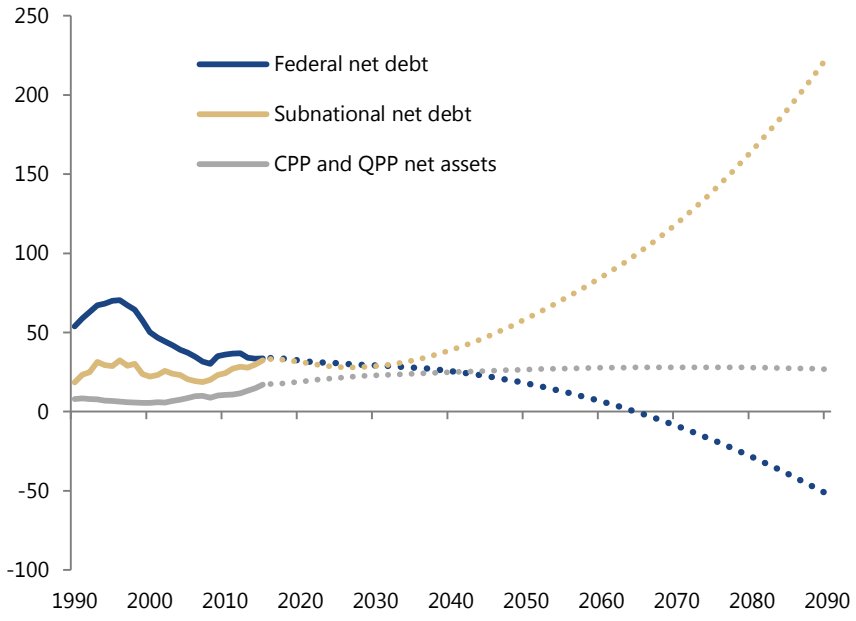
Federal and subnational governments

Figure 7-1 shows the projected path of net debt for the federal and subnational governments under current policy. Federal government net debt is on a sustainable path and will be eliminated entirely in 50 years. A net asset position is accumulated over the remaining years of the projection period.

Subnational government net debt is unsustainable and will accelerate over the projection period, rising to over 200 per cent of GDP after 75 years. At this level, debt service payments would be 11 per cent of GDP.

Figure 7-1 Government sector net debt over the long term

% of GDP



Sources: Statistics Canada and Parliamentary Budget Officer.

Federal interest rates

The interest rate on federal market debt over the long term is assumed to equal 4.2 per cent. This assumption is based on a weighted average of the market interest rates on 3-month treasury bills (3.5 per cent) and 10-year government of Canada bonds (4.6 per cent) from the economic projection.

Because the federal net debt-to-GDP ratio is projected to fall over time, the federal government has fiscal room. The government could reduce taxes or increase spending by 0.9 per cent of GDP ($19.2 billion in current dollars) and continue that policy as a share of GDP, while returning to a debt-to-GDP ratio of 33.7 per cent over the long term.

Federal fiscal room has decreased relative to last year's assessment of 1.4 per cent of GDP as the result of Budget 2016 policy announcements, particularly the reversal of the OAS eligibility age.

Subnational interest rates

PBO assumes that the effective interest rate on market debt of the subnational government sector settles at 50 basis points above the interest rate on the 10-year Government of Canada bond rate. This is based on the average market interest rate difference between long-term federal and provincial government debt between 1993 and 2007.

Subnational government debt is unsustainable and the sector has a fiscal gap of 1.5 per cent of GDP. Beginning in 2016, the primary balance would need to increase by 1.5 percentage points of GDP annually (equivalent to $30.2 billion in current dollars) above the projected baseline in order to return to a net debt-to-GDP ratio of 32.5 per cent after 75 years.[15] This would have to be done by raising its revenues, by higher transfers from the federal government, by reducing program spending, or some combination of the three. The consolidation does not need to be made immediately. However, the longer this adjustment is delayed, the greater the required adjustment.

The subnational fiscal gap has increased slightly compared to last year's estimate of 1.4 per cent of GDP. This is mostly attributable to higher-than-expected program spending and a revised assumption for health care excess cost growth.

CPP and QPP

The net asset position of the public pension sector is projected to increase from 17.1 per cent of GDP in 2015 to 28.0 per cent of GDP in 2067. Thereafter, it would remain relatively stable over the rest of the projection horizon.

Although the sector's net cash flow is projected to decrease gradually over the long term because of population ageing, the rate of return on assets is more than sufficient to generate enough investment income to cover the projected shortfall in net cash flows.

The fiscal gap for the public pension sector represents the immediate and permanent change in contributions and/or expenses that returns the net asset-to-GDP ratio to its current (2015) level after 75 years.[16] The fiscal gap for the public pension sector is estimated to be 0.0 per cent of GDP.

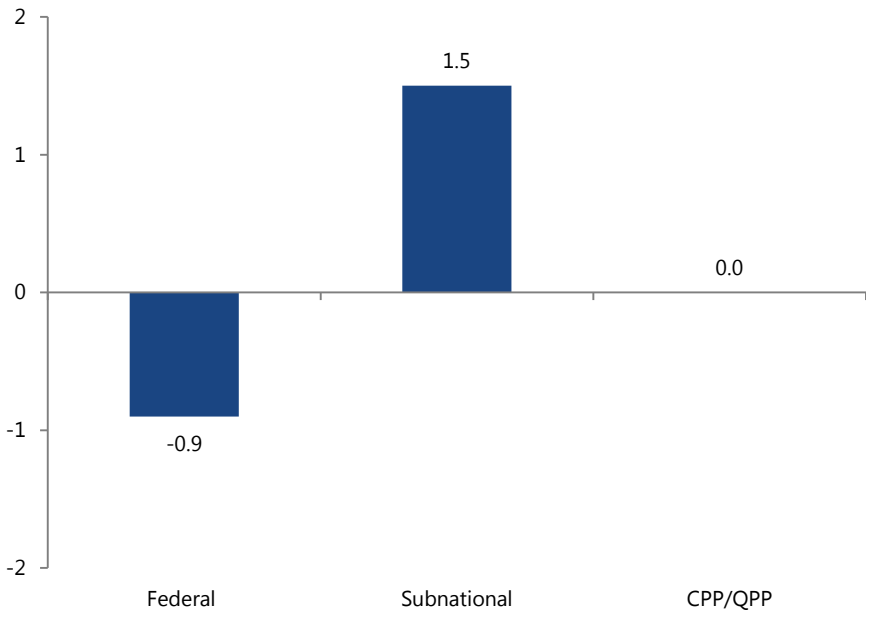
Similar to last year's assessment, this indicates that the public pension sector is sustainable over the long term. Although the long-term projection for the net cash flow of the pension plans was revised lower, upward revisions to the assumed rate of return on investments helped to offset this impact (see Note 14).

Conclusion

Fiscal gap results for each government sector under PBO's baseline projection are provided in Figure 7-2.

Figure 7-2 **Government sector fiscal gap estimates**

% of GDP



Source: Parliamentary Budget Officer.

In aggregate, the total general government sector in Canada (that is, the combined federal and subnational governments and the public pension plans) is not fiscally sustainable without permanent increases in own-source revenues or reductions in spending amounting to at least 0.6 percentage points of GDP.

Changes could be made at any level of government to eliminate the total government fiscal gap. However, ensuring the sustainability of each government sector on its own would require a consolidation at the subnational level, and/or higher transfers from the federal government that are funded by additional federal revenues or spending reductions.

8. Sensitivity analysis

Because of the uncertainty inherent in a 75-year framework, PBO evaluates the fiscal gap under alternative demographic, economic and fiscal policy scenarios. This allows us to assess the degree to which the conclusions of the analysis depend on the baseline assumptions.

Alternative demographic projections

PBO estimates the fiscal gap under two alternative demographic projections: an older and a younger population. Beginning in 2022, these projections use a combination of high and low assumptions for fertility, mortality (life expectancy) and immigration rates.[17]

With an older population, fiscal gaps increase across all government sectors as spending on elderly benefits, health care and public pension benefits rises above baseline levels and GDP declines (Table 8-1). Fiscal gaps under the younger demographic projection mirror these impacts.

Table 8-1 **Fiscal gap under alternative demographics**

% of GDP	**Baseline**	**Older**	**Younger**
Federal	-0.9	-0.3	-1.3
Subnational	1.5	1.9	1.1
Pension plans	0.0	0.1	-0.2

Source: Parliamentary Budget Officer.

Alternative economic projections

To assess the sensitivity of the economic assumptions, PBO constructs alternative projections for real GDP growth (± 0.5 percentage points) and interest rates (± 50 basis points), beginning in 2022.

Alternative real GDP growth projections have only a small impact on the fiscal gaps of the subnational governments and public pension plans (Table 8-2). Most subnational revenues and spending are tied to GDP growth, so the impacts roughly offset each other. Pension contributions and pension benefits are similarly tied to GDP with roughly offsetting impacts.

The federal fiscal gap is more sensitive to GDP growth, since spending on elderly benefits and children's benefits is driven by legislated and assumed program parameters, rather than GDP growth. The Canada Social Transfer is also not linked to GDP growth. As a result, higher (lower) GDP growth leads

to higher (lower) growth of revenues than expenses and more (less) federal fiscal room.

Table 8-2 Fiscal gap under alternative GDP growth assumptions

% of GDP	Baseline	High growth	Low growth
Federal	-0.9	-1.5	-0.2
Subnational	1.5	1.5	1.5
Pension plans	0.0	0.0	0.0

Source: Parliamentary Budget Officer.

Alternative interest rate projections also have a small impact on the subnational and pension plan fiscal gaps (Table 8-3). Although changes in interest rates do not affect projected primary balances, they affect the calculation of the fiscal gap.[18]

The federal fiscal gap is more sensitive to the alternative interest rate projections; higher (lower) interest rates lead to less (more) fiscal room.

Table 8-3 Fiscal gap under alternative interest rate assumptions

% of GDP	Baseline	Low rates	High rates
Federal	-0.9	-1.1	-0.7
Subnational	1.5	1.4	1.5
Pension plans	0.0	0.0	-0.1

Source: Parliamentary Budget Officer.

Alternative fiscal policy assumptions

While many alternative fiscal policy assumptions can be considered, PBO limits its focus to assessing the impacts on federal and subnational governments of different enrichment factors for elderly benefits, children's benefits and health care spending. In addition, PBO considers alternative endpoint assumptions for government debt ratios and projection horizons.

For elderly benefits, the alternative assumption is that beyond 2020, benefits are partially indexed (50 per cent) to growth in real GDP per capita, which is in addition to the inflation-only indexation under current policy. With this additional enrichment, federal fiscal room is reduced to 0.5 per cent of GDP (Table 8-4).

Similarly, for children's benefits, PBO assumes an alternative policy in which benefits are indexed by 50 per cent of the growth in real GDP per capita on top of the inflation indexation assumption. With this additional enrichment, federal fiscal room is reduced to 0.8 per cent of GDP.

In the baseline subnational scenario, spending by subnational governments on health care is assumed to exceed GDP growth as a result of population ageing and excess cost growth over the long term. As an alternative, PBO assumes that beyond 2020, the excess cost growth is eliminated. Reducing excess cost growth in health care spending would reduce the subnational fiscal gap to 0.9 per cent of GDP. If instead excess cost growth doubles, the fiscal gap would increase to 4.0 per cent.

Table 8-4 Fiscal gaps under alternative fiscal policy assumptions

% of GDP	Baseline	Elderly benefits, high growth	Children's benefits, high growth
Federal	-0.9	-0.5	-0.8
		Health spending, high growth	**Health spending, low growth**
Subnational	1.5	4.0	0.9

Note: In the baseline scenario, excess cost growth of health care is assumed to be 0.3 per cent annually. In the high and low scenarios, this is assumed to be 0.6 per cent and 0 per cent, respectively.

Source: Parliamentary Budget Officer.

Lastly, although the baseline fiscal gap is calculated using the current (2015) net debt-to-GDP ratio as the endpoint over 75 years, it can also be calculated for any given target and projection horizon.

Table 8-5 presents fiscal gap estimates under the baseline projections for the federal and subnational governments with endpoint debt targets ranging from 0 to 100 per cent of GDP.

In all instances, the assessment of fiscal sustainability remains unchanged: the federal government maintains fiscal room to manoeuvre, while subnational governments face a long-term fiscal shortfall.

Table 8-5 Fiscal gaps under alternative net debt-to-GDP target ratios

% of GDP	0	Baseline	100
Federal	-0.6	-0.9	-1.7
Subnational	1.7	1.5	1.0

Note: The baseline target is the 2015 net debt-to-GDP ratio, which was 33.7 per cent for the federal government 32.5 per cent for the subnational government sector.

Source: Parliamentary Budget Officer.

Fiscal gap results under alternative projection horizons of 25 and 50 years are provided in Table 8-6.

Federal fiscal room is reduced as the projection horizon is shortened. The shorter horizon excludes the period over which the largest reductions in spending on elderly benefits (relative to GDP) are projected, resulting from the transition of the baby boom and its echo cohorts through the program.

In contrast, the subnational fiscal gap is reduced as the projection horizon is shortened. This is because the period over which health care spending (relative to GDP) is the highest, as a result of population ageing and growth in excess costs, is excluded. Fiscal gap estimates for the public pension plans are largely unchanged over the shorter projection horizons.

Table 8-6 Fiscal gaps under alternative projection horizons

% of GDP	**25 years**	**50 years**	**75 years (baseline)**
Federal	-0.3	-0.6	-0.9
Subnational	0.2	1.0	1.5
Pension plans	-0.2	-0.1	0.0

Source: Parliamentary Budget Officer.

Appendix A: Summary and comparison, demographic and economic projections

	FSR 2016			FSR 2015		
% unless otherwise indicated	**2035**	**2060**	**2085**	**2035**	**2060**	**2085**
Demographic assumptions and projections						
Fertility rate (births per woman)	1.67	1.67	1.67	1.67	1.67	1.67
Male life expectancy at birth (years)	83.8	87.3	89.7	83.8	87.3	89.7
Female life expectancy at birth (years)	86.5	88.9	90.8	86.5	88.9	90.8
Immigration rate (immigrants per 1,000)	7.5	7.5	6.5	7.5	7.5	6.5
Population growth	0.7	0.7	0.6	0.7	0.7	0.6
Population 65+ growth	1.4	1.0	0.9	1.4	1.0	0.9
Old age dependency ratio	39.3	43.1	45.5	39.2	43.1	45.4
Economic projections						
Nominal GDP growth	3.7	3.7	3.6	3.6	3.7	3.6
CPI and GDP inflation	2.0	2.0	2.0	2.0	2.0	2.0
Real GDP growth	1.6	1.7	1.6	1.6	1.7	1.6
Labour input growth	0.5	0.6	0.5	0.5	0.6	0.5
Labour productivity growth	1.1	1.1	1.1	1.1	1.1	1.1
Real GDP per capita growth	0.9	1.0	1.0	0.9	1.0	1.0
Unemployment rate	5.8	5.6	5.6	5.9	5.7	5.7
Employment rate	55.5	54.1	53.3	55.5	54.2	53.3
Participation rate	58.9	57.4	56.4	58.9	57.5	56.5
Average weekly hours worked (hours per week)	34.3	34.3	34.3	34.2	34.2	34.2
3-month treasury bill rate	3.45	3.45	3.45	3.45	3.45	3.45
10-year government bond rate	4.55	4.55	4.55	4.55	4.55	4.55

Sources: Statistics Canada and Parliamentary Budget Officer.

Appendix B: Summary and comparison, fiscal projections

	FSR 2016			FSR 2015		
% of GDP	**2035**	**2060**	**2085**	**2035**	**2060**	**2085**
Federal government						
Revenue	14.3	14.3	14.3	14.0	14.0	14.0
Canada Health Transfer	1.6	1.6	1.6	1.6	1.6	1.6
Canada Social Transfer	0.5	0.4	0.4	0.5	0.4	0.4
Other transfers to governments	1.9	1.9	1.9	2.0	2.0	2.0
Elderly benefits	3.0	2.5	2.0	2.7	2.3	1.8
Employment Insurance benefits	0.8	0.8	0.8	0.8	0.8	0.8
Children's benefits	0.8	0.6	0.5	0.7	0.6	0.5
Other program spending	5.0	5.0	5.0	4.6	4.6	4.6
Primary balance	0.7	1.4	2.1	1.2	1.9	2.4
Interest on the public debt	1.4	0.4	-1.5	0.8	-0.7	-3.1
Net lending	-0.7	1.0	3.6	0.4	2.6	5.6
Net debt	27.8	6.4	-39.9	14.7	-22.4	-81.6
Other levels of government						
Own-source revenue	21.9	21.9	21.9	21.7	21.7	21.7
Health spending	9.1	10.7	12.2	9.4	10.9	12.4
Education spending	4.9	4.7	4.6	5.3	5.2	5.0
Social spending	1.4	1.4	1.4	1.3	1.3	1.3
Other program spending	10.6	10.6	10.6	9.9	9.9	9.9
Primary balance	-0.1	-1.6	-3.0	-0.2	-1.6	-3.0
Interest on the public debt	2.0	4.2	9.3	2.0	4.3	9.2
Net lending	-2.1	-5.8	-12.3	-2.2	-5.9	-12.1
Net debt	32.3	85.0	192.8	37.3	88.4	192.9
CPP/QPP						
Contributions	3.0	3.1	3.1	3.0	3.0	3.0
Expenditures	3.6	3.8	4.0	3.4	3.6	3.7
Net cash flow	-0.6	-0.7	-0.9	-0.4	-0.5	-0.7
Investment income	1.5	1.7	1.7	1.1	1.1	0.7
Net lending	0.9	1.0	0.8	0.7	0.6	0.0
Net assets	24.0	27.7	27.8	19.5	18.7	12.6

Source: Parliamentary Budget Officer.

Notes

1. In December 2015, the Canadian System of Macroeconomic Acounts were restated back to 1981 to introduce improved data and conceptual changes. For a discussion of the comprehensive revisions, see: http://www.statcan.gc.ca/pub/13-605-x/2015011/article/14298-eng.htm.

2. Available at: http://www.fin.gc.ca/n16/docs/cpp-pc-eng.pdf.

3. PBO's population projection was updated to include the current population estimates for 2014. Assumptions are consistent with Statistics Canada (2014). Beyond 2014, single-year age and sex groups are extrapolated using Statistics Canada (2014) growth rates to 2061.

4. See PBO's April 2016 Economic and Fiscal Outlook, available at: http://www.pbo-dpb.gc.ca/web/default/files/Documents/Reports/2016/EFO%20April%202016/EFO_April_2016_EN.pdf.

5. Bank of Canada estimates of the (nominal) neutral policy interest rate range from 3 to 4 per cent (see Bank of Canada Discussion Paper 2014-5, The Neutral Rate of Interest in Canada by R.R. Mendes, available at: http://www.bankofcanada.ca/wp-content/uploads/2014/09/dp2014-5.pdf). In our medium-term projection model and long-term assumptions, we use the midpoint of this range (3.5 per cent). However, the Bank of Canada recently revised down its estimate of the range for the nominal neutral policy interest rate to between 2.75 per cent and 3.75 per cent. See footnote 5 in the Bank of Canada's April 2016 Monetary Policy Report.

   Consistent with historical averages, the long-term assumption for the 3-month treasury bill rate is set 5 basis points lower than the neutral rate at 3.45 per cent. The long-term assumption for the 10-year Government of Canada bond rate is set 110 basis points above the 3 month treasury bill rate at 4.55 per cent.

6. PBO's medium-term fiscal forecasts are based on commercial accounting practices, while the Fiscal Sustainability Report is based on Canada's System of Macroeconomic Accounts (see http://www.statcan.gc.ca/eng/nea/index) and the International Monetary Fund's Government Finance Statistics Manual 2014 (see https://www.imf.org/external/Pubs/FT/GFS/Manual/2014/gfsfinal.pdf).

7. OAS and children's benefits grow according to the formula:

$$Exp_t = Exp_{t-1} \cdot \left(\frac{Pop_t^i}{Pop_{t-1}^i}\right) \cdot \left(\frac{CPI_t}{CPI_{t-1}}\right) \cdot (1 + X_t)$$

   Where Pop_t^i is the targeted demographics cohort: the population over 65 for elderly benefits and children under 18 for children's benefits. CPI_t captures indexation of benefits to the consumer price index. X_t is an enrichment factor, which in the baseline is assumed to equal zero, but is changed in the alternative scenarios in Section 8.

8. The sum of the primary balance and interest charges in each year gives net lending if positive (that is, government is contributing financial resources to other sectors of the economy), or net borrowing if negative (that is, government is consuming financial resources from other sectors of the economy). The annual flow of net lending determines the accumulation of additional debt.

9. Health care spending grows according to the formula:

$$Exp_t = Exp_{t-1} \cdot \left(\frac{Pop_t^i}{Pop_{t-1}^i}\right) \cdot \left(\frac{GDP_t}{GDP_{t-1}}\right) \cdot (1 + X_t)$$

   Where Pop_t^i is an index of per capita health expenditure by age group, with weights based on data produced by CIHI. GDP_t captures growth in nominal incomes. X_t is excess cost growth, which in the baseline is assumed to be the historical average over 1981 to 2015.

10. For a complete description of the methodology for projecting education and social benefits, see Annex D of PBO's FSR 2014 available at: http://www.pbo-dpb.gc.ca/web/default/files/files/files/FSR_2014.pdf.

11. This treatment of the financial positions of the CPP and QPP differs from FSR 2015, which projected the financial positions and fiscal gaps of the CPP and QPP separately and then combined them for presentational purposes. While we continue to project the contributions and benefit payments for the CPP and QPP separately as in FSR 2015, these flows are then combined to determine the financial position and fiscal gap for the sector as a whole. This treatment provides greater consistency with the economic projection ("national" GDP and a "national" public pension sector) and obviates the need for assumptions to allocate the consolidated assets and liabilities in the GFS public pension sector individually to the CPP and QPP.

12. This assumption differs from FSR 2015 which maintained that administrative expenses grew in line with operating expenses as projected in the CPP and QPP actuarial reports. However, projected operating expenses in the actuarial reports do not include investment expenses (for example, transactions costs and investment management fees).

    To explicitly account for these expenses, we have assumed that investment expenses (due to both active and passive management) amount to 0.8 per cent of financial assets annually, based on the assumptions in the 26th Actuarial Report on the CPP. Non-investment administrative expenses are assumed to be 0.2 per cent of financial assets annually, which is consistent with projections from the 26th Actuarial Report on the CPP, on average, over 2016-2090. Taken together, these assumptions produce administrative expenses equivalent to 1.0 per cent of financial assets, annually, over 2016-2090. This is also consistent with the average observed over the past 5 years.

13. For a complete description of PBO's fiscal sustainability assessment framework, see Annex F of PBO's FSR 2014 available at: http://www.pbo-dpb.gc.ca/web/default/files/files/files/FSR_2014.pdf.

14. PBO assumes a long-term nominal rate of return on CPP and QPP assets of 6.55 per cent (compared to 6 per cent in FSR 2015), which is based on 2.0 per cent inflation and an overall real rate of return of 4.55 per cent. The overall real rate of return is obtained by applying the weighted average

return premium from the 26th Actuarial Report on the CPP of 2.0 per cent (that is, the weighted average return of 4.8 per cent less the ultimate annual long-term real federal yield of 2.8 per cent) to PBO's long-term assumption for the real yield on the 10-year Government of Canada benchmark bond of 2.55 per cent. The weighted average return premium incorporates the additional rate of return due to active management of 0.6 per cent assumed in the CPP actuarial report.

15. The GFS balance sheet was restated as part of the CSMA revisions. Although net debt did not change, its components—particularly interest-bearing liabilties—changed considerably. These changes affected PBO's interest-rate projections, among others, and some results are not directly comparable to FSR 2015.

16. In light of the recent increase in the liabilities of the public pension sector, and similar to the treatment of the federal and subnational government sectors, we assume that all future net cash flows and investment income are used to accumulate (gross) financial assets. Over the projection horizon, public pension sector liabilities are assumed to remain unchanged from their current (2015) level.

17. Under the older (younger) demographic projection, the long-term total fertility rate assumption is 1.53 (1.88) births per woman of child-bearing age; life expectancy at birth for males and females in 2060 is, respectively, 85.9 (89.7) and 91.8 (87.2) years; and, the immigration rate in 2061 is 5 (9) per 1,000 persons. These are the same assumptions used in the alternative demographic projections in FSR 2015.

18. As a present-value indicator, the fiscal gap is influenced by interest rates—lower interest rates increase the importance of primary and net cash deficits over the long term. At the same time, interest rates also affect the size of the primary balance or net cash flow that is required to stabilize financial positions—lower interest rates reduce the required size of primary balances and net cash flows. Depending on the underlying projections, these influences can be fully or partially offsetting, resulting in little or no change to fiscal gap estimates.