



Office of the Superintendent of
Financial Institutions Canada

Bureau du surintendant des
institutions financières Canada

Office of the Chief Actuary

Bureau de l'actuaire en chef



ACTUARIAL REPORT

9th

on the
**OLD
AGE
SECURITY
PROGRAM**

as at 31 December 2009

Office of the Chief Actuary

Office of the Superintendent of Financial Institutions Canada

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3 June 2011

The Honourable Diane Finley, P.C., M.P.
Minister of Human Resources and Skills Development Canada
House of Commons
Ottawa, Canada
K1A 0G5

Dear Minister:

In accordance with section 3 of the *Public Pensions Reporting Act*, I am pleased to submit the Actuarial Report prepared as at 31 December 2009, on the pension plan established under the *Old Age Security Act*.

Yours sincerely,

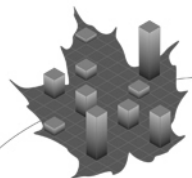
A handwritten signature in black ink. The signature is written in a cursive, flowing style. It reads "Jean-Claude Ménard". The first name "Jean" is written with a large, prominent 'J'. The last name "Ménard" is written with a large 'M' and a distinct 'é'.

Jean-Claude Ménard, F.S.A., F.C.I.A.
Chief Actuary



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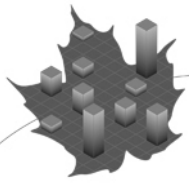
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ACTUARIAL REPORT

OLD AGE SECURITY

as at 31 December 2009



I. Executive Summary

This is the Ninth Actuarial Report since the implementation of the *Old Age Security Act* in 1952. It presents the results of an actuarial examination of the status of the Old Age Security (OAS) Program as at 31 December 2009, and includes projections of future experience through the year 2060. The Eighth Actuarial Report, as at 31 December 2006, was tabled in the House of Commons on 17 June 2008. The next triennial report is scheduled as at 31 December 2012.

The *Old Age Security Act* has been amended several times since 1952. Bill C-50 was tabled in the House of Commons on 14 March 2008 and received Royal Assent on 18 June 2008. The impact of Part 10 of Bill C-50 (increase in Guaranteed Income Supplement and Allowance employment income exemption, effective commencing 1 July 2008) was included in the financial projections of last triennial (8th) OAS Program Actuarial Report. Part 1 of Bill C-50 dealing with Tax-Free Savings Accounts (TFSA's, which were implemented in 2009) is now also taken into account for the financial projections of this report.

A. Purpose of Report

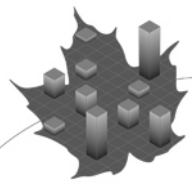
This report has been prepared in compliance with the timing and information requirements of the *Public Pensions Reporting Act*, which provides that the Chief Actuary shall prepare a triennial actuarial report on the benefits under the various Parts of the *Old Age Security Act*, being as follows:

- Part I: Basic OAS Pension
- Part II: Guaranteed Income Supplement (GIS)
- Part III: Allowance

Another important purpose of the report is to inform the general public of the current and projected financial status of the OAS Program. It provides information to evaluate the Program's financial situation over a long period, provided the Program remains unchanged. Such information should facilitate a better understanding of the financial status of the Program and the factors that influence its costs, contributing to an informed public discussion of issues related to it.

B. Scope of Report

Section II presents the general methodology used in preparing the actuarial estimates included in this report, which are based on the key "best-estimate" assumptions described in Section III. Section IV includes information on key demographic and financial indicators and on the projection of beneficiaries, expenditures and cost ratios. Section V presents a reconciliation with the previous report, while Section VI deals with the uncertainty of the results. Section VII presents a general conclusion, while Section VIII provides the actuarial opinion. The various appendices provide supplemental information on the provisions of the Program, a detailed reconciliation of the results with the previous report, a description of the



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data, assumptions and methods employed, detailed projections of beneficiaries and expenditures, and lastly acknowledgements.

C. Main Findings

The results of the actuarial projections of the financial status of the OAS Program presented in this report are generally consistent with the trends revealed in the previous actuarial report.

- Demographic changes will have a major impact on the ratio of workers to retirees; the ratio of the number of people aged 20 to 64 to those aged 65 and over is expected to fall from about 4.4 in 2010 to 2.2 in 2050.
- The number of beneficiaries of the basic pension is expected to almost double over the next 20 years, growing from 4.7 million in 2010 to 9.3 million by 2030, mainly due to the retirement of the baby boom generation over that period.
- The number of GIS and Allowance beneficiaries is expected to almost double over the next 20 years, growing from 1.7 million in 2010 to 3.3 million by 2030.
- The GIS recipient rate is projected to remain relatively stable over the next 30 years at a level of about 35% due to the impact of TFSAs. By 2050, it is projected that the GIS recipient rate will reduce to 32%. In the absence of TFSAs, the GIS recipient rate would be projected to steadily decline over the projection period and reach a level of 26% by 2050.
- GIS annual expenditures are projected to reach \$38.9 billion in 2050, including the effect of TFSAs. This represents an increase of \$4.2 billion or 12% in GIS annual expenditures in 2050 compared to projected GIS expenditures without the effect of TFSAs.
- Total annual expenditures are projected to increase by 32% over the next five years, from \$36.5 billion in 2010 to \$48.3 billion in 2015 and to \$108 billion by 2030.
- The ratio of expenditures to the GDP is projected to be 2.3% in 2010, which is similar to what the ratio was in 1980. After 2010, the ratio is projected to reach a high of 3.1% in 2030, driven largely by the retirement of the baby boom generation. This level is somewhat higher than the previous peak of 2.7% in the early 1990s.
- After reaching a peak of 3.1% in 2030, the ratio of expenditures to GDP is projected to decrease to a level of 2.6% by 2050. This reduction is attributable to expected slower growth in inflation compared to growth in the GDP and projected higher incomes of new retirees.



D. Uncertainty of Results

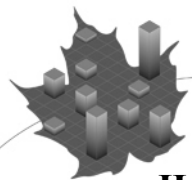
To measure the sensitivity of the long-term projected financial status of the Program to future changes in the demographic and economic environments, individual sensitivity tests were performed. These tests focus on varying the key best-estimate assumptions individually in order to measure the potential impact on the cost ratio of Program expenditures to GDP. These tests show that the cost ratio could deviate significantly from its projected best-estimate values if other than best-estimate assumptions were to be realized. For example, if life expectancies at age 65 were to increase by two and half more years than the best estimates of this report, then the ratio in 2050 would increase from 2.60% to 2.76%. As another example, if recipient rates for the GIS and Allowance benefits were to increase by 20%, then the ratio in 2050 would increase from 2.60% to 2.70%.

E. Conclusion

The retirement of the baby boomers over the next few decades will increase the expenditures of the Program. In addition, it is expected that as investments in TFSAs grow over time and as such, an increasing amount of TFSA-related income is excluded from the determination of Program benefits, Program expenditures will increase as greater numbers of recipients and higher amounts of benefits will result than would otherwise be the case. For instance, in 2050, the overall recipient rate for the GIS is projected to be 32% with the amount of expenditures projected to be 0.51% of GDP. If the impact of TFSAs is excluded, then the expected recipient rate and expenditures in 2050 would be lower at 26% and 0.45%, respectively instead. This 9th OAS Program Actuarial Report is the first actuarial report on the Program to include the estimated impact of TFSAs, which were implemented recently in 2009. It is expected that the estimated impacts of TFSAs presented in future actuarial reports on the Program will be further improved as more data become available.

The combined effect of the aging of the population and future investments in TFSAs is expected to result in total annual expenditures expressed as a percentage of the GDP growing from 2.3% in 2010, a level similar to the one in 1980, to a high of 3.1% in 2030, a level somewhat higher than the previous peak of 2.7% in the early 1990s. Although it is assumed that each successive cohort of new retirees will be wealthier than the preceding one and will thus be less eligible to the GIS and Allowance benefits, the fact that individuals are also assumed to invest in TFSAs results in GIS and Allowance eligibility rates remaining relatively stable over time. Ultimately, the fact that benefits are indexed to inflation as opposed to wages and that new retirees' incomes are expected to grow drive the cost of the Program down over the long term, with the result that annual expenditures are expected to fall to 2.6% of GDP by 2050.

A more costly demographic outlook results from assumed continuing increases in longevity due to continuing decreases in mortality rates, especially at the older ages. As well, lower assumed increases in real wages in the short term and the anticipated impact of TFSAs act to increase program expenditures relative to the GDP over time. This increase, however, is more than offset by other factors. Better-than-anticipated experience over the period 2007 to 2009, an improved methodology in projecting the GDP, and changes in other demographic and economic assumptions all lead to lower expenditures relative to the GDP. Due to these opposite effects, the results presented in this report are somewhat similar to the ones presented in the previous triennial report.



II. Methodology

The actuarial examination of the OAS Program involves projections of its expenditures and cost measurement bases over a long period of time, so that the future impact of historical and projected trends in demographic and economic factors can be properly assessed. The actuarial estimates in this report are based on the current provisions of the *Old Age Security Act*, the data regarding the starting point for the projections, the “best-estimate” assumptions regarding future demographic and economic experience, and the methodology for translating this information into estimates of future expenditures of the Program.

Since the OAS Program is financed from general tax revenues on a pay-as-you-go basis, there is no need to project either contributions or investment earnings. However, projections have been made of combined Canada Pension Plan (CPP) and Québec Pension Plan (QPP) contributory earnings, total employment earnings, and of the GDP, whose bases are then used for measuring the relative costs over the projection period.

The costing begins with a projection of the general population of Canada. This requires assumptions regarding demographic factors such as fertility, migration, and mortality.

Expenditures are made up of the benefits paid out and administrative expenses. Benefits are projected by applying assumptions regarding recipient rates for various types and levels of benefits to the projected population at the relevant ages, along with assumptions regarding increases in the maximum benefit rates. Administrative expenses are projected by considering the historical relationship between expenses and total benefit expenditures.

The combined CPP and QPP contributory earnings and total employment earnings cost measurement bases are derived by applying labour force participation and job creation rates to the projected population and by projecting future employment earnings. This requires assumptions about various factors such as wage increases, an earnings distribution and unemployment rates. The GDP is projected based on the historical relationship between the GDP and total employment earnings. In addition, the methodology used to project the GDP has been improved for this Actuarial Report to now include a price differential adjustment. This adjustment reflects that total earnings are expressed in nominal terms by using the Consumer Price Index (CPI) whereas nominal GDP is expressed in terms of the GDP deflator.

The assumptions and results presented in the following sections make it possible to measure the financial status of the Program over the projection period. A wide variety of factors influence both the current and projected financial position of the OAS Program. Accordingly, the results shown in this report differ from those shown in previous reports. Likewise, future actuarial examinations will reveal results that differ from the projections included in this report.



III. Best-Estimate Assumptions

A. Introduction

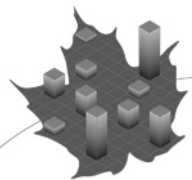
The information required by statute, which is presented in section IV of this report, requires making several assumptions regarding future demographic and economic trends. The projections included in this report cover a long period of time (up to year 2060) and the assumptions are determined by putting more emphasis on historical long-term trends than on more recent short-term trends. These assumptions reflect the Chief Actuary's best judgment and are referred to in this report as the "best-estimate" assumptions. The assumptions were chosen to be, independently and in aggregate, reasonable and appropriate, taking into account certain interrelationships between them. To the extent applicable, the assumptions are consistent with the best-estimate assumptions used in the 25th Actuarial Report on the Canada Pension Plan as at 31 December 2009 (25th CPP Actuarial Report).

Table 1 presents a summary of the most important assumptions used in this report compared with those used in the previous triennial report. The assumptions are described in more detail in Appendix C of this report.

Table 1 Best-Estimate Demographic and Economic Assumptions

Canada		9 th Report (as at 31 December 2009)			8 th Report (as at 31 December 2006)			
Total fertility rate		1.65 (2015+)			1.60 (2010+)			
Mortality		Canadian Human Mortality Database (CHMD 2006) with assumed future improvements			2000-02 Life Tables for Canada with assumed future improvements			
Canadian life expectancy at birth in 2010		Males	Females		Males	Females		
		85.4 years	88.3 years		84.7 years	87.9 years		
at age 65 in 2010		20.2 years	22.6 years		19.6 years	22.2 years		
Net migration rate		0.58% of population for 2023+			0.54% of population for 2020+			
Participation rate (age group 15-69)		75.2% (2030)			74.2% (2030)			
Employment rate (age group 15-69)		70.6% (2030)			69.4% (2030)			
Unemployment rate (age group 15+)		6.1% (2022+)			6.3% (2007+)			
Rate of increase in prices		2.3% (2019+)			2.5% (2016+)			
Real-wage differential		1.3% (2019+)			1.3% (2015+)			
		<u>2010</u>	<u>2025</u>	<u>2050</u>		<u>2010</u>	<u>2025</u>	<u>2050</u>
Recipient rates ⁽¹⁾	OAS:	98.1%	99.0%	99.7%	OAS:	99.2%	100.1%	100.6%
	GIS:	33.6%	35.1%	31.6%	GIS:	35.7%	31.6%	26.2%
	Allowance:	4.7%	2.8%	1.8%	Allowance:	4.9%	3.2%	2.0%

(1) Recipient rates for the basic OAS pension are on a gross basis; that is, before application of the OAS Recovery Tax. Recipient rates for the GIS and Allowance benefits account for TFSAs. All recipient rates include benefits paid outside Canada and for this reason can exceed 100%.



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B. Demographic Assumptions

The population projections start with the population of Canada on 1 July 2009, to which are applied fertility, migration and mortality assumptions. The population projections are essential to determine the future number of OAS Program beneficiaries.

The distribution of the population by age changed considerably with the arrival of the baby boom generation, and the population has been aging since. The causes of this aging are examined in the following subsections.

1. Fertility

The first cause of the aging of the Canadian population is the large drop in the total fertility rate that occurred since the late 1950s. The total fertility rate in Canada has dropped rapidly from an average level of about 4.0 per woman in the 1950s to 1.6 by the mid-1980s. The total fertility rate rose slightly in the early 1990s, but then generally declined to a level of 1.5 by the late 1990s. In recent years, the total fertility rate for Canada has risen to over 1.6. Canada is one of many industrialized countries that have seen an increase in their fertility rates in recent years.

The overall decrease in the total fertility rate since the 1950s occurred as a result of changes in a variety of social, medical, and economic factors. Although the total fertility rate has increased in recent years, it is unlikely that the rate will return to historical levels in the absence of significant societal changes. It is assumed that the total fertility rate for Canada will decrease slightly from its 2007 level of 1.66 to an ultimate level of 1.65 in 2015.

2. Mortality

Another element that has contributed to the aging of the population is the significant reduction in age-specific mortality rates. This can be best measured by the increase in life expectancy at age 65, which directly affects how long benefits will be paid to beneficiaries. Male life expectancy at age 65 (without future mortality improvements) increased by 33% between 1966 and 2006, rising from 13.8 to 18.1 years. For women, life expectancy at age 65 (without future mortality improvements) increased by 25%, from 16.9 to 21.2 years over the same period. Although the overall rates of increase in life expectancy since 1966 are relatively similar for males and females, more than half of the increase in life expectancy at age 65 occurred after 1991 for males, while for females, 65% of the increase occurred by 1991.

Mortality improvements are expected to continue in the future, but at a slower pace than most recently observed over the 15-year period ending in 2006. Further, it is assumed that ultimately, mortality improvement rates for males will decrease to the same level as for females. The ultimate rates of improvement in year 2031 correspond to about half the average rates experienced by females over the 15-year period ending in 2006. Rates of improvement for the period 2007 to 2011 are assumed to vary by age and sex, and correspond to the average rates experienced over the 15-year period ending in 2006. After 2011, the rates are assumed to gradually reduce to their ultimate levels in 2031.



3. Net Migration

Net migration (i.e. the excess of immigration over emigration) is unlikely to materially reduce the continued aging of the population unless (1) the level of immigration rises significantly above what has been observed historically and (2) the average age at immigration falls dramatically.

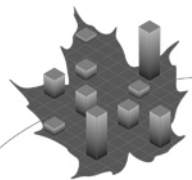
An ultimate best-estimate assumption of 0.58% of the population has been established for years 2023 and thereafter. However, the net migration rate based on average experience over the last three years (2007-2009) was 0.62% and over the last 30 years (1980-2009) was 0.53%. Based on a continuation of the average experience over the last 30 years, it is assumed that net migration rates will reduce from 0.61% in 2009 to 0.53% by 2014 and remain stable at that level until 2018. In the long run, a possible labour shortage resulting from the retirement of the baby boom generation could prompt an increase in immigration to supply the required workforce. This is why the net migration rate is projected to increase from 0.53% in 2018 to 0.58% in 2023. The ultimate net migration rate represents the average experience over the last 15 years.

4. Population Projections

Table 2 shows the population by three age groups (0-19, 20-64, and 65 and over) throughout the projection period. The ratio of the number of people aged 20-64 to those aged 65 and over is a measure that approximates the ratio of the number of working-age people to retirees. Because of the aging population, this ratio drops by half during the projection period, from 4.4 in 2010 to 2.2 in 2050. The number of people reaching age 65 in any given year is representative of the number of new basic pension beneficiaries coming into pay each year. This number is expected to increase by more than 60% over the next 20 years, growing from 322,000 in 2010 to 526,000 in 2030.

Table 2 Population of Canada
(thousands)

Year	Total	Age 0-19	Age 20-64	Age 65 and Over	Ratio of 20-64 to 65 and Over	Reaching Age 65
2010	34,088	7,830	21,432	4,825	4.4	322
2011	34,433	7,809	21,645	4,979	4.3	342
2012	34,773	7,802	21,789	5,182	4.2	395
2013	35,107	7,806	21,921	5,380	4.1	394
2014	35,435	7,819	22,042	5,573	4.0	395
2015	35,763	7,838	22,154	5,771	3.8	403
2020	37,393	8,111	22,414	6,868	3.3	474
2025	39,004	8,476	22,403	8,125	2.8	519
2030	40,462	8,649	22,441	9,373	2.4	526
2040	42,876	8,715	23,627	10,535	2.2	472
2050	44,911	9,080	24,512	11,318	2.2	553
2060	46,854	9,577	25,082	12,196	2.1	551



C. Economic Assumptions

The OAS Program expenditures are presented as cost ratios using three different measurement bases, namely combined CPP/QPP contributory earnings, total employment earnings and the GDP. These cost bases are projected using economic assumptions such as labour force participation rates, employment rates, unemployment rates and average employment earnings increases. For benefit projection purposes, assumptions regarding the rate of increase in prices and recipient rates for the various benefits are also required.

One of the key elements underlying the best-estimate economic assumptions relates to the possible labour shortage due to the aging of the population and the retirement of the baby boom generation between 2015 and 2030. Labour force growth is projected to weaken as the working-age population expands at a slower pace. The outlook for the participation rates also points to slower labour force growth. Growing labour shortages, especially after 2015, are assumed to force higher real wage growth. The higher real wages may help keep people in the labour force who might otherwise retire.

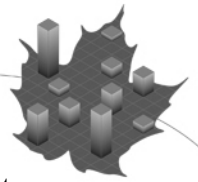
1. Labour Force

Employment levels are reflected in the projections through the assumption regarding the proportions of the population, by age and sex, with earnings in a given year. These proportions vary not only with the rate of unemployment, but also reflect trends in increased workforce participation by women, longer periods of formal education among young adults and changing retirement patterns of older workers.

As the population ages, it becomes more heavily weighted in age groups where participation is lower and, as a result, the labour force participation rates for Canadians aged 15 and over are expected to decline from 67.2% in 2010 to 62.2% by 2030. A more useful measure of the working-age population is the participation rate of those aged 15 to 69, which is expected to increase from 74.9% in 2010 to 75.2% in 2030. The participation rates of those aged 60 to 69 are gradually increased after 2009. Moreover, the narrowing of the gap between the age-specific participation rates of men and women is assumed to continue but at a much slower pace than in the past.

Prior to 2009, significant increases in labour force participation rates were experienced in both younger and older age groups for both males and females. The recent economic downturn slightly reduced the participation rates mainly for younger age groups. It is anticipated that these rates will rebound to levels similar to those in 2008 by 2012. In general, participation rates for females are projected to increase more than for males, primarily for those aged 25 to 44. Overall, the male participation rate of those aged 15 to 69 is expected to be 79.0% in 2010 and in 2030, while the female participation rate for the same age group is expected to increase from 70.9% in 2010 to 71.5% in 2030. Therefore, the current gap of 8.1% between males and females in this age group is expected to slightly decrease to 7.6%.

The job creation rate (that is, the change in the number of employed) in Canada was, on average, 1.7% from 1976 to 2009 based on available employment data, and it is assumed that the number of jobs will increase by 1.1% in 2010. The job creation rate assumption is



determined on the basis of expected moderate economic growth and the unemployment rate which is expected to gradually decrease from its 2009 level of 8.3% to an ultimate rate of 6.1% for years 2022 and thereafter. The job creation rate is on average about 0.9% from 2010 to 2014 and 0.7% from 2015 to 2021, and is slightly higher than the labour force growth rate. For years 2022 and thereafter, the job creation rate follows the labour force growth rate and is about 0.4% due to the aging of the population.

2. Price Increases

Price increases, as measured by changes in the CPI, tend to fluctuate from year to year. In 2006, the Bank of Canada and the Government renewed their commitment to keep inflation between 1% and 3% until the end of 2011. It is assumed that this commitment will be renewed for another five years following 2011. Therefore, a price increase rate of 2.0% is assumed for years 2010 to 2016. Beginning in 2017, the rate is assumed to uniformly increase until it reaches an ultimate rate of 2.3% in 2019.

3. Real Wage Increases (Average Annual Employment Earnings)

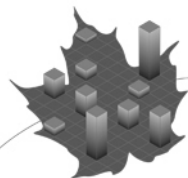
Wage increases affect the financial balance of the OAS Program in two ways. In the short term, an increase in the average wage translates into higher total employment earnings, combined CPP/QPP contributory earnings, and GDP, with little immediate impact on benefits. Therefore, costs in relation to these measurement bases will decrease. Over the longer term, higher average wages in relation to the level of prices could be expected to produce lower payouts for income-tested benefits such as the GIS and Allowance.

Increases in the nominal wage comprise increases in the real wage and increases in the level of prices (“inflation”). Put another way, the difference of nominal wage increases less inflation represents increases in the real wage and is also referred to as the “real-wage differential”. The long-term projected costs relative to the various measurement bases are more dependent on the real-wage differential than on the nominal level of wage increases assumed.

Growth in real wages is linked primarily with growth in labour productivity, as well as with various other economic factors. For instance, it is linked to the growth in the average number of hours worked, growth in total earnings as a share of total compensation, and growth in total compensation as a share of GDP.

Given an assumed relatively high unemployment rate in 2010 of 8.4% and moderate economic growth, a real-wage differential of 0% is assumed for 2010. It is then set to gradually increase to the ultimate assumption of 1.3% by 2019. The ultimate real-wage differential is developed taking into account the relationships described above, historical trends and a possible labour shortage. The ultimate real-wage differential assumption combined with the ultimate price increase assumption results in an assumed annual increase in nominal wages of 3.6% in 2019 and thereafter.

The assumptions regarding the increase in average real annual employment earnings and job creation rates result in projected average annual real increases in total employment earnings of about 1.8% for the period 2010 to 2020. After 2021, this decreases to about 1.7% on



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average over the remainder of the projection period, reflecting the assumed 1.3% real increase in annual wages and projected average 0.4% annual growth in the working-age population.

Given historical trends and the long-term relationship between increases in the average real annual employment earnings and the Year's Maximum Pensionable Earnings (YMPE), it is assumed, for the purpose of projecting CPP/QPP contributory earnings, that the real-wage increase assumption is also applicable to the increases in the YMPE from one year to the next.

Table 3 Economic Assumptions

Year	Real Increase Average Annual Earnings	Real Increase Average Weekly Earnings	Price Increase	Labour Force (Canada)			
				Participation Rate (Ages 15+)	Job Creation Rate	Unemployment Rate	Labour Force Annual Increase
	(%)	(%)	(%)	(%)	(%)	(%)	(%)
2010	0.0	0.0	2.0	67.2	1.1	8.4	1.2
2011	0.3	0.3	2.0	67.2	1.1	8.4	1.1
2012	0.6	0.6	2.0	67.1	0.9	8.3	0.9
2013	0.7	0.7	2.0	66.9	0.8	8.3	0.8
2014	0.8	0.8	2.0	66.8	0.7	8.3	0.7
2015	0.9	0.9	2.0	66.6	0.7	8.2	0.6
2016	1.0	1.0	2.0	66.3	0.7	8.0	0.4
2017	1.1	1.1	2.1	66.0	0.7	7.7	0.4
2018	1.2	1.2	2.2	65.7	0.7	7.3	0.3
2019	1.3	1.3	2.3	65.4	0.7	6.9	0.3
2020	1.3	1.3	2.3	65.0	0.7	6.5	0.3
2025	1.3	1.3	2.3	63.4	0.4	6.1	0.4
2030	1.3	1.3	2.3	62.2	0.5	6.1	0.5
2040	1.3	1.3	2.3	60.9	0.4	6.1	0.4
2050	1.3	1.3	2.3	60.3	0.2	6.1	0.2

D. Recipient Rates

OAS recipient rates represent the proportion of the Canadian population that has received (historically) or is projected to receive OAS benefits. Recipient rates are different than coverage or eligibility rates for benefits, which are higher, since individuals upon becoming eligible for benefits don't necessarily apply for them immediately, but may rather postpone application and commencement of their benefits. The recipient rate for a given benefit is derived as the ratio of the number of beneficiaries receiving that benefit to the population. It is worth noting that recipient rates for the basic OAS pension presented in this report exclude the impact of the OAS Recovery Tax. The impact of the OAS Recovery Tax (including pension income splitting and TFSAs) on the basic pension recipient rates is discussed in section IV of Appendix C of this report.

As shown in Table 4, the overall basic pension recipient rate for males is projected to increase from 98.7% in 2010 to 100.5% in 2050, while for females it is projected to increase



from 98.1% to 99.5% over the same period. The gap between the recipient rates for males and females is thus projected to remain about the same over the projection period. The rates for both sexes increase over time primarily due to the aging of the population. Moreover, recipient rates for the basic pension include benefits paid outside of Canada and as such, could exceed 100%. It is assumed that such international recipient rates will increase slightly over time, which also leads to an increase in the overall basic pension recipient rates. Finally, the distribution of the basic pension recipient rates by level of benefit for years 2010 and thereafter is projected by age and sex based on historical trends over the period 2001 to 2009.

The GIS and Allowance recipient rates by age, sex, type, and level of benefit for year 2010 were used as the starting point for determining the best-estimate assumption. GIS and Allowance recipient rates are projected taking into account that each new cohort of beneficiaries is assumed to be somewhat wealthier than the preceding one, which would normally result in a lower proportion of the basic pension recipients becoming eligible for these benefits over the projection period. However, the recipient rates for the GIS and Allowance also now take into account the impact of TFSAs (as discussed in section IV of Appendix C of this report), and this tends to offset in part the expected decline in eligibility rates for the GIS and Allowance benefits.

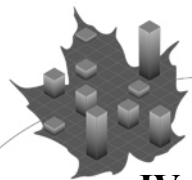
Furthermore, for the GIS and Allowance, experience adjustment factors are used to adjust the projected recipient rates so that characteristics and trends of historical recipient rates by age, sex, type and level of benefit over the period 2000 to 2009 would be reproduced more closely. These experience adjustment factors are used for the first ten years of the projection period. The change in the assumed recipient rates by level of benefit is automatically taken into account by the formula.

Table 4 presents a summary of the projected recipient rates by type of benefit.

Table 4 Recipient Rates⁽¹⁾
(population aged 65+)

	Males			Females		
	2010	2025	2050	2010	2025	2050
OAS	98.7%	99.8%	100.5%	98.1%	98.9%	99.5%
GIS-Single	10.9%	12.1%	11.7%	27.5%	26.7%	26.8%
GIS-Spouse as a Pensioner	11.7%	13.2%	11.6%	9.4%	11.0%	8.0%
GIS-Spouse not a Pensioner	3.0%	2.9%	1.9%	0.8%	0.8%	0.6%
GIS-Spouse with Allowance	2.6%	2.7%	2.0%	0.2%	0.3%	0.2%
GIS-All	28.2%	30.8%	27.1%	37.9%	38.8%	35.7%
Allowance-Regular	0.6%	0.5%	0.3%	5.6%	3.9%	2.7%
Allowance-Survivor	0.3%	0.2%	0.1%	2.7%	1.0%	0.4%
Allowance-All	1.0%	0.7%	0.4%	8.2%	4.9%	3.1%

- (1) Recipient rates for the basic OAS pension are on a gross basis; that is, before application of the OAS Recovery Tax. Recipient rates for the GIS and Allowance benefits account for TFSAs. All recipient rates include benefits paid outside Canada and for this reason can exceed 100%. Projections of the impact of the OAS Recovery Tax, including pension income splitting and TFSAs, on the basic pension and the impact of TFSAs on the GIS and Allowance benefits are provided in section IV of Appendix C of this report.



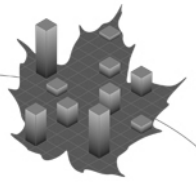
IV. Results

A. Overview

The results of the actuarial projections of the financial status of the OAS Program presented in this report are generally consistent with the trends revealed in the previous triennial actuarial report. The key observations and findings of this report are described below.

- Demographic changes will have a major impact on the ratio of workers to retirees; the ratio of the number of people in Canada aged 20 to 64 to those aged 65 and over is expected to fall from about 4.4 in 2010 to 2.2 in 2050. Chart 1 shows an analysis of the Canadian population by age group.
- The number of beneficiaries for the basic pension is expected to almost double over the next 20 years, from 4.7 million in 2010 to 9.3 million by 2030.
- The number of GIS and Allowance beneficiaries is expected to almost double over the next 20 years, growing from 1.7 million in 2010 to 3.3 million by 2030.
- GIS recipient rates are projected to remain relatively stable over the next 30 years at a level of about 35% due to the impact of TFSAs. By 2050, it is projected that the GIS recipient rate will reduce to 32%. In the absence of TFSAs, GIS recipient rates would be projected to steadily decline over the projection period and reach a level of 26% by 2050.
- GIS annual expenditures are projected to reach \$38.9 billion in 2050, including the effect of TFSAs. This represents an increase of \$4.2 billion or 12% in GIS annual expenditures in 2050 compared to projected GIS expenditures without the effect of TFSAs.
- Total annual expenditures are projected to increase by 32% over the next five years, from \$36.5 billion in 2010 to \$48.3 billion in 2015 and to \$108 billion by 2030.
- The ratio of expenditures to the GDP is projected to be 2.3% in 2010, which is similar to what the ratio was in 1980. After 2010, the ratio is projected to reach a high of 3.1% in 2030, driven largely by the retirement of the baby boom generation. This level is somewhat higher than the previous peak of 2.7% in the early 1990s.
- After reaching a peak of 3.1% in 2030, the ratio of expenditures to GDP is projected to decrease to a level of 2.6% by 2050. This reduction is attributable to expected slower growth in inflation compared to growth in the GDP and projected higher incomes of new retirees.

Over time, price-indexation of benefits that increases more slowly than the rate of growth in average employment earnings means that benefits will replace a decreasing share of an individual's pre-retirement earnings. In the past, this issue has been addressed through occasional ad hoc increases in the benefit rates. One of the sensitivity tests shown in



section VI provides an indication of the impact on projected results if benefit rates were increased to partially reflect the growth in real wages.

Chart 1 Analysis of Population of Canada by Age Group

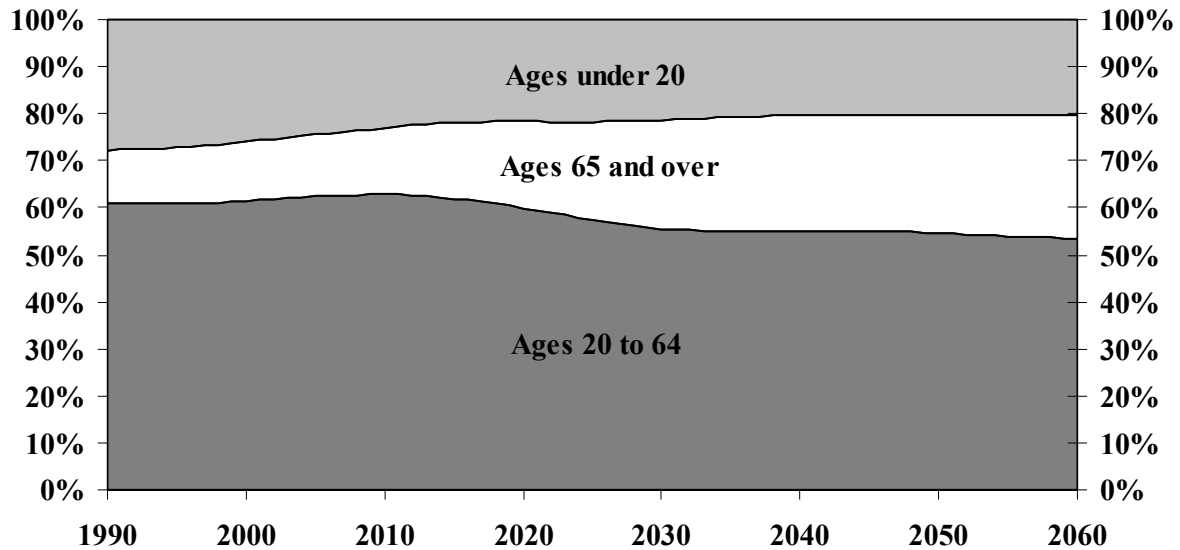
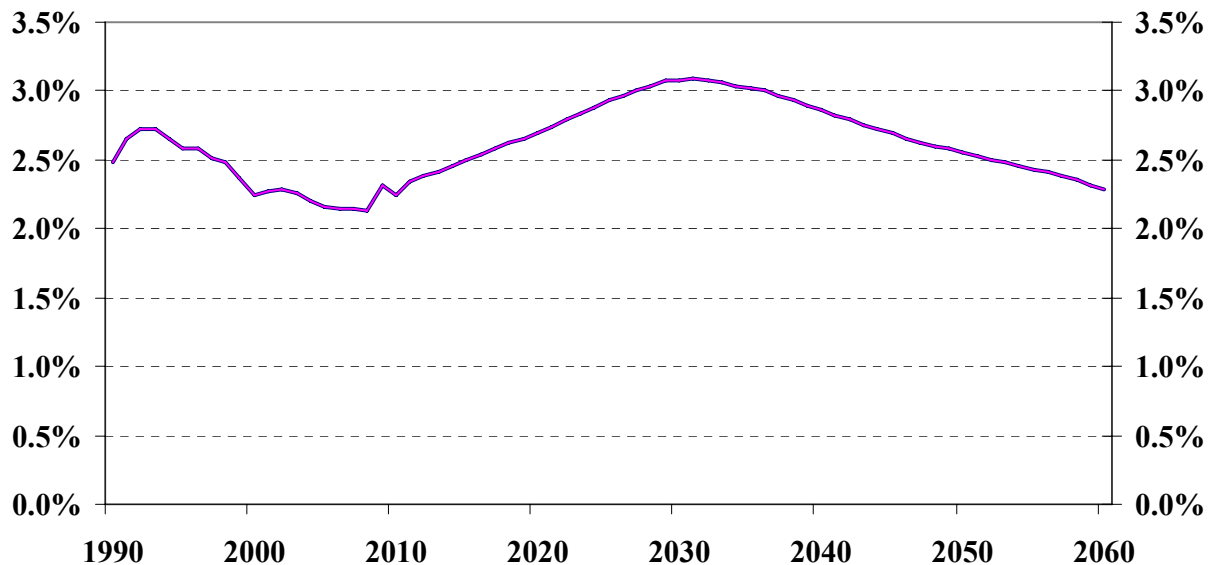
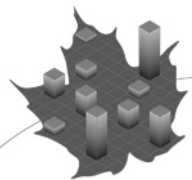


Chart 2 Expenditures as a Proportion of GDP





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B. Number of Beneficiaries

Tables 5 and 6 present the historical and projected number of beneficiaries along with the respective overall recipient rates. The number of beneficiaries is the product of the population and the relevant recipient rates, which vary by year, age, sex, type and level of benefit. Beneficiaries include those who receive benefits outside of Canada. In 2009, about 2.2% of the male population was receiving a basic pension outside of Canada, while the corresponding percentage for females was about 1.2%. These percentages are expected to increase over the projection period.

The basic OAS pension recipient rates and number of beneficiaries shown in Tables 5 and 6 are on a gross basis; that is, they have not been adjusted to account for the application of the OAS Recovery Tax, which is a provision of the *Income Tax Act*.

The OAS Recovery Tax, which applies to high-income pensioners, effectively reduces recipient rates since very high-income pensioners may have their benefit completely reduced. It is estimated that about 6% (or 283,000) of all OAS pensioners in 2010 were affected by the recovery tax. Of this group, 110,000 or 2.3% of all OAS pensioners that year had their pensions completely reduced. In 2050, those affected by the recovery tax are projected to represent 6.7% (750,000) of all OAS pensioners, while those fully affected are projected to represent 2.4% (274,000) of pensioners. Both TFSA-related income (investment income and withdrawals) and pension income splitting reduce the amount repaid due to the recovery tax. Section IV of Appendix C presents more detailed information on the projected impact of the OAS Recovery Tax (accounting for TFSAs and pension income splitting) on the number of basic OAS pension beneficiaries and total amounts payable.

As shown in Table 6, the number of beneficiaries for the basic pension is expected to almost double over the next 20 years, growing from 4.7 million in 2010 to 9.3 million by the end of 2030. By contrast, after 2030, due to the relative stability in the growth of the population aged 65 and over and in the basic pension recipient rates, the number of beneficiaries is expected to continue to increase but at a slower pace until the end of the projection period.

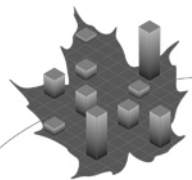
The number of GIS beneficiaries is expected to double over the next 20 years, growing from 1.6 million in 2010 to 3.3 million by 2030. This results in part from the anticipated aging of the population and the retirement of the baby boom generation over that period. In addition, the effect of TFSA investments is considered in the projections of both GIS and Allowance benefits. TFSA-related income is excluded from the determination of GIS and Allowance benefits, and as such, acts to increase both the number of recipients and amount of benefits than would be the case otherwise. For instance, in 2050, the recipient rate for the GIS is projected to be 32%, as shown in Table 6. If the impact of TFSAs is excluded, it is expected the recipient rate in 2050 would be lower at 26% instead. Section IV of Appendix C provides more detailed information on the projected impact of TFSAs on the number of GIS and Allowance beneficiaries and total amounts of benefits payable.

Each successive cohort of new retirees is assumed to be wealthier than the preceding one as retirement income increases in line with the rate of growth in wages, while the income limits for the GIS are assumed to increase in line with prices. Over the projection period, this has the overall effect of reducing the number of individuals who might have otherwise been



recipients of the GIS benefit. However, the impact of TFSAs tends to offset this anticipated decline in eligibility.

The number of Allowance beneficiaries is expected to decrease over time, since successive cohorts of retirees are assumed to be wealthier, and this is assumed to outweigh any increase in beneficiaries due to both growth in the age group 60 to 64 (to which the Allowance applies) and the effect of TFSAs. The number of Allowance beneficiaries is expected to decrease by 33% over the next twenty years, going from 91,900 in 2010 to 61,400 by the end of 2030, and the recipient rates will decrease by 45% over the same period. After 2030, the Allowance recipient rates continue to decrease while the growth in the population aged 60 to 64 stabilizes.



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Table 5 Beneficiaries (Historical)⁽¹⁾

Year	Number of Beneficiaries			Recipient Rates		
	OAS (thousands)	GIS (thousands)	Allowance (thousands)	OAS (%)	GIS (%)	Allowance (%)
1966	1,199	-	-	98.1	-	-
1967	1,332	662	-	98.1	41.6	-
1968	1,470	760	-	97.7	46.6	-
1969	1,629	803	-	97.4	48.0	-
1970	1,689	816	-	98.4	47.6	-
1971	1,735	932	-	98.4	52.9	-
1972	1,780	998	-	98.5	55.2	-
1973	1,825	1,058	-	98.4	57.0	-
1974	1,874	1,069	-	98.4	56.1	-
1975	1,925	1,069	68	98.4	54.6	7.6
1976	1,975	1,084	70	97.6	53.6	7.6
1977	2,035	1,112	71	97.4	53.2	7.7
1978	2,098	1,127	72	97.4	52.3	7.8
1979	2,179	1,164	73	97.7	52.2	7.8
1980	2,259	1,191	73	98.0	51.7	7.7
1981	2,326	1,232	76	97.9	51.8	7.6
1982	2,389	1,228	79	97.8	50.3	7.6
1983	2,448	1,229	86	98.0	49.2	8.0
1984	2,511	1,246	89	98.0	48.6	8.0
1985	2,595	1,290	91	98.0	48.7	8.1
1986	2,683	1,316	139	98.0	48.1	12.2
1987	2,778	1,336	140	97.9	47.1	12.2
1988	2,862	1,342	135	97.7	45.8	11.6
1989	2,948	1,339	128	97.4	44.2	10.9
1990	3,036	1,325	121	97.2	42.4	10.3
1991	3,127	1,309	115	97.3	40.8	9.6
1992	3,210	1,300	110	97.5	39.5	9.2
1993	3,289	1,313	108	97.7	39.0	8.9
1994	3,367	1,340	109	98.0	39.0	9.0
1995	3,447	1,338	108	98.3	38.2	8.9
1996	3,524	1,341	101	98.5	37.5	8.3
1997	3,594	1,364	100	98.3	37.3	8.3
1998	3,656	1,368	97	98.2	36.7	8.0
1999	3,715	1,372	97	98.1	36.2	7.9
2000	3,781	1,363	95	98.2	35.4	7.6
2001	3,852	1,360	93	98.2	34.7	7.2
2002	3,923	1,404	92	98.3	35.2	6.9
2003	3,999	1,450	92	98.4	35.7	6.6
2004	4,078	1,483	93	98.5	35.8	6.3
2005	4,163	1,515	94	98.6	35.9	6.2
2006	4,261	1,546	94	98.5	35.7	5.9
2007	4,362	1,580	94	98.4	35.6	5.5
2008	4,478	1,584	93	98.3	34.8	5.2
2009	4,603	1,595	90	98.2	34.0	4.8

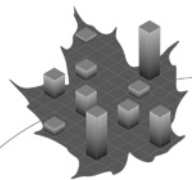
(1) The historical basic OAS pension recipient rates and number of beneficiaries are on a gross basis; that is, before application of the OAS Recovery Tax. All recipient rates include benefits paid outside Canada and for this reason can exceed 100%.



Table 6 Beneficiaries (Projected)⁽¹⁾

Year	Number of Beneficiaries			Recipient Rates		
	OAS	GIS	Allowance	OAS	GIS	Allowance
	(thousands)	(thousands)	(thousands)	(%)	(%)	(%)
2010	4,732	1,623	92	98.1	33.6	4.7
2011	4,889	1,752	93	98.2	35.2	4.6
2012	5,091	1,820	89	98.2	35.1	4.3
2013	5,289	1,886	86	98.3	35.1	4.1
2014	5,482	1,957	84	98.4	35.1	3.9
2015	5,679	2,028	82	98.4	35.1	3.7
2016	5,882	2,106	81	98.5	35.3	3.5
2017	6,087	2,185	81	98.6	35.4	3.4
2018	6,307	2,264	80	98.7	35.4	3.3
2019	6,539	2,352	80	98.7	35.5	3.2
2020	6,782	2,431	79	98.8	35.4	3.1
2021	7,025	2,511	79	98.8	35.3	3.0
2022	7,277	2,595	78	98.9	35.3	3.0
2023	7,531	2,677	78	98.9	35.2	2.9
2024	7,784	2,761	77	98.9	35.1	2.9
2025	8,043	2,849	76	99.0	35.1	2.8
2026	8,304	2,935	74	99.0	35.0	2.8
2027	8,559	3,020	72	99.1	35.0	2.8
2028	8,821	3,105	69	99.1	34.9	2.7
2029	9,073	3,186	65	99.2	34.8	2.6
2030	9,302	3,260	61	99.2	34.8	2.6
2031	9,490	3,323	59	99.3	34.8	2.5
2032	9,647	3,376	58	99.4	34.8	2.4
2033	9,787	3,422	57	99.5	34.8	2.4
2034	9,921	3,463	56	99.5	34.7	2.4
2035	10,050	3,495	55	99.6	34.6	2.3
2036	10,171	3,522	53	99.6	34.5	2.3
2037	10,268	3,543	53	99.7	34.4	2.2
2038	10,353	3,558	52	99.7	34.3	2.2
2039	10,429	3,568	52	99.7	34.1	2.1
2040	10,507	3,576	52	99.7	33.9	2.1
2045	10,860	3,582	52	99.8	32.9	1.9
2050	11,282	3,580	50	99.7	31.6	1.8
2055	11,732	3,579	47	99.6	30.4	1.7
2060	12,159	3,573	41	99.7	29.3	1.5

(1) The projected basic OAS pension recipient rates and number of beneficiaries are on a gross basis; that is, before application of the OAS Recovery Tax. The GIS and Allowance benefit recipient rates and number of beneficiaries account for TFSAs. All recipient rates include benefits paid outside Canada and for this reason can exceed 100%. Projections of the impact of the OAS Recovery Tax (including TFSAs and pension-income splitting) on the basic pension and the impact of TFSAs on the GIS and Allowance benefits are provided in section IV of Appendix C of this report.



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C. Expenditures and Average Annual Benefits

The historical and projected expenditures and average annual benefits by type are presented in Tables 7 and 8. The amounts of OAS basic pension benefits presented in Tables 7 and 8 do not account for the OAS Recovery Tax including any impacts from TFSA-related income on the determination of benefits. The OAS Recovery Tax reduces the basic OAS pension benefit by 15 cents for each dollar of income (excluding TFSA-related income) above a minimum threshold. It is estimated that in 2010, approximately 6% (or 283,000) of all OAS pensioners were affected by the recovery tax, resulting in the repayment of about 3.5% (or \$978 million) of the total amount of the basic pensions payable. Section IV of Appendix C presents more detailed information on the projected impact of the OAS Recovery Tax and TFSAs impact on this provision.

Total basic pension expenditures are projected to increase from \$28 billion in 2010 to \$84 billion by 2030. The projected average annual basic pension of \$5,913 in 2010 amounts to about 95% of the maximum annual OAS pension for 2010. The average annual benefit is assumed to decrease to about 94% of the maximum or \$9,029 by 2030. The existence of partial pensions (introduced in 1977 for those with less than 40 years of residence) is assumed to put downward pressure on the average annual OAS pension.

The amounts of GIS and Allowance expenditures presented in Tables 7 and 8 account for TFSAs. Section IV of Appendix C presents more detailed information on the projected impact of TFSAs.

Total GIS expenditures are projected to increase from \$7.8 billion in 2010 to \$23 billion by 2030. By 2050, total GIS expenditures are projected to reach \$38.9 billion. If the effect of TFSAs is excluded, it is expected that total GIS expenditures would be lower at \$34.7 billion instead. In other words, it is expected that the effect of TFSAs would lead to an increase of \$4.2 billion or 12% in GIS expenditures by 2050. The projected overall average annual GIS benefit is \$4,829 in 2010, which is about 70% of the maximum annual GIS single rate for 2010. The overall distribution of the number of beneficiaries by type and level of benefit is assumed to shift to lower benefit categories over the projection period due to the impact of TFSAs. For this reason, the average benefit decreases to about 67% of the maximum GIS single rate and reaches \$7,053 by 2030.

Total Allowance expenditures are projected to increase from \$553 million in 2010 to \$578 million by 2030. The projected overall average annual Allowance benefit is \$6,018 in 2010, which is about 53% of the maximum regular annual benefit for 2010. The overall distribution of the number of beneficiaries by type and level of benefit is assumed to stay relatively stable over the projection period due to the impact of TFSA. For this reason, the average benefit stays at about 53% of the maximum Allowance regular rate and reaches \$9,411 by 2030.

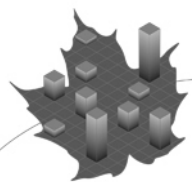
Total benefit expenditures are the product of the number of beneficiaries and the relevant average benefit by age, sex, and benefit type and level. Projected total annual expenditures for benefits and administrative expenses are \$36.5 billion in 2010, rising to \$43.4 billion in 2013 and \$108 billion by 2030. OAS basic pension benefits represent 77% of total expenditures in 2010, and this proportion is expected to increase to 81% by the end of the projection period.



Table 7 Expenditures and Average Annual Benefits (Historical) ⁽¹⁾

Year	Expenditures (\$ million)					Average Annual Benefit (\$)		
	OAS	GIS	Allowance	Administrative Expenses	Total	OAS	GIS	Allowance
1966	1,007	-	-	5	1,012	840	-	-
1967	1,119	216	-	7	1,342	840	326	-
1968	1,260	242	-	7	1,509	857	318	-
1969	1,424	259	-	9	1,692	874	322	-
1970	1,611	274	-	9	1,894	954	336	-
1971	1,668	470	-	12	2,150	962	504	-
1972	1,761	697	-	9	2,467	989	698	-
1973	2,130	725	-	8	2,863	1,167	686	-
1974	2,519	819	-	9	3,347	1,344	766	-
1975	2,883	896	13	10	3,802	1,498	838	195
1976	3,249	1,001	95	19	4,364	1,645	924	1,363
1977	3,563	1,057	113	22	4,755	1,751	951	1,585
1978	4,009	1,155	122	25	5,311	1,911	1,025	1,690
1979	4,537	1,468	140	27	6,172	2,082	1,261	1,935
1980	5,147	1,772	169	34	7,122	2,279	1,488	2,310
1981	5,918	2,180	197	42	8,337	2,544	1,770	2,604
1982	6,804	2,376	217	45	9,442	2,848	1,935	2,753
1983	7,504	2,508	232	54	10,298	3,065	2,040	2,692
1984	8,077	2,792	245	56	11,170	3,217	2,241	2,751
1985	8,696	3,278	295	60	12,329	3,351	2,542	3,244
1986	9,346	3,419	468	59	13,292	3,484	2,598	3,356
1987	10,070	3,577	482	59	14,188	3,625	2,677	3,446
1988	10,774	3,725	476	56	15,031	3,764	2,776	3,521
1989	11,579	3,851	464	62	15,956	3,927	2,877	3,621
1990	12,484	3,954	452	67	16,957	4,112	2,985	3,732
1991	13,545	4,102	447	63	18,157	4,331	3,133	3,892
1992	14,292	4,227	438	77	19,034	4,452	3,252	3,964
1993	14,872	4,393	430	90	19,785	4,522	3,346	3,974
1994	15,403	4,587	431	91	20,512	4,574	3,423	3,967
1995	15,832	4,601	411	106	20,950	4,593	3,439	3,802
1996	16,433	4,636	398	104	21,571	4,663	3,458	3,956
1997	16,944	4,710	393	106	22,153	4,715	3,453	3,935
1998	17,470	4,810	386	109	22,775	4,779	3,517	3,964
1999	17,903	4,894	388	99	23,284	4,819	3,567	3,990
2000	18,669	5,019	389	89	24,166	4,937	3,682	4,087
2001	19,508	5,160	390	95	25,153	5,065	3,795	4,205
2002	20,318	5,417	397	99	26,231	5,179	3,858	4,326
2003	21,217	5,710	411	97	27,435	5,306	3,937	4,473
2004	21,923	5,954	453	104	28,434	5,376	4,015	4,885
2005	22,701	6,334	469	104	29,608	5,453	4,182	4,978
2006	23,737	6,800	497	97	31,131	5,570	4,399	5,287
2007	24,711	7,346	513	112	32,682	5,665	4,649	5,457
2008	25,925	7,425	531	120	34,001	5,789	4,687	5,692
2009	27,149	7,708	523	121	35,501	5,898	4,831	5,814

(1) The historical basic OAS pension expenditures and average benefits are on a gross basis; that is, before application of the OAS Recovery Tax. The GIS and Allowance expenditures and average benefits account for TFSAs. All expenditures include benefits paid outside of Canada.



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Table 8 Expenditures and Average Annual Benefits (Projected)⁽¹⁾

Year	Expenditures (\$ million)					Average Annual Benefit (\$)		
	OAS	GIS	Allowance	Administrative Expenses	Total	OAS	GIS	Allowance
2010	27,984	7,836	553	127	36,500	5,913	4,829	6,018
2011	29,468	8,586	577	135	38,766	6,027	4,900	6,190
2012	31,290	9,067	567	143	41,067	6,146	4,981	6,363
2013	33,141	9,542	559	151	43,393	6,266	5,059	6,507
2014	35,022	10,059	558	160	45,799	6,388	5,141	6,651
2015	36,987	10,591	561	168	48,307	6,513	5,223	6,801
2016	39,048	11,194	566	178	50,986	6,639	5,315	6,951
2017	41,225	11,821	575	188	53,809	6,772	5,411	7,101
2018	43,614	12,469	585	198	56,866	6,915	5,507	7,267
2019	46,219	13,205	593	210	60,227	7,068	5,614	7,444
2020	49,018	13,931	599	222	63,770	7,227	5,729	7,607
2021	51,913	14,690	610	235	67,448	7,390	5,850	7,763
2022	54,982	15,507	619	249	71,357	7,556	5,975	7,929
2023	58,182	16,327	628	263	75,400	7,726	6,099	8,095
2024	61,490	17,197	637	278	79,602	7,900	6,229	8,264
2025	64,967	18,109	642	293	84,011	8,078	6,357	8,441
2026	68,587	19,043	640	309	88,579	8,260	6,488	8,621
2027	72,283	20,009	633	325	93,250	8,445	6,625	8,799
2028	76,171	21,001	617	342	98,131	8,636	6,764	9,000
2029	80,112	22,007	597	360	103,076	8,830	6,907	9,205
2030	83,981	22,997	578	376	107,932	9,029	7,053	9,411
2031	87,603	23,932	569	392	112,496	9,231	7,202	9,598
2032	91,038	24,831	568	408	116,845	9,437	7,355	9,785
2033	94,435	25,704	569	422	121,130	9,649	7,511	9,987
2034	97,877	26,565	570	438	125,450	9,865	7,671	10,199
2035	101,385	27,393	570	453	129,801	10,088	7,838	10,425
2036	104,911	28,209	568	468	134,156	10,315	8,009	10,657
2037	108,309	28,996	573	483	138,361	10,548	8,183	10,873
2038	111,669	29,752	582	497	142,500	10,786	8,361	11,098
2039	115,031	30,485	593	511	146,620	11,030	8,544	11,330
2040	118,525	31,222	603	526	150,876	11,280	8,732	11,580
2045	137,171	34,887	674	605	173,337	12,631	9,739	12,869
2050	159,723	38,944	717	698	200,082	14,157	10,879	14,331
2055	186,143	43,490	748	806	231,187	15,867	12,152	15,951
2060	216,118	48,445	727	929	266,219	17,774	13,557	17,761

- (1) The projected basic OAS pension expenditures and average benefits are on a gross basis; that is, before application of the OAS Recovery Tax. The GIS and Allowance expenditures and average benefits account for TFSAs. All expenditures include benefits paid outside of Canada. Projections of the impact of the OAS Recovery Tax (including TFSAs and pension income splitting) on the basic pension and the impact of TFSAs on the GIS and Allowance benefits are provided in section IV of Appendix C of this report.



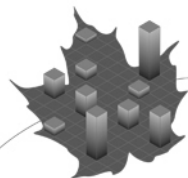
D. Cost Ratios

Since the Program is financed from general revenues on a pay-as-you-go basis, it is useful to express its annual expenditures in relative terms rather than in absolute dollar terms. For this reason, the expenditures are presented as cost ratios using three different measurement bases. The three bases used are the GDP, combined CPP/QPP contributory earnings, and total employment earnings. The details regarding how these measurement bases are projected are provided in Appendix C of this report.

The GDP basis is derived from projected total employment earnings using the historical relationship between the two. Tables 9 and 10 present the historical and projected annual expenditures as a percentage of GDP.

The combined CPP/QPP contributory earnings basis is derived from CPP contributory earnings as projected under the 25th CPP Actuarial Report as at 31 December 2009, adjusted to take into account QPP contributory earnings by using the historical relationship between the two. This measurement basis facilitates a direct comparison of the cost of the Program with the costs of the CPP and QPP by using the same contributory basis. Tables 11 and 12 present the historical and projected annual expenditures as a percentage of combined CPP/QPP contributory earnings.

The total employment earnings basis is derived from the CPP total employment earnings as projected under the 25th CPP Actuarial Report as at 31 December 2009, adjusted to account for Québec's total employment earnings. The adjustment is determined by using the historical relationship between total employment earnings as published by Statistics Canada and total employment earnings applicable to Canada less Québec for the purpose of the CPP. Tables 13 and 14 present the historical and projected annual expenditures as a percentage of total employment earnings.



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Table 9 Expenditures as Percentage of GDP (Historical)

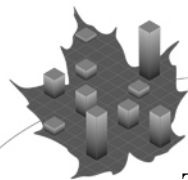
Year	Gross Domestic Product (\$ billion)	Expenditures as % of Gross Domestic Product ⁽¹⁾				Total (%)
		OAS (%)	GIS (%)	Allowance (%)	Administrative Expenses (%)	
1966	65	1.55	-	-	0.01	1.56
1967	70	1.61	0.31	-	0.01	1.93
1968	76	1.66	0.32	-	0.01	1.98
1969	84	1.70	0.31	-	0.01	2.02
1970	90	1.79	0.30	-	0.01	2.10
1971	98	1.69	0.48	-	0.01	2.18
1972	110	1.60	0.63	-	0.01	2.25
1973	129	1.65	0.56	-	0.01	2.22
1974	154	1.64	0.53	-	0.01	2.17
1975	174	1.66	0.52	0.01	0.01	2.19
1976	200	1.62	0.50	0.05	0.01	2.18
1977	221	1.61	0.48	0.05	0.01	2.15
1978	245	1.64	0.47	0.05	0.01	2.17
1979	280	1.62	0.53	0.05	0.01	2.21
1980	314	1.64	0.56	0.05	0.01	2.27
1981	360	1.64	0.60	0.05	0.01	2.31
1982	380	1.79	0.63	0.06	0.01	2.49
1983	411	1.82	0.61	0.06	0.01	2.50
1984	450	1.80	0.62	0.05	0.01	2.48
1985	486	1.79	0.67	0.06	0.01	2.54
1986	513	1.82	0.67	0.09	0.01	2.59
1987	559	1.80	0.64	0.09	0.01	2.54
1988	613	1.76	0.61	0.08	0.01	2.45
1989	658	1.76	0.59	0.07	0.01	2.43
1990	680	1.84	0.58	0.07	0.01	2.49
1991	685	1.98	0.60	0.07	0.01	2.65
1992	700	2.04	0.60	0.06	0.01	2.72
1993	727	2.05	0.60	0.06	0.01	2.72
1994	771	2.00	0.60	0.06	0.01	2.66
1995	810	1.95	0.57	0.05	0.01	2.59
1996	837	1.96	0.55	0.05	0.01	2.58
1997	883	1.92	0.53	0.04	0.01	2.51
1998	915	1.91	0.53	0.04	0.01	2.49
1999	982	1.82	0.50	0.04	0.01	2.37
2000	1,077	1.73	0.47	0.04	0.01	2.24
2001	1,108	1.76	0.47	0.04	0.01	2.27
2002	1,153	1.76	0.47	0.03	0.01	2.28
2003	1,213	1.75	0.47	0.03	0.01	2.26
2004	1,291	1.70	0.46	0.04	0.01	2.20
2005	1,374	1.65	0.46	0.03	0.01	2.16
2006	1,450	1.64	0.47	0.03	0.01	2.15
2007	1,530	1.62	0.48	0.03	0.01	2.14
2008	1,600	1.62	0.46	0.03	0.01	2.13
2009	1,527	1.78	0.50	0.03	0.01	2.32

(1) The historical basic OAS pension expenditures are on a gross basis; that is, before application of the OAS Recovery Tax. The GIS and Allowance expenditures account for TFSAs. All expenditures include benefits paid outside of Canada.

**Table 10 Expenditures as Percentage of GDP (Projected)**

Year	Gross Domestic Product (\$ billion)	Expenditures as % of Gross Domestic Product ⁽¹⁾				Total (%)
		OAS (%)	GIS (%)	Allowance (%)	Administrative Expenses (%)	
2010	1,622	1.73	0.48	0.03	0.01	2.25
2011	1,641	1.80	0.52	0.04	0.01	2.36
2012	1,705	1.84	0.53	0.03	0.01	2.41
2013	1,770	1.87	0.54	0.03	0.01	2.45
2014	1,834	1.91	0.55	0.03	0.01	2.50
2015	1,900	1.95	0.56	0.03	0.01	2.54
2016	1,971	1.98	0.57	0.03	0.01	2.59
2017	2,049	2.01	0.58	0.03	0.01	2.63
2018	2,134	2.04	0.58	0.03	0.01	2.66
2019	2,226	2.08	0.59	0.03	0.01	2.71
2020	2,322	2.11	0.60	0.03	0.01	2.75
2021	2,421	2.14	0.61	0.03	0.01	2.79
2022	2,516	2.19	0.62	0.02	0.01	2.84
2023	2,613	2.23	0.62	0.02	0.01	2.89
2024	2,714	2.27	0.63	0.02	0.01	2.93
2025	2,820	2.30	0.64	0.02	0.01	2.98
2026	2,932	2.34	0.65	0.02	0.01	3.02
2027	3,051	2.37	0.66	0.02	0.01	3.06
2028	3,175	2.40	0.66	0.02	0.01	3.09
2029	3,305	2.42	0.67	0.02	0.01	3.12
2030	3,442	2.44	0.67	0.02	0.01	3.14
2031	3,583	2.44	0.67	0.02	0.01	3.14
2032	3,733	2.44	0.67	0.02	0.01	3.13
2033	3,889	2.43	0.66	0.01	0.01	3.11
2034	4,053	2.41	0.66	0.01	0.01	3.10
2035	4,223	2.40	0.65	0.01	0.01	3.07
2036	4,400	2.38	0.64	0.01	0.01	3.05
2037	4,587	2.36	0.63	0.01	0.01	3.02
2038	4,782	2.34	0.62	0.01	0.01	2.98
2039	4,983	2.31	0.61	0.01	0.01	2.94
2040	5,191	2.28	0.60	0.01	0.01	2.91
2045	6,343	2.16	0.55	0.01	0.01	2.73
2050	7,702	2.07	0.51	0.01	0.01	2.60
2055	9,349	1.99	0.47	0.01	0.01	2.47
2060	11,412	1.89	0.42	0.01	0.01	2.33

(1) The projected basic OAS pension expenditures are on a gross basis; that is, before application of the OAS Recovery Tax. The GIS and Allowance expenditures account for TFSAs. All expenditures include benefits paid outside of Canada. Projections of the impact of the OAS Recovery Tax (including TFSAs and pension income splitting) on the basic pension and the impact of TFSAs on the GIS and Allowance benefits are provided in section IV of Appendix C of this report.



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Table 11 Expenditures as Percentage of CPP/QPP Contributory Earnings (Historical)

Year	CPP/QPP Contributory Earnings (\$ billion)	Expenditures as % of CPP/QPP Contributory Earnings ⁽¹⁾				
		OAS	GIS	Allowance	Administrative Expenses	Total
		(%)	(%)	(%)	(%)	(%)
1966	20	4.91	-	-	0.03	4.94
1967	22	5.02	0.97	-	0.03	6.01
1968	24	5.30	1.02	-	0.03	6.35
1969	26	5.54	1.01	-	0.04	6.59
1970	27	5.93	1.01	-	0.03	6.98
1971	29	5.68	1.60	-	0.04	7.32
1972	32	5.49	2.17	-	0.03	7.69
1973	36	5.96	2.03	-	0.02	8.01
1974	43	5.83	1.90	-	0.02	7.75
1975	51	5.69	1.77	0.03	0.02	7.51
1976	58	5.60	1.73	0.16	0.03	7.52
1977	65	5.49	1.63	0.17	0.03	7.33
1978	73	5.48	1.58	0.17	0.03	7.25
1979	84	5.42	1.75	0.17	0.03	7.37
1980	94	5.45	1.88	0.18	0.04	7.55
1981	109	5.43	2.00	0.18	0.04	7.64
1982	117	5.81	2.03	0.19	0.04	8.07
1983	126	5.94	1.98	0.18	0.04	8.15
1984	141	5.73	1.98	0.17	0.04	7.93
1985	156	5.57	2.10	0.19	0.04	7.90
1986	171	5.45	1.99	0.27	0.03	7.75
1987	183	5.50	1.95	0.26	0.03	7.75
1988	196	5.49	1.90	0.24	0.03	7.66
1989	211	5.48	1.82	0.22	0.03	7.55
1990	222	5.62	1.78	0.20	0.03	7.63
1991	226	6.00	1.82	0.20	0.03	8.05
1992	231	6.19	1.83	0.19	0.03	8.25
1993	236	6.31	1.86	0.18	0.04	8.39
1994	244	6.31	1.88	0.18	0.04	8.40
1995	252	6.28	1.83	0.16	0.04	8.31
1996	257	6.39	1.80	0.15	0.04	8.39
1997	269	6.31	1.75	0.15	0.04	8.25
1998	286	6.10	1.68	0.13	0.04	7.95
1999	302	5.94	1.62	0.13	0.03	7.72
2000	319	5.85	1.57	0.12	0.03	7.57
2001	332	5.87	1.55	0.12	0.03	7.57
2002	344	5.90	1.57	0.12	0.03	7.62
2003	357	5.94	1.60	0.12	0.03	7.68
2004	372	5.89	1.60	0.12	0.03	7.64
2005	388	5.85	1.63	0.12	0.03	7.63
2006	408	5.82	1.67	0.12	0.02	7.63
2007	432	5.72	1.70	0.12	0.03	7.57
2008	455	5.69	1.63	0.12	0.03	7.47
2009	461	5.88	1.67	0.11	0.03	7.69

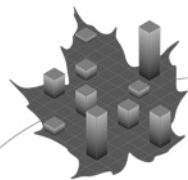
(1) The historical basic OAS pension expenditures are on a gross basis; that is, before consideration application of the OAS Recovery Tax. The GIS and Allowance expenditures account for TFSAs. All expenditures include benefits paid outside of Canada



Table 12 Expenditures as Percentage of CPP/QPP Contributory Earnings (Projected)

Year	CPP/QPP Contributory Earnings (\$ billion)	Expenditures as % of CPP/QPP Contributory Earnings ⁽¹⁾				Total
		OAS	GIS	Allowance	Administrative Expenses	
		(%)	(%)	(%)	(%)	(%)
2010	477	5.87	1.64	0.12	0.03	7.66
2011	493	5.98	1.74	0.12	0.03	7.87
2012	521	6.01	1.74	0.11	0.03	7.89
2013	539	6.15	1.77	0.10	0.03	8.05
2014	558	6.28	1.80	0.10	0.03	8.21
2015	579	6.39	1.83	0.10	0.03	8.34
2016	602	6.49	1.86	0.09	0.03	8.47
2017	627	6.58	1.89	0.09	0.03	8.59
2018	654	6.67	1.91	0.09	0.03	8.70
2019	683	6.77	1.93	0.09	0.03	8.82
2020	714	6.87	1.95	0.08	0.03	8.94
2021	746	6.96	1.97	0.08	0.03	9.04
2022	777	7.08	2.00	0.08	0.03	9.19
2023	808	7.20	2.02	0.08	0.03	9.33
2024	841	7.31	2.05	0.08	0.03	9.47
2025	875	7.42	2.07	0.07	0.03	9.60
2026	911	7.53	2.09	0.07	0.03	9.73
2027	949	7.62	2.11	0.07	0.03	9.83
2028	989	7.70	2.12	0.06	0.03	9.92
2029	1,030	7.78	2.14	0.06	0.03	10.01
2030	1,073	7.82	2.14	0.05	0.04	10.06
2031	1,118	7.84	2.14	0.05	0.04	10.06
2032	1,165	7.81	2.13	0.05	0.04	10.03
2033	1,215	7.77	2.12	0.05	0.03	9.97
2034	1,267	7.73	2.10	0.05	0.03	9.90
2035	1,322	7.67	2.07	0.04	0.03	9.82
2036	1,378	7.61	2.05	0.04	0.03	9.73
2037	1,437	7.54	2.02	0.04	0.03	9.63
2038	1,500	7.45	1.98	0.04	0.03	9.50
2039	1,564	7.36	1.95	0.04	0.03	9.38
2040	1,630	7.27	1.92	0.04	0.03	9.26
2045	1,997	6.87	1.75	0.03	0.03	8.68
2050	2,429	6.57	1.60	0.03	0.03	8.24
2055	2,950	6.31	1.47	0.03	0.03	7.84
2060	3,595	6.01	1.35	0.02	0.03	7.41

- (1) The projected basic OAS pension expenditures are on a gross basis; that is, before application of the OAS Recovery Tax. The GIS and Allowance expenditures account for TFSAs. All expenditures include benefits paid outside of Canada. Projections of the impact of the OAS Recovery Tax (including TFSAs and pension income splitting) on the basic pension and the impact of TFSAs on the GIS and Allowance benefits are provided in section IV of Appendix C of this report.



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Table 13 Expenditures as Percentage of Total Employment Earnings (Historical)

Year	Total Employment Earnings (\$ billion)	Expenditures as % of Total Employment Earnings ⁽¹⁾				Total
		OAS	GIS	Allowance	Administrative Expenses	
		(%)	(%)	(%)	(%)	(%)
1966	31	3.21	-	-	0.02	3.22
1967	35	3.22	0.62	-	0.02	3.86
1968	38	3.34	0.64	-	0.02	4.00
1969	42	3.38	0.61	-	0.02	4.01
1970	46	3.53	0.60	-	0.02	4.15
1971	50	3.33	0.94	-	0.02	4.30
1972	56	3.14	1.24	-	0.02	4.40
1973	65	3.30	1.12	-	0.01	4.44
1974	77	3.29	1.07	-	0.01	4.37
1975	89	3.24	1.01	0.01	0.01	4.27
1976	102	3.17	0.98	0.09	0.02	4.26
1977	113	3.15	0.93	0.10	0.02	4.20
1978	123	3.27	0.94	0.10	0.02	4.33
1979	138	3.29	1.06	0.10	0.02	4.47
1980	156	3.29	1.13	0.11	0.02	4.55
1981	180	3.29	1.21	0.11	0.02	4.64
1982	192	3.55	1.24	0.11	0.02	4.93
1983	200	3.75	1.25	0.12	0.03	5.15
1984	215	3.75	1.30	0.11	0.03	5.19
1985	232	3.75	1.41	0.13	0.03	5.32
1986	247	3.78	1.38	0.19	0.02	5.37
1987	269	3.75	1.33	0.18	0.02	5.28
1988	295	3.65	1.26	0.16	0.02	5.10
1989	319	3.63	1.21	0.15	0.02	5.01
1990	333	3.74	1.19	0.14	0.02	5.09
1991	339	4.00	1.21	0.13	0.02	5.36
1992	343	4.17	1.23	0.13	0.02	5.55
1993	347	4.28	1.27	0.12	0.03	5.70
1994	356	4.33	1.29	0.12	0.03	5.76
1995	366	4.32	1.26	0.11	0.03	5.72
1996	376	4.37	1.23	0.11	0.03	5.74
1997	398	4.26	1.18	0.10	0.03	5.57
1998	419	4.17	1.15	0.09	0.03	5.43
1999	445	4.02	1.10	0.09	0.02	5.23
2000	484	3.86	1.04	0.08	0.02	4.99
2001	505	3.86	1.02	0.08	0.02	4.98
2002	522	3.90	1.04	0.08	0.02	5.03
2003	542	3.92	1.05	0.08	0.02	5.06
2004	572	3.83	1.04	0.08	0.02	4.97
2005	606	3.75	1.05	0.08	0.02	4.89
2006	646	3.67	1.05	0.08	0.02	4.82
2007	687	3.60	1.07	0.07	0.02	4.76
2008	718	3.61	1.03	0.07	0.02	4.74
2009	718	3.78	1.07	0.07	0.02	4.95

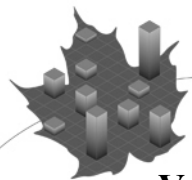
(1) The historical basic OAS pension expenditures are on a gross basis; that is, before application of the OAS Recovery Tax. The GIS and Allowance expenditures account for TFSAs. All expenditures include benefits paid outside of Canada.



Table 14 Expenditures as Percentage of Total Employment Earnings (Projected)

Year	Total Employment Earnings (\$ billion)	Expenditures as % of Total Employment Earnings ⁽¹⁾				Total (%)
		OAS (%)	GIS (%)	Allowance (%)	Administrative Expenses (%)	
2010	736	3.80	1.06	0.08	0.02	4.96
2011	757	3.89	1.13	0.08	0.02	5.12
2012	779	4.01	1.16	0.07	0.02	5.27
2013	802	4.13	1.19	0.07	0.02	5.41
2014	823	4.25	1.22	0.07	0.02	5.56
2015	852	4.34	1.24	0.07	0.02	5.67
2016	883	4.42	1.27	0.06	0.02	5.77
2017	917	4.50	1.29	0.06	0.02	5.87
2018	954	4.57	1.31	0.06	0.02	5.96
2019	994	4.65	1.33	0.06	0.02	6.06
2020	1,036	4.73	1.34	0.06	0.02	6.16
2021	1,079	4.81	1.36	0.06	0.02	6.25
2022	1,120	4.91	1.38	0.06	0.02	6.37
2023	1,162	5.01	1.40	0.05	0.02	6.49
2024	1,206	5.10	1.43	0.05	0.02	6.60
2025	1,252	5.19	1.45	0.05	0.02	6.71
2026	1,300	5.27	1.46	0.05	0.02	6.81
2027	1,352	5.35	1.48	0.05	0.02	6.90
2028	1,405	5.42	1.49	0.04	0.02	6.98
2029	1,461	5.48	1.51	0.04	0.02	7.05
2030	1,520	5.52	1.51	0.04	0.02	7.10
2031	1,581	5.54	1.51	0.04	0.02	7.12
2032	1,646	5.53	1.51	0.03	0.02	7.10
2033	1,713	5.51	1.50	0.03	0.02	7.07
2034	1,783	5.49	1.49	0.03	0.02	7.04
2035	1,856	5.46	1.48	0.03	0.02	6.99
2036	1,932	5.43	1.46	0.03	0.02	6.94
2037	2,012	5.38	1.44	0.03	0.02	6.88
2038	2,095	5.33	1.42	0.03	0.02	6.80
2039	2,181	5.27	1.40	0.03	0.02	6.72
2040	2,270	5.22	1.38	0.03	0.02	6.65
2045	2,760	4.97	1.26	0.02	0.02	6.28
2050	3,335	4.79	1.17	0.02	0.02	6.00
2055	4,028	4.62	1.08	0.02	0.02	5.74
2060	4,892	4.42	0.99	0.01	0.02	5.44

- (1) The projected basic OAS pension expenditures are on a gross basis; that is, before application of the OAS Recovery Tax. The GIS and Allowance expenditures account for TFSAs. All expenditures include benefits paid outside of Canada. Projections of the impact of the OAS Recovery Tax (including TFSAs and pension income splitting) on the basic pension and the impact of TFSAs on the GIS and Allowance benefits are provided in section IV of Appendix C of this report.



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V. Reconciliation with Previous Report

A. Introduction

The results presented in this report differ from those presented in the previous report for a variety of reasons. Differences between the actual experience from 2007 through 2009 and that projected in the 8th Actuarial Report are addressed in subsection B below. Since historical results provide the starting point for the projections shown in this report, these historical differences between actual and projected experience have an effect on the projections. Detailed reconciliations of the projected expenditures are presented in Appendix B.

B. Experience Update – 2007 to 2009

The components of change in the Program expenditures from 31 December 2006 to 31 December 2009 are summarized in Table 15.

Table 15 Financial Results - 2007 to 2009
(\$ million)

	Actual	Expected ⁽¹⁾	Difference	% Change
			Actual less Expected ⁽¹⁾	Difference/Expected
Expenditures:				
OAS	77,785	77,846	(61)	(0.1%)
GIS	22,479	22,923	(444)	(1.9%)
Allowance	1,567	1,591	(24)	(1.5%)
Administrative Expenses	353	358	(5)	(1.4%)
Total Expenditures	102,184	102,719	(535)	(0.5%)
Gross Domestic Product	4,656,455	4,579,229	77,226	1.7%
Expenditures as % of GDP	2.19%	2.24%	(0.05%)	(2.3%)

(1) Components do not sum to total due to rounding.

OAS expenditures during the period were \$61 million lower than projected. For the most part, this is because the slightly higher number of OAS beneficiaries was offset by a lower average benefit than projected. GIS and Allowance expenditures were \$468 million lower than anticipated mainly due to lower than expected number of beneficiaries. Administrative expenses were \$5 million or 1% lower than expected over the period.

Total GDP over the period was 1.7% higher than projected. As a result, overall expenditures in relation to GDP were about 2.3% lower than projected, being 2.19% of GDP instead of 2.24%.

C. Changes in Expenditures as a percentage of the GDP

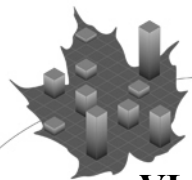
Table 16 presents the main elements of changes in the expenditures expressed as a percentage of the Gross Domestic Product since the previous report. Although assumed continuing increases in longevity lead to increases in the cost ratio, this effect is countered by assumed increases in fertility and net migration, leading to no effect on the projected cost ratios from



the demographic assumptions. An assumed increase in the recipient rates due to the anticipated effect of TFSAs as well as changes in economic assumptions act to increase the cost ratios, but these effects are more than offset by other factors, namely an improved methodology to project the GDP and the experience of the last three years. The net result is lower expenditures relative to the GDP over the projection period.

Table 16 Reconciliation of Expenditures as a % of GDP

	2010	2025	2050
	% of GDP		
8th OAS Program Actuarial Report	2.32	2.99	2.70
Improvements in Methodology	(0.05)	(0.04)	(0.10)
Experience Update (2007 to 2009)	(0.03)	(0.07)	(0.09)
Changes in Demographic Assumptions	0.00	0.00	0.00
Changes in Benefit Assumptions	0.02	0.01	0.00
Changes in Economic Assumptions	(0.01)	0.04	0.03
Part 1 of Bill C-50 (TFSA)	0.00	0.05	0.06
9th OAS Program Actuarial Report	2.25	2.98	2.60



VI. Uncertainty of Results

The future expenditures of the OAS Program depend on many demographic and economic factors, including fertility, mortality, migration, the labour force, average earnings, inflation, recipient rates, indexation of benefits, and savings in TFSAs. The expenditures will depend on how these factors affect the size and composition of the beneficiary population and the general level of benefits. The cost measurement bases, which expenditures are measured relative to, namely combined CPP and QPP contributory earnings, total employment earnings, and the GDP, will depend on how the factors affect the size and composition of the working-age population, and the level and distribution of earnings.

The projected long-term financial status of the Program is based on best-estimate assumptions; the objective of this section is to present alternative scenarios. The alternatives presented are in the form of individual assumption sensitivity tests that illustrate the sensitivity of the long-term financial position of the Program to changes in the future demographic and economic outlook.

Some of the individual assumption (fertility rates, mortality rates, net migration rates, and the real-wage differential) sensitivity tests are determined based on stochastic modeling techniques that estimate the probability distribution of the outcome for each of the assumptions. These probability distributions are used to quantify a range of possible outcomes for each of the selected assumptions. The fluctuation in each variable is projected by using standard time-series modeling and a method designed to make inferences based on historical data. Generally, each variable is modeled by an equation that captures a relationship between current and prior years' values of the assumption and introduces year-by-year random variation, consistent with the variation observed in the historical period. For some assumptions, the equations additionally reflect interrelationships with other assumptions. Parameters for the equations are estimated using historical data for periods that range between 40 years and 82 years, depending on the data available. Each time-series equation is designed such that, in the absence of random variation, the value of the variable is equal to the value assumed under the best-estimate assumption.

For each assumption that was stochastically analyzed, a minimum of 1,000 outcomes are generated for each year in the projection period (until 2060). Next, an 80% confidence interval is calculated for each assumption to determine with 80% probability, the range of possible outcomes. The upper and lower values of this 80% confidence interval are used as either the low-cost and high-cost assumptions, or vice versa depending on the assumption, for these individual sensitivity tests. These stochastically-generated values represent the range of the outcomes for the indicated variable over the projection period. Although the yearly outcome of each variable will fluctuate, it is the average outcome over the projection period that will determine the financial status of the Program. If a shorter projection period were to be considered, such as ten years, one could expect the average 80% confidence interval to be wider, since the outcomes will not have had enough time to stabilize.

The results should be interpreted with caution and a full understanding of the inherent limitations of stochastic time-series modeling. Results are very sensitive to equation specifications, degrees of interdependence among variables, and the historical periods used



for the estimates. For some variables, using the variations exhibited in a relatively recent historical period may not provide a realistic representation of the potential variation for the future. In addition, results would differ if random variations had been applied to additional variables other than those mentioned above (such as labour force participation rates and recipient rates). Furthermore, additional variability could result from incorporating statistical approaches that would more fully model change in the long-range central tendencies of the variables. The historical period available for most variables is relatively homogeneous and does not reflect substantial shifts. The time-series modeling reflects what occurred in the historical period. As a result, the variation indicated in this section should be viewed as the minimum plausible variation for the future. Structural shifts, as predicted by many experts and as seen in prior centuries, are not reflected in the current models. Rather, the projection models or time series are adjusted to reflect the best judgment over a long period.

The sensitivity tests were performed by varying most of the key assumptions individually in a manner consistent with the results of the stochastic analysis and by keeping the remaining assumptions at their best-estimate levels. For the remaining assumptions tested, alternative assumptions were determined based on judgment as opposed to using stochastic analysis; that is, the remaining alternative assumptions were arrived at using a deterministic approach, whereby an alternative to an assumption is set at a fixed value with no associated randomness. These deterministic tests are discussed in the sections below. Each of these sensitivity tests was categorized as either a low-cost scenario or a high-cost scenario. In the low-cost scenarios, the alternative assumptions have the effect of reducing the ratios of expenditures to GDP. Conversely, in the high-cost scenarios, the alternative assumptions lead to an increase in the cost ratios.

The alternative assumptions selected based on stochastic modelling are intended to cover an 80% confidence interval and represent a wide range of potential long-term experience. However, each individual result cannot simply be combined with others because a change in any one particular assumption may have an impact on other assumptions to various degrees.

Table 17 summarises the alternative assumptions used in the individual sensitivity tests. It is followed by a brief discussion of each assumption and the impact its variation has on the results.

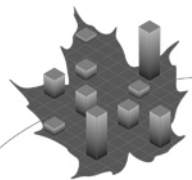


Table 17 Individual Sensitivity Test Assumptions

CANADA		Low-Cost		Best-Estimate		High-Cost	
1	Total fertility rate	2.00		1.65		1.30	
Mortality:							
2	Canadian life expectancy at age 65 in 2050 with future improvements	Males	20.4	Males	22.6	Males	24.6
		Females	22.4	Females	24.6	Females	26.7
3	Net migration rate	0.62%		0.58%		0.53%	
4	Participation rate (age group 15-69) ⁽¹⁾	80% (2030)		75% (2030)		72% (2030)	
	Unemployment rate ⁽¹⁾	4.1%		6.1%		8.1%	
5	Real-wage differential	2.0%		1.3%		0.6%	
6	Recipient rates – TFSA effect only ⁽¹⁾	<u>2050</u>		<u>2050</u>		<u>2050</u>	
		GIS:	29.1%	GIS:	31.6%	GIS:	35.0%
		Allowance:	1.7%	Allowance:	1.8%	Allowance:	1.8%
7	Recipient rates – All effects (+/- 20%) ⁽¹⁾	<u>2050</u>		<u>2050</u>		<u>2050</u>	
		GIS:	26.5%	GIS:	31.6%	GIS:	36.8%
		Allowance:	1.4%	Allowance:	1.8%	Allowance:	2.1%
8	Benefit indexation ⁽¹⁾	CPI less 1%		CPI		CPI plus 60% of the real-wage differential	

(1) For these tests, a deterministic instead of a stochastic approach was used to derive the low- and high-cost estimates.

1. Fertility Rate

The best-estimate assumption is that the total fertility rate for Canada will decrease slightly from its 2007 level of 1.66 to an ultimate level of 1.65 in 2015. Based on fertility experience of the last 67 years (1941 to 2007), a stochastic approach was used to generate the low- and high-cost scenarios over the projection period ending in 2060. It was projected that the average total fertility rate throughout the projection period until 2060 will be in the range of 1.3 to 2.0 with 80% probability. Instead, if a shorter projection period until 2035 is considered, then the average total fertility rate will be in the range of 1.1 to 2.2.

The low-cost assumption is that the total fertility rate increases to an ultimate level of 2.0 in 2015, which is below the national population replacement rate of 2.1. The total Canadian fertility rate has not been above 2.0 since 1972. Under this scenario, the population grows to a level in 2050 that is 10.3% higher than under the best-estimate assumption. In addition, a higher ultimate total fertility rate leads to a younger population. Thus, the dependency ratio, defined as the ratio of the age 65 and older population to the working-age population (20-64), is 0.43 (or approximately 2.3 workers per retiree) in 2050 compared to a dependency ratio of 0.46 (or approximately 2.2 workers per retiree) under the best-estimate assumption.

The high-cost assumption is that the fertility rate decreases to an ultimate level of 1.3 in 2015. This is similar to the total fertility rates of Italy and Japan. Under this scenario, the population grows much more slowly, to a level in 2050 that is 9.6% lower than under the best-estimate assumption. A lower ultimate total fertility rate leads to an older population. In



this scenario, the dependency ratio increases from the best-estimate value of 0.46 (or 2.2 workers per retiree) in 2050 to 0.50 (or 2.0 workers per retiree).

2. Mortality Rates

The best-estimate ultimate rates of mortality improvement were established based on trends in Canadian experience over the last 30 years by age and sex. For the first five years of the projection (2007 to 2011), mortality improvement rates are assumed to correspond to the experience over the last 15 years (1991 to 2006). These rates are then graded down to their ultimate values by 2031.

Based on the mortality experience by age and sex of the last 81 years (1926 to 2006), a stochastic approach was used to generate the low- and high-cost scenarios over the projection period ending in 2060. It was projected that, on average, the life expectancy of a male aged 65 in 2050 will be in the range of 20.4 years to 24.6 years with 80% probability. For a female aged 65 in 2050, life expectancy is projected to be in the range of 22.4 to 26.7 years.

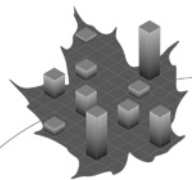
For the low-cost scenario, mortality is assumed to improve at a much slower rate than under the best-estimate scenario, and for some age groups, mortality rates are assumed to increase from the current rates. This reflects to a certain degree the slowdown in mortality improvements under age 65 observed over the last few years and anticipates that current improvements above age 65 may not be sustainable. Under this scenario, the population grows to a level in 2050 that is 2.7% lower than under the best-estimate scenario. In addition, the dependency ratio decreases to 0.43 (or 2.3 workers per retiree) compared to a best-estimate of 0.46, since life expectancy is lower and there would be fewer retirees compared to the working-age population.

For the high-cost scenario, mortality is assumed to not only continue to improve, but also improve more rapidly, especially at the older ages, consistent with what has been observed in recent years. Under this scenario, the population grows to a level in 2050 that is 2.0% higher than under the best-estimate scenario. The dependency ratio also increases to 0.49 (or 2.0 workers per retiree) since life expectancy is higher and there would be more retirees compared to the working-age population. Table 18 presents the life expectancies that would result in 2050 from the different rates of mortality improvement.

Table 18 Life Expectancy in 2050 Under Alternative Assumptions⁽¹⁾
(Canada)

		Low-Cost	Best-Estimate	High-Cost
At Birth	Males	82.7	88.1	91.8
	Females	85.6	90.5	94.1
At Age 65	Males	20.4	22.6	24.6
	Females	22.4	24.6	26.7

(1) These are cohort life expectancies that take into account future improvements in mortality and therefore differ from calendar year life expectancies, which are based on the mortality rates of the given attained year.



3. Net Migration Rate

An ultimate best-estimate assumption of 0.58% of the population has been established for years 2023 and thereafter. However, the net migration rate based on average experience over the last three years (2007-2009) was 0.62% and over the last 30 years (1980-2009) was 0.53%. Based on a continuation of the average experience over the last 30 years, it is assumed that net migration rates will reduce from 0.61% in 2009 to 0.53% by 2014 and remain stable at that level until 2018. In the long run, a possible labour shortage could prompt an increase in immigration in order to supply the required workforce. This is why the net migration rate is projected to increase from 0.53% in 2018 to 0.58% in 2023. This is consistent with experience over the last 15 years.

Based on the net migration experience of the last 51 years (1959 to 2009), a stochastic approach was used to generate the low- and high-cost scenarios over the projection period ending in 2060. It is projected that average net migration throughout the entire projection period will be in the range of 0.53% to 0.62% of the population with 80% probability. Instead, if a projection period ending in 2035 is considered, then average net migration will be in the range of 0.50% to 0.64% of the population.

The low-cost assumption is that net migration is at a level of 0.62% of the population in 2010 and remains constant thereafter. This is the same as the average net migration rate of 0.62% over the three-year period ending in 2009. Under this scenario, the population grows to a level in 2050 that is 2.7% higher than under the best-estimate scenario. As well, the dependency ratio of those aged 65 and over to the working-age population (20-64) is 0.45 (or approximately 2.2 workers per retiree). There is very little difference in the dependency ratio compared to the best-estimate.

The high-cost assumption is that net migration reaches a level of 0.53% of the population in 2014 and remains constant thereafter. This is the same as the average net migration rate of 0.53% over the thirty-year period ending in 2009. Under this scenario, the population grows more slowly, to a level in 2050 that is 1.9% lower than under the best-estimate scenario. As well, the dependency ratio is 0.47 (or approximately 2.1 workers per retiree), compared to 0.46 for the best-estimate. The dependency ratio worsens only slightly compared to the best-estimate since the impact of a lower net migration rate depends on the age distribution of the immigrants and emigrants. If both groups, those aged 65 and above and those aged 20 to 64, are affected similarly by net migration, then one would expect very little change in the dependency ratio.

4. Unemployment Rate – Participation Rates

Employment levels are reflected in the actuarial projection model through the assumptions made regarding the level of the labour force participation and job creation rates by year, age, and sex. These rates vary not only with the rate of unemployment, but also reflect trends in increased workforce participation by women, longer periods of formal education among young adults, and trends in retirement patterns of older workers. The ultimate level of unemployment assumed to apply in 2022 and thereafter is 6.1%.



A deterministic model (instead of a stochastic model) was used to generate the low- and high-cost scenarios for these assumptions, since a stochastic model would not accurately reflect the assumed future trends in labour force participation and unemployment. The possible future labour shortage caused by the retirement of the baby boom generation is unlike any labour situation experienced in the past and thus, the historical data do not reflect any substantial shifts like the one being projected. Therefore, it was decided to use judgment in determining the low- and high-cost assumptions for participation rates and unemployment.

For the low-cost scenario, the job creation rates are assumed to increase more rapidly, which results in an unemployment rate of 4.1% in 2022 and thereafter. For the high-cost scenario, the job creation rates are assumed to increase at the same rate as the labour force, resulting in the unemployment rate staying constant at 8.1% for the entire projection period.

Participation rates are used to estimate the size of the active population (i.e. the labour force). The best-estimate scenario divides the projection period into three periods, i.e. 2010 to 2015, 2015 to 2030, and from 2030 onward. During the 2009 economic slowdown, labour force participation rates for the younger age groups decreased, while the older age groups experience stable and even increasing participation rates. As the economy recovers, labour force participation rates are assumed to increase, particularly for the younger age groups where many of the jobs were lost. Thus, the labour force participation rate for ages 15 to 69 increases slightly from approximately 74.9% in 2009 to 75.1% in 2015.

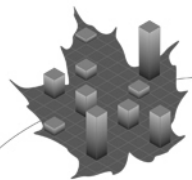
From 2015 to 2030, baby boomers born between 1955 and 1965 will be reaching the ages of 50 to 75, while the first generation of boomers (1945 to 1955) will have already retired, thus creating downward pressure on the overall participation rate. It was thus assumed that those reaching ages 55 to 64 during this period will participate more because of the increased employment opportunities due to a possible labour shortage. As well, it is assumed that participation rates for those below age 55 will increase. Thus, the labour force participation rate for ages 15 to 69 is projected to increase slightly to 75.2% in 2030. From 2030 onward, the participation rates are kept constant.

For the low cost scenario, male participation rates are assumed to reach their highest historical level by 2030, and females are assumed, over the same period, to close the gap between male and female participation rates by one-half. Participation rates are then held constant beyond 2030. This results in an overall participation rate of 79.6% for those aged 15 to 69 in 2030.

For the high cost scenario, male and female participation rates are assumed to remain constant at their 2009 levels. This results in an overall participation rate of 72.4% for those aged 15 to 69 in 2030.

5. Real-Wage Differential

Wage increases affect the financial balance of the OAS Program in two ways. In the short term, an increase in the average wage translates into higher combined CPP/QPP contributory earnings, total employment earnings and a higher GDP, with little immediate impact on benefits. This results in lower cost ratios relative to these measurement bases. Over the



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longer term, higher average wages may be expected to result in higher incomes among the retiree population and reduce the amounts of income-tested benefits that are indexed to inflation. This would also lower the cost ratios. However, aging of the Canadian population has resulted in increased OAS Program expenditures over time, which acts to increase the cost ratios. Overall, the long-term projected financial position of the OAS Program is dependent on real wage increases or the “real-wage differential”, that is, the differential between the assumed annual rates of wage increase and price increase, which provides a comparison of earnings growth with inflation. In addition, the long-term financial position of the Program is dependent on the age structure of the population and the levels of old-age income other than that provided by the Program.

An ultimate real-wage differential of 1.3% has been assumed for years 2019 and thereafter for the best-estimate projections. The ultimate real-wage differential assumption, combined with the ultimate price increase assumption of 2.3% results in the assumption for the ultimate nominal annual increases in wages of 3.6% in 2019 and thereafter. During the initial years of the projection period, the real-wage differential is assumed to increase gradually to its ultimate level.

Based on the overall real-wage experience of the last 48 years (1962 to 2009), a stochastic approach was used to generate the low- and high-cost scenarios over the projection period ending in 2060. It was projected that the average real-wage differential throughout the projection period will be in the range of 0.6% to 2.0% with 80% probability. Instead, if a projection period ending in 2035 is considered, then the average real-wage differential will be in the range of 0.0% to 2.3%.

For the low-cost scenario, the assumed real-wage differential increases to an ultimate level of 2.0% in 2019. For the high-cost scenario, the assumed real-wage differential increases according to the best-estimate assumption until a level of 0.6% is reached in 2012. It is then held constant thereafter.

6. Recipient Rates – TFSA effect only

The best-estimate projection uses a formula described in Appendix C to project GIS and Allowance benefit recipient rates. Two sets of low- and high-cost scenarios are considered. First, the impact of TFSAs on the recipient rates is considered. In the low-cost scenario, individuals save less in TFSAs than expected leading to less TFSA-related income, and as a result, there are fewer GIS and Allowance beneficiaries. This results in recipient rates that are about 2.5 percentage points lower and GIS and Allowance benefits that are 5% lower than under the best-estimate scenario in 2050. In the high-cost scenario, individuals save more in TFSAs than expected, leading to more TFSA-related income and more GIS and Allowance beneficiaries. This results in recipient rates that are about 3.4 percentage points higher and GIS and Allowance benefits that are 8% higher than under the best-estimate scenario in 2050.

7. Recipient Rates – All effects

For the second set of recipient tests, the same formula used for the best estimates is used except that, for the low-cost scenario, the resulting recipient rates for the GIS and Allowance



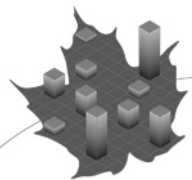
are reduced by 20%. The reduction is phased in over five years and is maintained thereafter. It results in total GIS and Allowance benefits that are about 20% lower than in the best-estimate scenario. For the high-cost scenario, the same formula is used except that the resulting recipient rates for total GIS and Allowance benefits are increased by 20%. The increase is phased in over five years and is maintained thereafter. It results in total GIS and Allowance benefits that are about 20% higher than in the best-estimate scenario.

8. Benefit Indexation

The best-estimate projections are based on the Program provision for benefit rates to be indexed quarterly in accordance with price increases. Over time, indexing benefit rates more slowly than the rate of growth in average employment earnings means that benefits will replace a decreasing share of individuals' pre-retirement earnings. In the past, this issue has been addressed through occasional legislation providing ad hoc increases in the benefit rates.

For the low-cost scenario, the benefit indexation is assumed at CPI minus 1%.

For the high-cost scenario, the benefit rates are increased to partially reflect the growth in real wages. The assumption made for this test is that benefit rates would be indexed at rates equal to the assumed rate of growth in prices plus 60% of the assumed real-wage differential. Accordingly, the ultimate annual benefit indexation rate is assumed to be 3.1% instead of 2.3% under the best-estimate assumptions. Over the medium term, about 30 years, the overall impact of this indexation formula on costs is roughly comparable to the indexation basis inherent in the CPP and QPP, which provide benefits based on wage increases prior to retirement and price increases thereafter.



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9. Results

Table 19 summarizes the projected impact on the expenditures-to-GDP cost ratio under each of the alternative sets of assumptions.

Table 19 Sensitivity Test Results

Assumption		Scenario	Expenditures as a Percentage of GDP		
			2010	2025	2050
		Best-Estimate	2.25	2.98	2.60
1	Total Fertility Rate	Low-Cost	2.25	2.97	2.39
		High-Cost	2.25	2.99	2.85
2	Mortality Rates	Low-Cost	2.25	2.91	2.41
		High-Cost	2.25	3.04	2.76
3	Net Migration Rate	Low-Cost	2.25	2.94	2.55
		High-Cost	2.25	2.99	2.64
4	Unemployment and Participation Rates	Low-Cost	2.25	2.81	2.40
		High-Cost	2.25	3.14	2.75
5	Real-Wage Differential	Low-Cost	2.25	2.75	1.99
		High-Cost	2.25	3.22	3.40
6	Recipient Rates (GIS and Allowance – TFSA effect only)	Low-Cost	2.25	2.96	2.57
		High-Cost	2.25	3.01	2.64
7	Recipient Rates (GIS and Allowance – all effects)	Low-Cost	2.25	2.85	2.50
		High-Cost	2.25	3.11	2.70
8	Benefit Indexation	Low-Cost	2.25	2.52	1.68
		High-Cost	2.25	3.30	3.57



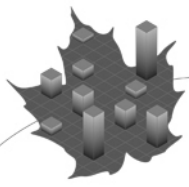
VII. Conclusion

The retirement of the baby boomers over the next few decades will increase the expenditures of the Program. In addition, it is expected that as investments in TFSAs grow over time and as such, an increasing amount of TFSA-related income is excluded from the determination of Program benefits, Program expenditures will increase as greater numbers of recipients and higher amounts of benefits will result than would otherwise be the case. For instance, in 2050, the overall recipient rate for the GIS is projected to be 32% with the amount of expenditures projected to be 0.51% of GDP. If the impact of TFSAs is excluded, then the expected recipient rate and expenditures in 2050 would be lower at 26% and 0.45% of GDP, respectively instead. This 9th OAS Program Actuarial Report is the first actuarial report on the Program to include the estimated impact of TFSAs, which were implemented recently in 2009. It is expected that the estimated impacts of TFSAs presented in future actuarial reports on the Program will be further improved as more data become available.

The combined effect of the aging of the population and future investments in TFSAs is expected to result in total annual expenditures expressed as a percentage of the GDP growing from 2.3% in 2010, a level similar to the one in 1980, to a high of 3.1% in 2030, a level somewhat higher than the previous peak of 2.7% in the early 1990s. Although it is assumed that each successive cohort of new retirees will be wealthier than the preceding one and will thus be less eligible to the GIS and Allowance benefits, the fact that individuals are also assumed to invest in TFSAs results in GIS and Allowance eligibility rates remaining relatively stable over time. Ultimately, the fact that benefits are indexed to inflation as opposed to wages and that new retirees' incomes are expected to grow drive the cost of the Program down over the long term, with the result that annual expenditures are expected to fall to 2.6% of GDP by 2050.

A more costly demographic outlook results from assumed continuing increases in longevity due to continuing decreases in mortality rates, especially at the older ages. As well, lower assumed increases in real wages in the short term and the anticipated impact of TFSAs act to increase program expenditures relative to the GDP over time. This increase, however, is more than offset by other factors. Better-than-anticipated experience over the period 2007 to 2009, an improved methodology in projecting the GDP, and changes in other demographic and economic assumptions all lead to lower expenditures relative to the GDP. Due to these opposite effects, the results presented in this report are somewhat similar to the ones presented in the previous triennial report.

To measure the sensitivity of the long-term projected financial status of the Program to changes in the future demographic and economic outlook, individual sensitivity tests were performed. These tests focussed on varying the key best-estimate assumptions individually in order to measure the potential impact on the cost ratio of Program expenditures to GDP. These tests show that the cost ratio could deviate significantly from its projected best-estimate values if other than best-estimate assumptions were to be realized. For example, if life expectancies at age 65 were to increase by two and half more years than the best estimates of this report, then the ratio in 2050 would increase from 2.60% to 2.76%. As another example, if recipient rates for the GIS and Allowance benefits were to increase by 20%, then the ratio in 2050 would increase from 2.60% to 2.70%.



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The projected financial status of the OAS Program presented in this report is based on the assumed demographic and economic outlook over the long term. Therefore, it remains important to review the Program's long-term financial status on a regular basis by producing periodic actuarial reports. For this purpose, as required by the *Public Pensions Reporting Act*, the next such review will be as at 31 December 2012.



VIII. Actuarial Opinion

In our opinion, considering that this 9th Actuarial Report was prepared pursuant to the *Public Pensions Reporting Act*:

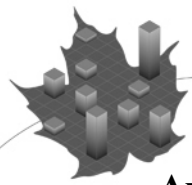
- the data on which this report is based are sufficient and reliable;
- the assumptions used are, individually and in aggregate, reasonable and appropriate; and,
- the methodology employed is appropriate and consistent with sound actuarial principles.

This report has been prepared, and our opinions given, in accordance with both accepted actuarial practice in Canada, in particular, the General Standards of Practice of the Canadian Institute of Actuaries, and internationally accepted actuarial practice as provided by the Guidelines of Actuarial Practice for Social Security Programs of the International Actuarial Association.

Michel Montambeault, F.S.A., F.C.I.A.
Senior Actuary

Jean-Claude Ménard, F.S.A., F.C.I.A.
Chief Actuary

Ottawa, Canada
3 June 2011



Appendix A – Summary of Program Provisions

I. Introduction

The *Old Age Security Act* came into force in January 1952. Benefits provided under the *Old Age Security Act* include the basic pension, the Guaranteed Income Supplement, and the Allowance, which started being paid in 1952, 1967, and 1975, respectively. The Allowance for the survivor benefit started in 1985.

Since the inception of the OAS Program, the *Old Age Security Act* has been amended several times. Bill C-50 was tabled in the House of Commons on 14 March 2008. The impact of Part 10 of Bill C-50 (increase in GIS and Allowance employment income exemption) was included in the financial projections of last triennial (8th) OAS Program Actuarial Report. Part 1 of Bill C-50 dealing with Tax-Free Savings Accounts is now also considered for the financial projections of this report. TFSAs, which were introduced in the 2008 Federal Budget, became effective on 1 January 2009. Neither income earned in a TFSA nor withdrawals from a TFSA affect eligibility for federal income-tested benefits, including the GIS and Allowance. In addition, such TFSA-related income is excluded from income considered in determining the basic pension repayment amount due to the OAS Recovery Tax.

Subsequent amendments were made to the *Old Age Security Act* as a result of Bill C-31. Those amendments eliminate entitlement to the OAS Program benefits (basic OAS pension, GIS, and Allowance benefits) for individuals incarcerated in a federal institution excluding the first month of incarceration. Once information sharing agreements are negotiated with the provinces and territories, OAS Program benefits will also be suspended for seniors incarcerated in provincial or territorial institutions with a sentence of imprisonment exceeding 90 days. Payment of OAS Program benefits resume upon release from incarceration and notification thereof. Bill C-31 was introduced in the House of Commons on 1 June 2010 and received Royal Assent on 15 December 2010, the same date on which it came into force. The cost impact of Bill C-31 on the Program is considered to be nonmaterial, and as such, it is assumed that Bill C-31 has no impact on the financial projections included in this report.

This Appendix A is meant only to provide a summary of the provisions of the OAS Program. The legislation shall prevail if there is a discrepancy between it and this summary.

II. Financing

All benefits provided under the *Old Age Security Act* are currently financed from federal general tax revenues.

III. Basic Pension

The basic OAS pension is a monthly benefit available, on application, to anyone age 65 or over who meets the residence and legal status requirements specified in the *Old Age Security Act*.



A. Eligibility Conditions

To qualify for a basic OAS pension, a person must be 65 years of age or over, and

- must be a Canadian citizen or a legal resident of Canada on the day preceding the approval of his or her application; or
- if the person no longer lives in Canada, must have been a Canadian citizen or a legal resident of Canada on the day preceding the day he or she stopped living in Canada.

A minimum of 10 years of residence in Canada after reaching age 18 is required to receive a basic OAS pension in Canada. To receive the OAS pension outside the country, a person must have lived in Canada for a minimum of 20 years after reaching age 18. An international social security agreement may assist a person to meet the 10- and 20-year requirements.

Effective 15 December 2010, no basic OAS pension is payable to any individual incarcerated in an institution in accordance with the provisions of Bill C-31.

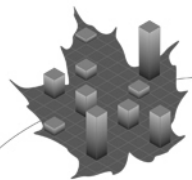
B. Amount of Benefits

The amount of a person's pension is determined by how long he or she has lived in Canada, according to the following rules:

- A person who has lived in Canada, after reaching age 18, for periods that total at least 40 years may qualify for a full OAS pension.
- A person who has not lived in Canada for 40 years after reaching age 18 may still qualify for a full pension if, on 1 July 1977, he or she was 25 years of age or over, and
 - lived in Canada on that date, or
 - had lived in Canada before that date and after reaching age 18, or
 - possessed a valid immigration visa on that date.

In such cases, the individual must have lived in Canada for the 10 years immediately prior to the approval of the application for the pension. Absences during this 10-year period may be offset if, after reaching age 18, the applicant was present in Canada before those 10 years for a total period that was at least three times the length of absence. In this instance, however, the applicant must also have lived in Canada for at least one year immediately prior to the date of the approval of the application. For example, an absence of two years between the ages of 60 and 62 could be offset by six years of presence in Canada after age 18 and before reaching age 55.

- A person who cannot meet the requirements for the full OAS pension may qualify for a partial pension. A partial pension is earned at the rate of $1/40^{\text{th}}$ of the full monthly pension for each complete year of residence in Canada after reaching age 18. Once a partial pension has been approved, it may not be increased as a result of additional



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years of residence in Canada. As an example, an individual with 20 complete years of residence in Canada at the time of application for the OAS pension would be entitled to 50% (or 20/40) of the maximum monthly OAS pension for the remainder of his/her lifetime.

The basic OAS pension is subject to income tax. The maximum monthly pension was \$524.23 during the first quarter of 2011. This rate is adjusted quarterly, as described in section VI.

The amount of pension paid to persons with high incomes is reduced through a provision of the *Income Tax Act* often referred to as the “OAS Recovery Tax”. For 2011, the reduction applies to persons whose total net annual income (after pension income splitting if that option is elected by married OAS beneficiaries) exceeds \$67,668 in 2011. OAS Recovery Tax deductions at source were introduced on 1 July 1996 and they are recalculated in July of each year based on the OAS recipient’s previous year’s net income (after pension income splitting). Since 2000, the income threshold is indexed upward in accordance with increases in the CPI; prior to 2000 it was indexed at CPI less 3%. For every dollar of income above this limit, the amount of basic pension is reduced by 15 cents. Income earned within a TFSA or withdrawals made from a TFSA are excluded from total net annual income for the purpose of determining the amount of the OAS Recovery Tax, which could result in a higher basic pension payable.

As an example, an OAS recipient with a net annual income (after pension income splitting) of \$69,668 in 2011 would incur an annual reduction of \$300. The full 2011 annual basic OAS pension is thus eliminated when a pensioner’s net annual income (after pension income splitting) is \$109,607 (estimated as of the first quarter of 2011 based on annualized OAS benefits of \$6,290.76) or above in 2011.

IV. Guaranteed Income Supplement

The GIS is a monthly benefit paid to residents of Canada who receive a basic OAS pension (either the full amount or a partial amount) and who have little or no other income.

Payment of the GIS may begin in the same month as payment of the basic pension. The amount of the benefit varies according to income (see below). Since 1999, most of those receiving the GIS can continue to do so by filing their income tax returns, rather than making a new application each year. The amount of monthly payments may increase or decrease according to reported changes in a person’s yearly income. Any income earned within a TFSA or withdrawals made from a TFSA are not considered as income for the purpose of determining the level of GIS benefit entitlement. Unlike the basic OAS pension, the GIS is not subject to income tax. The GIS is not payable outside Canada beyond a period of six months following the month of departure from Canada, regardless of how long the person previously lived in Canada.

A. Eligibility Conditions

To receive the GIS, a person must be receiving an OAS pension. Eligibility for the GIS is redetermined every year based on the previous year’s income. Starting 1 July 1999, income



(as defined for purposes of the GIS and Allowance benefits under the *Old Age Security Act*) received in the previous year is used to calculate the amount of benefits paid during the period starting on 1 July of a calendar year and ending on 30 June of the following calendar year. However, if an individual or an individual's spouse or common-law partner has retired or has suffered a loss of pension income, an estimate of income may be substituted for the income of the preceding year.

In general, income as defined under the *Income Tax Act* is included subject to certain exclusions and deductions. Exclusions from income include any payments received under the OAS Program (basic pension, GIS, and Allowance benefits) and income earned in and withdrawals made from TFSAs, while deductions include an employment income deduction of up to \$3,500.

The resulting estimated income of an individual (or, the combined income of the individuals and his or her spouse or common-law partner) cannot exceed certain limits as will be described later.

Persons admitted to Canada as sponsored immigrants after 6 March 1996 and persons qualifying for benefits from 2001 onward are not eligible, generally speaking, to receive the GIS for the duration of a sponsorship, up to a maximum of ten years. Exceptions are made, however, if an immigrant's sponsor dies, is incarcerated for a period of more than six months, is convicted of a criminal offence relating to the sponsored individual, or undergoes personal bankruptcy.

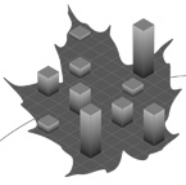
The spouse or common-law partner of an incarcerated person is considered to be single in regard to applying for the GIS benefit.

B. Amount of Benefits

The amount of the GIS to which a person is entitled depends on his or her length of residence in Canada, marital status, and income. If the person is married or living in a common-law relationship, the combined income of the person and his or her spouse or common-law partner is taken into consideration when the amount of GIS benefit is calculated.

To be entitled to a full benefit, persons admitted to Canada after 6 March 1996 and persons qualifying for benefits from 2001 onward must have resided in Canada for at least 10 years after reaching age 18. If a person to whom either of these conditions applies has less than 10 years of residence, a partial benefit is payable provided, as noted in the previous section, that the person is not a sponsored immigrant who is still in the period of sponsorship. The partial benefit is calculated at the rate of $1/10^{\text{th}}$ of the amount of the full benefit for each complete year of residence in Canada after age 18. The proportion payable is recalculated each year, taking into account additional residence in Canada during the previous year, building gradually to a full benefit after 10 years. The 10-year requirement for entitlement to a full benefit does not apply to persons who qualify for benefits before the year 2001 and who were permanent residents of Canada on or before 6 March 1996.

There are two rates of payment for a maximum GIS benefit. The single rate applies to single individuals – including widowed, divorced or separated persons as well as individuals who



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have never married – and to persons for whom their spouses or common-law partners do not receive either the OAS pension or the Allowance. The single rate also applies to spouses or common-law partners of incarcerated individuals in accordance with Bill C-51. During the first quarter of 2011 the maximum monthly GIS single benefit is \$661.69.

The married rate applies both to legally married couples and to couples living in common-law relationships, where either both spouses are OAS pensioners or where one spouse is eligible for the Allowance benefit. During the first quarter of 2011, the maximum monthly GIS married benefit is \$436.95.

The single rate is higher than the married rate, reflecting the higher cost of living alone. However, each member of a married or common-law couple is entitled to his or her own benefit, so the combined benefits for a couple are higher than those for a single person. These rates are adjusted quarterly, as described in section VI.

A special provision applies to persons who receive a partial OAS pension. In this case, the supplement is increased by the difference between the maximum OAS pension and the partial OAS pension in order to provide the same combined monthly pension and supplement to beneficiaries with the same level of income.

As an example, during the first quarter of 2011, a single person with no income who is entitled to a partial pension of \$131.06 (25% of the maximum monthly OAS pension of \$524.23) would be entitled to an additional supplement of \$393.17 for a total supplement of \$1,054.86 (i.e. \$661.69 plus \$393.17).

For a single, widowed, divorced or separated person, the maximum monthly GIS benefit is reduced by 50 cents for every dollar of monthly income (i.e. annual income divided by 12). For example, a monthly income of \$600 would reduce the maximum monthly GIS payable by \$300 to \$361.69 in the first quarter of 2011. In this case, the maximum allowable annual income before GIS stops being paid is \$15,881 in the first quarter of 2011.

If both spouses or common-law partners are receiving the basic OAS pension, the maximum monthly GIS of each person is reduced by 25 cents for every dollar of other combined monthly income (i.e. annual income divided by 12). For example, a couple with a monthly income of \$1,200 would reduce the maximum monthly GIS benefit payable by \$300 for each spouse to \$136.95 in the first quarter of 2011. In this case, the maximum allowable annual income before GIS stops being paid is \$20,974 in the first quarter of 2011.

A special provision applies in the case of a couple in which only one spouse or common-law partner is a pensioner and the other is not eligible for either the OAS pension or the Allowance. In this instance, the pensioner can receive the GIS at the higher rate paid to those who are single. Moreover, the maximum monthly GIS is reduced by 25 cents for every dollar of the couple's combined monthly income (i.e. annual income divided by 12), and the reduction of 25 cents is applied only when the combined monthly income of the couple reaches the maximum monthly OAS pension, where that pension, if not a multiple of \$4, is rounded to the next higher multiple of \$4 (i.e. \$528 in the first quarter of 2011). As an example, a couple with a monthly income of \$1,728 in 2010 would see their maximum



monthly GIS benefit reduced by \$300 to \$361.69 in the first quarter of 2011. In this case, the maximum allowable annual income before GIS stops being paid is \$38,112 in the first quarter of 2011.

In the case of a couple in which only one spouse is a pensioner and the other is eligible for the Allowance, the pensioner receives the GIS at the rate paid to those who are married and the maximum monthly GIS is reduced at a reduction rate of 25 cents for every dollar of the couple's combined monthly income (i.e. annual income divided by 12). The first reduction of 25 cents is made only when the combined monthly income of the couple reaches four-thirds times the maximum monthly OAS pension, where that pension, if not a multiple of \$3, is rounded to the next higher multiple of \$3 (i.e. income above four-thirds of \$525, or \$700, in the first quarter of 2011). As an example, a couple with a monthly income of \$1,503 would see the pensioner's maximum monthly GIS benefit at the married rate reduced by \$200 to \$236.95 in the first quarter of 2011. In this case, for the first quarter of 2011, the maximum allowable annual income before GIS stops being paid is \$38,112.

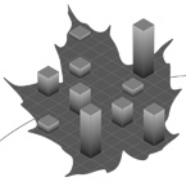
V. Allowance

The Allowance monthly benefit is designed to recognize the difficult circumstances faced by couples living on the pension of only one spouse as well as by many widowed persons. Since 1999, most of those receiving Allowance can continue to do so by filing their income tax returns, rather than making a new application each year. Starting 1 July 1999, income (as defined for purposes of the GIS and the Allowance benefits under the *Old Age Security Act*) received in the previous calendar year is used to calculate the amount of benefits paid during the period starting on 1 July of a calendar year and ending on 30 June of the following calendar year. Like the GIS, Allowance benefits are not subject to income tax. In addition, also like the GIS benefit, Allowance benefits are not payable outside Canada beyond a period of six months following the month of departure from Canada, regardless of how long the person previously lived in Canada.

A. Eligibility Conditions

The Allowance may be paid to the spouse or common-law partner of a senior receiving OAS and GIS benefits, or to a survivor, who, in each case, is between the ages of 60 and 64 and who has lived in Canada for at least 10 years after reaching age 18. An applicant must also be a Canadian citizen or a legal resident of Canada on the day preceding the approval of the application. The same income exclusions and deductions that apply to the GIS also apply to the Allowance benefit.

The Allowance stops being paid when the person becomes eligible for a basic pension at age 65, leaves Canada for more than six months, or dies. For a couple, the Allowance stops being paid if the older spouse or common-law partner ceases to be eligible for the GIS, or if the spouses separate, divorce, or dissolve their common-law partnership. In addition, in the case of survivors, the Allowance ceases if the person remarries. Sponsored immigrants are subject to the same conditions regarding eligibility as are described in the preceding section concerning the GIS.



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Allowance benefits to spouses or common-law partners of incarcerated individuals remain payable.

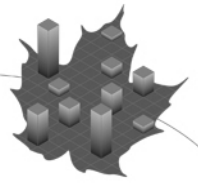
B. Amount of Benefits

The Allowance is an income-tested benefit. Like the GIS, if the recipient is married or living in a common-law relationship, the combined income of the recipient and his or her spouse or common-law partner is taken into account in determining the amount of the Allowance. In addition, to be entitled to the full Allowance, persons admitted to Canada after 6 March 1996 and persons qualifying for benefits from 2001 onward must have resided in Canada for at least 10 years after reaching age 18. If a person to whom either of these conditions applies has less than 10 years of residence, a partial Allowance is payable, calculated at the rate of 1/10th of the amount of the full Allowance for each complete year of residence in Canada after age 18. The proportion payable is recalculated each year, taking into account additional residence in Canada during the previous year, building gradually to a full Allowance after 10 years. The 10-year requirement for entitlement to a full Allowance does not apply to persons who qualify for benefits before the year 2001 and who were permanent residents of Canada on or before 6 March 1996.

The maximum amount payable to the spouse of a pensioner under the regular Allowance benefit is equal to the combination of a full OAS pension and the maximum GIS at the married rate. This amount was \$961.18 during the first quarter of 2011. Since July 1984, the maximum amount payable under the survivor Allowance benefit is higher than under the regular Allowance benefit, recognizing the higher cost of living alone. The maximum monthly survivor Allowance amount was \$1,065.45 during the first quarter of 2011.

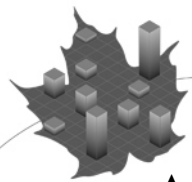
The OAS-equivalent portion of the maximum monthly Allowance benefit is reduced at a rate of 75 cents for every dollar of the person's or couple's monthly income (i.e. annual income divided by 12) until this portion is reduced to zero, which in the first quarter of 2011 corresponds to monthly income reaching \$700. Up to this level of income the GIS portion remains payable at the maximum. Under the regular Allowance benefit, both the GIS-equivalent portion of the Allowance and the pensioner's GIS are then reduced by 25 cents for every additional dollar of the couple's combined monthly income, i.e., in this case no Allowance benefit becomes payable if the annual income exceeds \$29,376 in the first quarter of 2011. For the survivor Allowance benefit, the GIS-equivalent portion is then reduced by 50 cents for every additional dollar of monthly income, i.e., in this case, for the first quarter of 2011, no survivor Allowance benefit becomes payable if annual income exceeds \$21,408.

In the case where a pensioner of a spouse of common-law partner is incarcerated, the couple's monthly income for the purpose of determining the spousal Allowance benefit is the monthly income of the spouse or common-law partner only.



VI. Inflation Adjustments

All benefit amounts under the *Old Age Security Act* are adjusted at the beginning of each calendar quarter in line with changes in the CPI. However, if the CPI decreases, benefit amounts do not decrease, but are held constant until the CPI exceeds its previous peak.



Appendix B – Detailed Reconciliations with Previous Report

The ratio of expenditures to GDP in a given year is an important measure of the cost of the Program. One way of understanding the differences between the best-estimate projections in this report and those presented in the 8th OAS Program Actuarial Report is by looking at the effects of various factors on this cost ratio. The most significant effects are identified in the reconciliation presented in Table 20 and the discussion below.

Differences between the actual experience from 2007 through 2009 and that projected in the 8th OAS Program Actuarial Report for the same period were addressed in Section V of this report. Since historical results provide the starting point for the projections shown in this report, these historical differences between actual and projected experience have an effect on the projections.

Overall, the experience update had the effect of reducing the cost ratio by about 0.03% in 2010 and ultimately by about 0.09% in 2050.

The methodology described in Appendix C of this report reflects a number of improvements made to the methodology used in previous reports. In particular, the methodology used to project the GDP has been improved for this Actuarial Report to now include a price differential adjustment, as described in section II of this report. This adjustment reflects that total earnings are expressed in nominal terms by using the CPI whereas nominal GDP is expressed in terms of the GDP deflator. This improvement decreases the ratio of expenditures to the GDP over the projection period by 0.05% in 2010 and 0.10% in 2050.

Key assumptions and changes made from the previous triennial report are outlined in Table 1 of this report. The effects of these changes are summarized as follows:

- The assumed total fertility rates and level of net migration are both higher than in the previous triennial report, and this decreases the long-term cost ratios, because the resulting effects of accelerating the growth in earnings and GDP outweighs the ultimate increase in expenditures.
- The higher mortality improvement rates at ages 65 and older assumed for this report increase the cost ratios, because beneficiaries are expected to receive their monthly benefits over longer periods of time.
- The higher assumed labour force participation and employment rates decrease the cost ratios, since it results in higher levels of earnings and projected GDP.
- The change in the real-wage assumption increases the cost ratios due to the somewhat lower expectations over the short term, compared to the previous triennial report.
- The lower assumed inflation has no effect on the cost ratios. The reason for this is twofold. First, expenditures increase at a slower rate due to lower benefit indexation. Second, although nominal GDP continues to increase, its rate of growth slows to the



same extent, since its rate of growth depends on the real-wage differential, inflation, and the price differential between nominal GDP and total employment earnings.

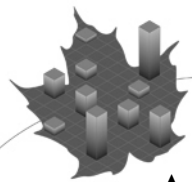
- Changes to the recipient rates increase the cost ratios over the medium term, but have no impact on the ultimate cost ratios.
- The long-term projected effect of TFSA investment income and withdrawals, specifically the exclusion of such income in the determination of the OAS Program benefits, is to increase the cost ratios. It is expected that the estimated effects of TFSAs on Program expenditures will improve over time as more data relating to TFSAs become available.

Some other assumptions, which are described in Appendix C, were also changed. For example, the experience adjustment factors applied in the projection of earnings and GDP were revised to reflect more recent experience. Overall, the changes in these other assumptions resulted in a slight increase in the cost ratios.

Table 20 Reconciliation of Expenditures as a Percentage of GDP
(OAS, GIS and Allowance combined)

	2010	2025	2050
8th OAS Program Actuarial Report	2.32	2.99	2.70
I. Improvements in Methodology⁽¹⁾	(0.05)	(0.04)	(0.10)
II. Experience Update (2007 to 2009)			
Demographic	0.00	0.01	(0.03)
Economic	0.04	(0.01)	(0.02)
Benefits	(0.07)	(0.07)	(0.04)
Subtotal:	(0.03)	(0.07)	(0.09)
III. Changes in Assumptions			
Fertility	0.00	(0.01)	(0.03)
Net Migration	(0.01)	(0.02)	(0.04)
Mortality	0.01	0.03	0.07
Employment	(0.02)	(0.07)	(0.06)
Real-wage differential	0.00	0.10	0.08
Price increases	0.00	0.00	0.00
Recipient rates	0.02	0.01	0.00
Other assumptions	0.01	0.01	0.01
Subtotal:	0.01	0.05	0.03
IV. Part 1 of Bill C-50 (TFSA)	0.00	0.05	0.06
Total of I to IV	(0.07)	(0.01)	(0.10)
9th OAS Program Actuarial Report	2.25	2.98	2.60

(1) The methodology used to project the GDP has been improved for this Actuarial Report. The projection of GDP, based on its relationship to total employment earnings, now also includes a price differential adjustment to reflect the difference between how total earnings and GDP are each expressed in nominal terms (as discussed in subsection III-G of Appendix C of this report).



Appendix C – Assumptions and Methods

I. Introduction

This section describes the assumptions and methods that underlie the financial projections in section IV of this report.

Future expenditures and cost ratios are projected over a long period of time, i.e. up to the year 2060 and depend on assumptions such as those regarding fertility, mortality, migration, labour force participation, job creation, unemployment, inflation, and employment earnings. These assumptions form the basis for the projections of future expenditures of the Program and cost measurement bases.

Although the demographic and economic assumptions have been developed using the best available information, the resulting estimates should be interpreted with caution. These estimates are not intended to be predictions, but rather projections of the future financial status of the Program. To the extent applicable, these assumptions are consistent with the best-estimate assumptions used in the 25th Actuarial Report on the Canada Pension Plan as at 31 December 2009.

II. Demographic Projections

Both the historical and projected populations of Canada are required for the calculation of future benefits. The population of Canada as at 1 July 2009 is used as a starting point. The population is then projected by age and sex from one year to the next by adding births and net migrants and subtracting deaths. Applying the fertility, mortality, and migration assumptions to the starting population develops the annual numbers of births, deaths, and net migrants.

A. Initial Population as at 1 July 2009

The starting point for the demographic projections is based on the most recent Statistics Canada population estimates as at 1 July 2009 for Canada, by age and sex. The estimates are based on the 2006 Census. The estimates are adjusted by ungrouping ages 100 and over into individual ages using the observed distribution of OAS Program beneficiaries by age for ages 100 and over.

B. Fertility Rates

The fertility rate for a given age and year is the average number of live births per female of that age during that year. The total fertility rate for a year is the average number of children that would be born to a woman in her lifetime if she experienced the age-specific fertility rates observed in, or assumed for, that year.

The total fertility rate in Canada has declined significantly since the baby boom period, when the rate peaked at nearly 4.0 per woman in the late 1950s. The baby bust period that followed in the mid-1960s pulled down the total fertility rate by the mid-1980s to a low of 1.6. The total fertility rate then rebounded somewhat, but then decreased again to a record low of 1.5 by the early 2000s. In recent years, the total fertility rate has risen to over 1.6.



Canada is one of many industrialized countries that have seen an increase in their total fertility rates in recent years. In 2007, the total fertility rate for Canada was 1.66. Fertility rates are affected by many factors, including social attitudes, reproductive technologies, and economic conditions.

In this report, it is assumed that the total fertility rate from 2015 onward is 1.65 for Canada. This assumed ultimate rate reflects historical trends in fertility rates by age group over the last 30 years. Finally, in accordance with the experience over the last 25 years, the assumed ratio of male to female newborns is 1.054, which is the same as for the 8th OAS Actuarial Report.

Table 21 shows the projected age-specific and total fertility rates by calendar year. In comparison, total cohort fertility rates per woman together with each cohort's age-specific rates, all based on the year of birth of a woman, are shown in Table 22. Cohort fertility rates provide a more reliable measure of the level of fertility, since they reflect the experience of real cohorts of women as opposed to the experience of synthetic cohorts, which is based on calendar years and used to derive the total fertility rates. Chart 3 shows the historical and projected total and cohort fertility rates.

Table 21 Total Fertility Rates
(Canada)

Calendar Year	Annual Fertility Rates by Age Group (per 1,000 women)							Total Fertility Rate Per Woman
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
2010	12.9	50.8	103.6	110.1	48.9	8.3	0.4	1.68
2011	12.6	49.9	103.3	110.5	49.1	8.4	0.4	1.67
2012	12.3	48.9	102.9	110.9	49.2	8.4	0.4	1.67
2013	12.0	48.0	102.6	111.3	49.3	8.5	0.4	1.66
2014	11.7	47.1	102.2	111.6	49.5	8.5	0.4	1.66
2015+	11.4	46.2	101.9	112.0	49.6	8.6	0.4	1.65

Table 22 Cohort Fertility Rates by Age and Year of Birth
(Canada)

Year of Birth of Woman	Annual Fertility Rates by Age Group (per 1,000 women) ⁽¹⁾							Cohort Fertility Rate per Woman
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
1955	38.8	102.4	121.7	74.6	29.0	5.2	0.3	1.86
1960	31.2	90.0	118.7	84.6	32.6	6.3	0.3	1.82
1965	25.5	78.3	118.2	85.7	36.9	7.8	0.4	1.76
1970	23.3	75.4	104.8	91.1	46.6	8.4	0.4	1.75
1975	25.4	65.4	97.6	104.5	49.2	8.6	0.4	1.76
1980	21.1	54.4	100.9	110.9	49.6	8.6	0.4	1.73
1985	15.4	51.7	102.9	112.0	49.6	8.6	0.4	1.70
1990	13.6	48.9	101.9	112.0	49.6	8.6	0.4	1.67
1995	12.3	46.2	101.9	112.0	49.6	8.6	0.4	1.65
2000+	11.4	46.2	101.9	112.0	49.6	8.6	0.4	1.65

(1) Fertility rates below and to the right of the dotted line are partly or wholly projected.

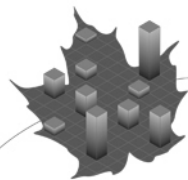
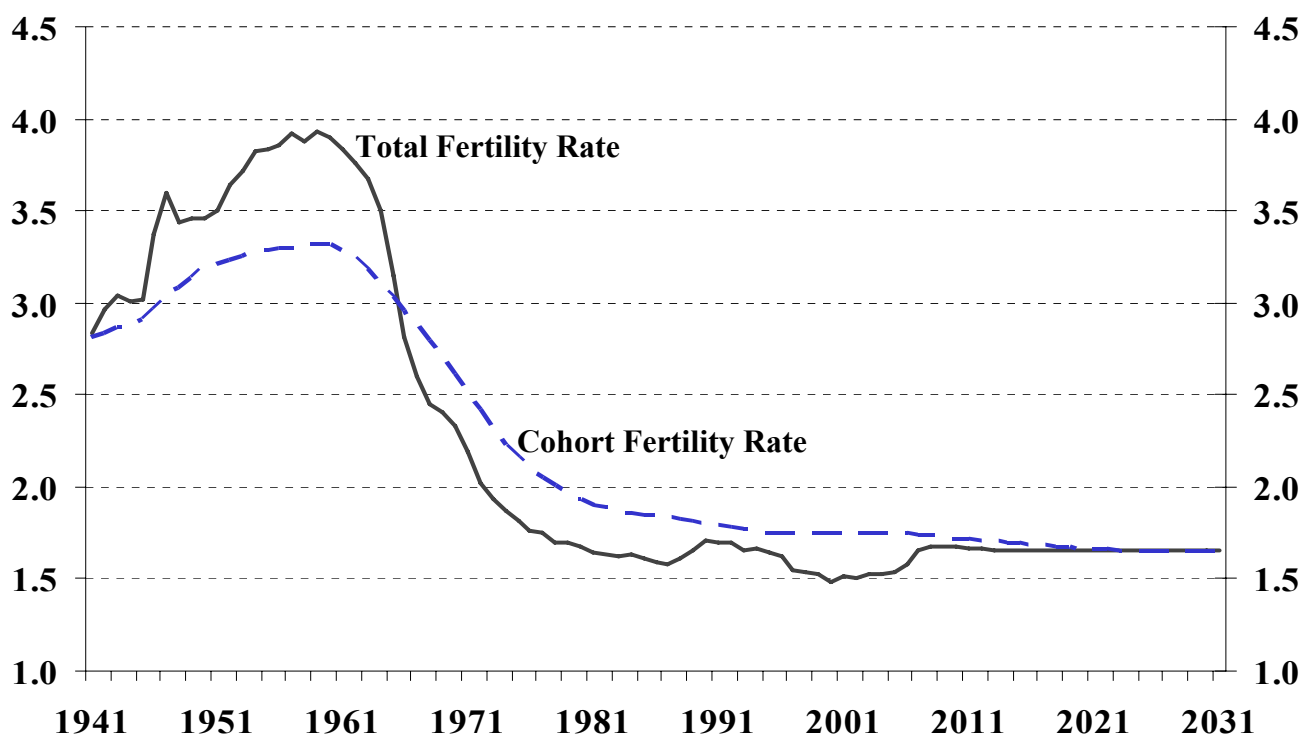


Chart 3 Historical and Assumed Total and Cohort Fertility Rates for Canada⁽¹⁾



(1) Cohort fertility rates based on age of woman being 29 in a given calendar year.

C. Mortality

For this report, the mortality rate projections start from the 2006 mortality rates of the Canadian Human Mortality Database (CHMD). According to the CHMD, life expectancies at birth in 2006 for males and females in Canada were 78.3 and 82.9 years, respectively, based on the 2006 CHMD mortality rates without any assumed future improvements in mortality.

For 2007 to 2011, the annual rates of mortality improvement, varying by age and sex, are set equal to the average annual improvement rates experienced in Canada over the 15-year period 1991 to 2006. Improvement rates for years 2012 to 2030 are obtained by linear interpolation between:

- the improvement rates of year 2011, and
- the ultimate improvement rates described below in respect of the period 2031 and thereafter.

For years 2031 and thereafter, the ultimate annual rates of mortality improvement vary by age only and not by sex or calendar year. The ultimate mortality improvement rates are derived by analyzing trends in Canadian experience over the period 1921 to 2006. Male



improvement rates at most ages are currently higher than female improvement rates but are assumed to decrease to the same level as female rates from 2031 onward.

The historical downward trend in mortality improvement rates is clear for both sexes in the age group 0-64. The ultimate rate for both sexes in this age group is based on the trend observed over the 30-year period 1976-2006 for females and is set at 0.8% per year from 2031 onward, where 0.8% represents about one-half the average rate observed for females over the 15-year period 1991-2006.

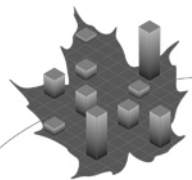
For age groups 65 and older, recent experience has shown an increasing trend for both sexes. The ultimate rates from 2031 onward for both sexes are set to one-half of the average rate experienced for females over the 15-year period 1991-2006. For ages 65 to 74, an ultimate improvement rate of 0.8% is assumed. The ultimate improvement rate is then set to reduce from 0.7% for the age group 75-84 to 0.3% for those aged 95 and older, consistent with observed experience that shows decreasing improvement rates with age.

Table 23 shows the initial (2007-2011), intermediate (2012-2030), and ultimate (2031+) assumed annual mortality improvement rates.

Table 23 Annual Mortality Improvement Rates for Canada

Age	Males			Females		
	2007-2011	2012-2030	2031+	2007-2011	2012-2030	2031+
	%	%	%	%	%	%
0	1.5	1.2	0.8	1.3	1.0	0.8
1-14	3.3	2.1	0.8	3.2	2.0	0.8
15-44	2.6	1.7	0.8	1.4	1.1	0.8
45-64	2.1	1.5	0.8	1.3	1.1	0.8
65-74	2.6	1.7	0.8	1.5	1.1	0.8
75-84	2.1	1.4	0.7	1.5	1.1	0.7
85-89	1.5	1.0	0.5	1.0	0.8	0.5
90-94	1.0	0.7	0.4	0.5	0.5	0.4
95+	0.2	0.2	0.3	0.1	0.2	0.3

The projected mortality rates in Table 24 indicate a continuous decrease in mortality rates over the long term. For example, the mortality rate at age 65 for males is expected to decrease from about 12 deaths per thousand people in 2010 to about 7 deaths per thousand people by 2050. The gap in mortality rates between males and females is also expected to decrease over the projection period.



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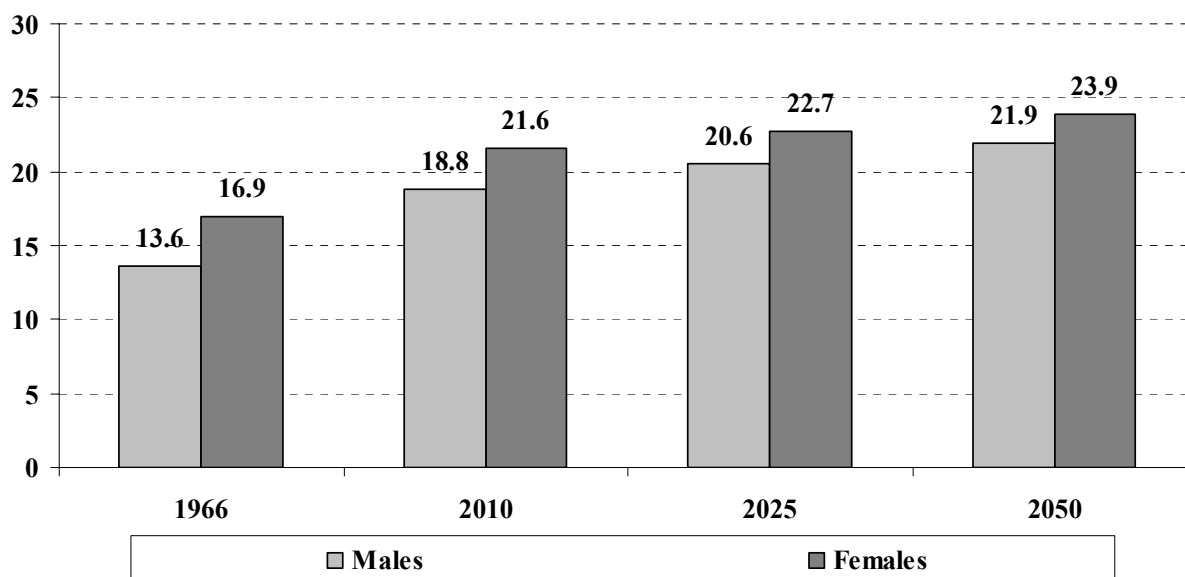
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Table 24 Mortality Rates for Canada
(annual deaths per 1,000 people)

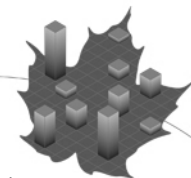
Age	Males			Females		
	2010	2025	2050	2010	2025	2050
0	5.22	4.31	3.51	4.45	3.77	3.08
10	0.09	0.06	0.05	0.07	0.05	0.04
20	0.77	0.58	0.47	0.32	0.27	0.22
30	0.69	0.50	0.40	0.35	0.28	0.23
40	1.31	1.01	0.82	0.81	0.68	0.55
50	3.23	2.57	2.08	2.12	1.79	1.46
60	7.75	5.86	4.74	4.95	4.13	3.36
65	12.29	9.07	7.32	7.97	6.61	5.38
70	19.50	14.47	11.68	12.85	10.63	8.65
75	31.79	24.26	19.90	20.90	17.35	14.33
80	53.64	42.04	34.90	35.63	29.64	24.71
85	92.49	75.91	65.09	65.20	56.22	48.38
90	154.42	134.14	119.45	119.52	109.05	97.48
100	333.59	317.33	294.26	304.69	297.01	275.93

Chart 4 Life Expectancies at Age 65 for Canada⁽¹⁾



(1) These are calendar year life expectancies based on the mortality rates of the given year.

Chart 4 shows the historical and projected life expectancies at age 65 since 1966, based on each given year's mortality rates (i.e. without future mortality improvements). Table 25 shows the projected Canadian life expectancies at various ages for the specified calendar years, also based on each given year's mortality rates (without future improvements). Table 26 is similar to Table 25, the only difference being that it takes into account the assumed mortality improvements after the specified calendar years (with future



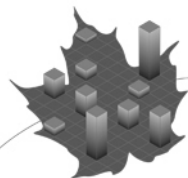
improvements). Given the continuing trend in increased longevity, Table 26 is considered to be more realistic than Table 25.

From 2010 to 2050, Canadian life expectancy at birth (with assumed future mortality improvements) is projected to grow from 85.4 to 88.1 years for males and from 88.3 to 90.5 years for females, as shown in Table 26. A narrowing of the gap between male and female life expectancies at birth has been observed over the last 30 years in Canada due to mortality improvement rates for males being higher than for females. The yearly increase in life expectancies in the early years of the projection reflects the significant increase observed over the last 30 years. Thereafter, there is a projected slowdown in the increase in life expectancies consistent with the lower rate of improvement in mortality assumed for years 2031 and thereafter.

Table 25 Life Expectancies for Canada, without improvements after the year shown⁽¹⁾

Age	Males			Females		
	2010	2025	2050	2010	2025	2050
0	79.3	81.9	83.7	83.5	85.0	86.6
10	69.8	72.3	74.1	73.9	75.4	76.9
20	60.0	62.5	64.2	64.0	65.5	67.0
30	50.4	52.8	54.5	54.2	55.6	57.1
40	40.8	43.1	44.8	44.4	45.8	47.3
50	31.5	33.7	35.3	35.0	36.3	37.7
60	22.8	24.8	26.2	25.9	27.1	28.4
65	18.8	20.6	21.9	21.6	22.7	23.9
70	15.1	16.6	17.7	17.6	18.6	19.6
75	11.6	12.9	13.9	13.8	14.7	15.5
80	8.7	9.6	10.4	10.4	11.0	11.8
85	6.2	6.9	7.4	7.4	7.8	8.4
90	4.3	4.7	5.1	5.1	5.3	5.7
100	2.2	2.3	2.5	2.4	2.5	2.7

(1) These are calendar year life expectancies based on the mortality rates of the given attained year.



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Table 26 Life Expectancies for Canada, with improvements after the year shown⁽¹⁾

Age	Males			Females		
	2010	2025	2050	2010	2025	2050
0	85.4	86.5	88.1	88.3	89.2	90.5
10	75.3	76.3	77.8	78.2	79.0	80.3
20	64.8	65.8	67.4	67.7	68.6	69.9
30	54.5	55.5	57.1	57.3	58.2	59.5
40	44.2	45.2	46.7	46.9	47.8	49.2
50	34.2	35.2	36.7	36.9	37.7	39.1
60	24.7	25.8	27.1	27.2	28.1	29.3
65	20.2	21.3	22.6	22.6	23.5	24.6
70	16.1	17.1	18.2	18.3	19.1	20.1
75	12.3	13.3	14.2	14.3	15.0	15.9
80	9.0	9.8	10.6	10.6	11.2	12.0
85	6.4	7.0	7.5	7.5	8.0	8.5
90	4.4	4.8	5.2	5.1	5.4	5.8
100	2.2	2.3	2.5	2.4	2.5	2.7

(1) These are cohort life expectancies that take into account future assumed improvements in mortality and therefore differ from calendar year life expectancies, which are based on the mortality rates of the given attained year.

D. Net Migration

Immigration and emigration are generally recognized as being volatile parameters of future population growth, since they are subject to a variety of demographic, economic, social, and political factors. During the period from 1972 to 2009, annual immigration to Canada varied from 84,000 to 267,000, annual emigration from Canada fluctuated between 40,000 and 84,000, and the annual numbers of returning Canadians fluctuated between 14,000 and 39,000. Chart 5 shows the net migration (immigration less emigration, plus the number of returning Canadians) experience since 1972 and the assumed rate for the future.

Based on a continuation of the average experience over the last 30 years (0.53%), the net migration rate is assumed to decrease over the period 2009 to 2014 from 0.61% to 0.53% of the population. The rate is assumed to remain at 0.53% from 2014 to 2018. From 2019 to 2023, the rate is then assumed to gradually increase from 0.53% to 0.58% to take into account a possible labour shortage resulting from the retirement of the baby boom generation. Finally, from 2023 onward, the rate is assumed to remain at 0.58%. The ultimate level of 0.58% reflects the average experience observed over the last 15 years.

The distributions of immigrants, emigrants, and returning Canadians by age and sex used for the demographic projections were derived from Statistics Canada data averaged over the period 2004 to 2008.

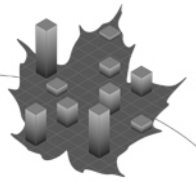
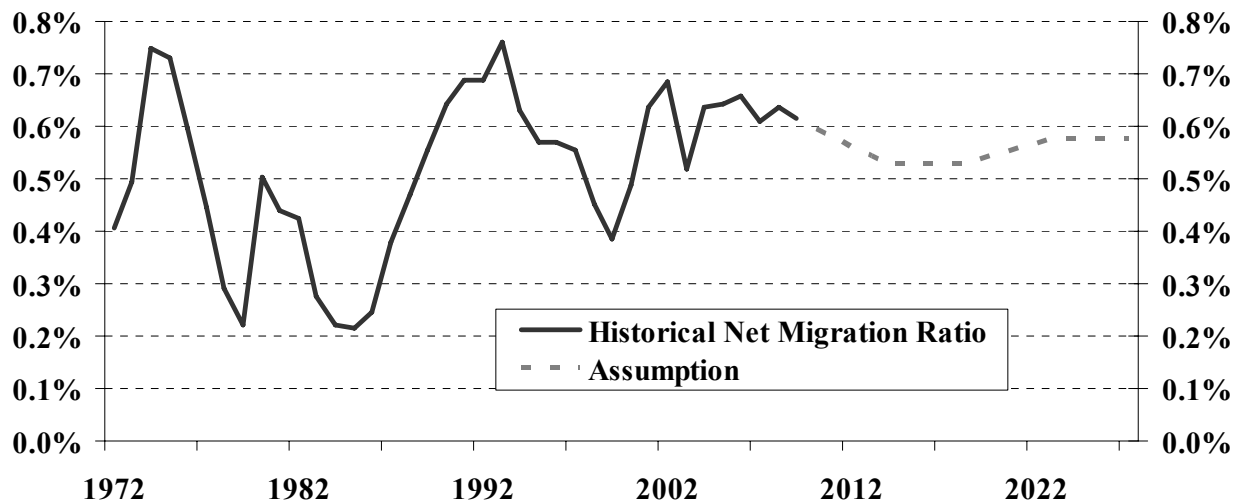
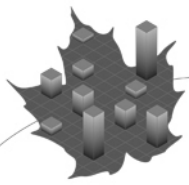


Chart 5 Net Migration as % of Population for Canada



E. Projected Population and its Characteristics

The evolution of the Canadian population age distribution since 1966 is shown in Chart 6. One can easily observe that the triangular shape of the 1960s has become more rectangular over time. This is projected to continue and indicates an aging population. The effects of the baby boom and baby bust can be seen. The chart also reveals that the population aged 85 and over is expected to increase dramatically over the next 40 years.

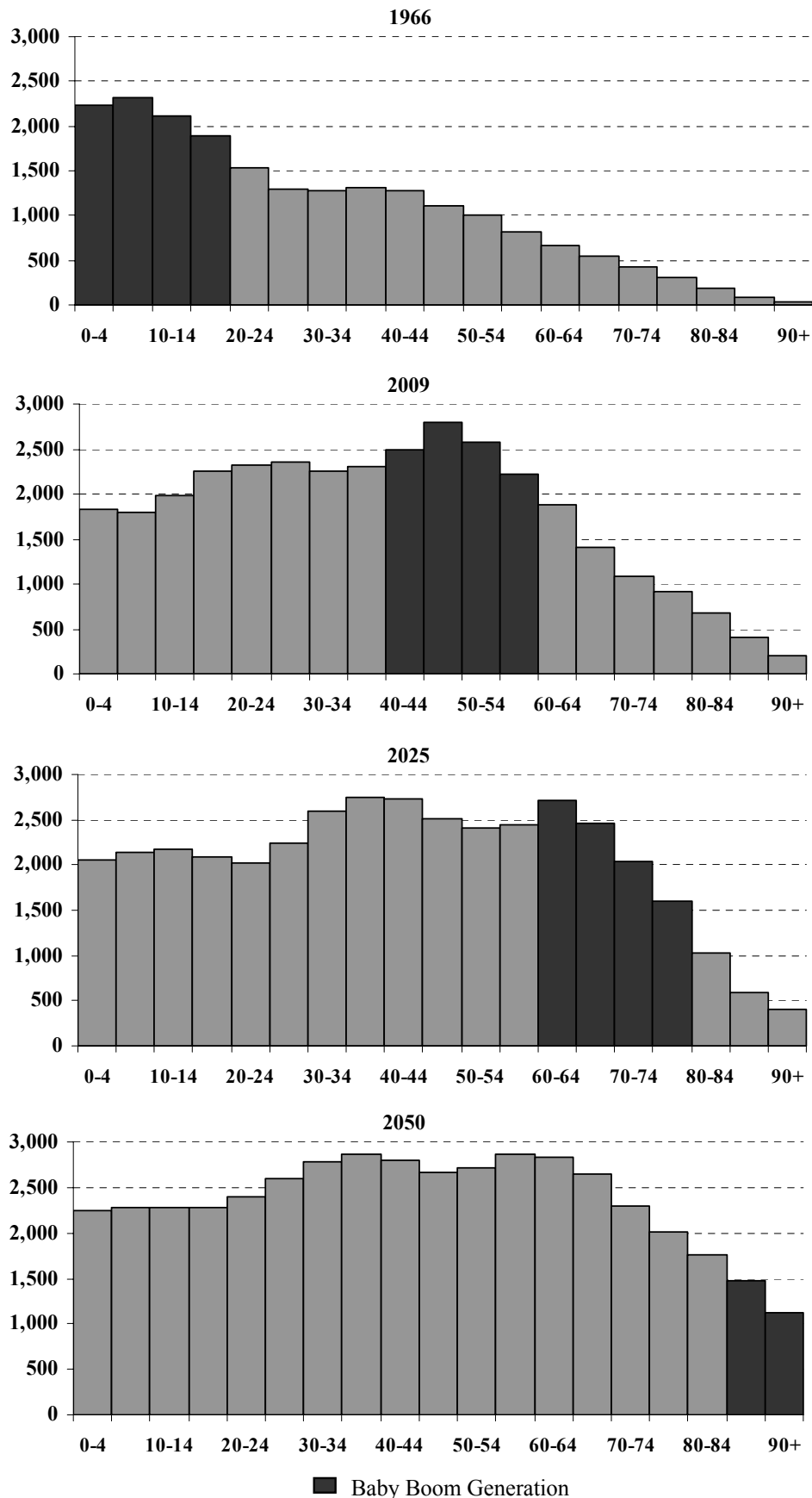


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Chart 6 Population Distribution of Canada
(thousands)



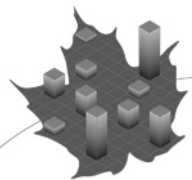


The population of Canada as at 1 July 2009 is 33.7 million. Table 27 presents the projected population of Canada as at 1 July for selected years. The population reaching age 65 in any given year is representative of the expected number of new OAS beneficiaries coming into pay each year, and this population is expected to increase by over 60% over the next 20 years, growing from 322,000 in 2010 to 526,000 in 2030. Chart 7 shows the evolution of the total population for Canada and of those aged 20 to 64 from 1975 to 2060.

Table 28 shows the variations in the relative size of various age groups throughout the projection period. The proportion of people aged 65 and over is expected to almost double from 14% in 2010 to 26% by 2060. The number of people aged 65 and over as a proportion of the number of people aged 20 to 64 more than doubles over the same period, from about 23% to 49% by 2060. This proportion significantly affects the ratio of OAS Program benefits to GDP.

Table 27 Population of Canada by Age
(thousands)

Year	0-17	18-69	70+	0-19	20-64	65+	Total	Reaching Age 65
2010	6,912	23,821	3,355	7,830	21,432	4,825	34,088	322
2011	6,912	24,077	3,443	7,809	21,645	4,979	34,433	342
2012	6,923	24,312	3,537	7,802	21,789	5,182	34,773	395
2013	6,938	24,523	3,645	7,806	21,921	5,380	35,107	394
2014	6,964	24,711	3,760	7,819	22,042	5,573	35,435	395
2015	7,006	24,879	3,878	7,838	22,154	5,771	35,763	403
2020	7,339	25,347	4,708	8,112	22,414	6,868	37,393	474
2025	7,656	25,679	5,670	8,476	22,403	8,125	39,004	519
2030	7,751	25,964	6,747	8,649	22,441	9,373	40,462	526
2040	7,776	26,856	8,243	8,715	23,627	10,535	42,876	472
2050	8,160	28,086	8,665	9,080	24,512	11,318	44,911	553
2060	8,594	28,829	9,431	9,577	25,082	12,196	46,854	551



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Chart 7 Population of Canada
(millions)

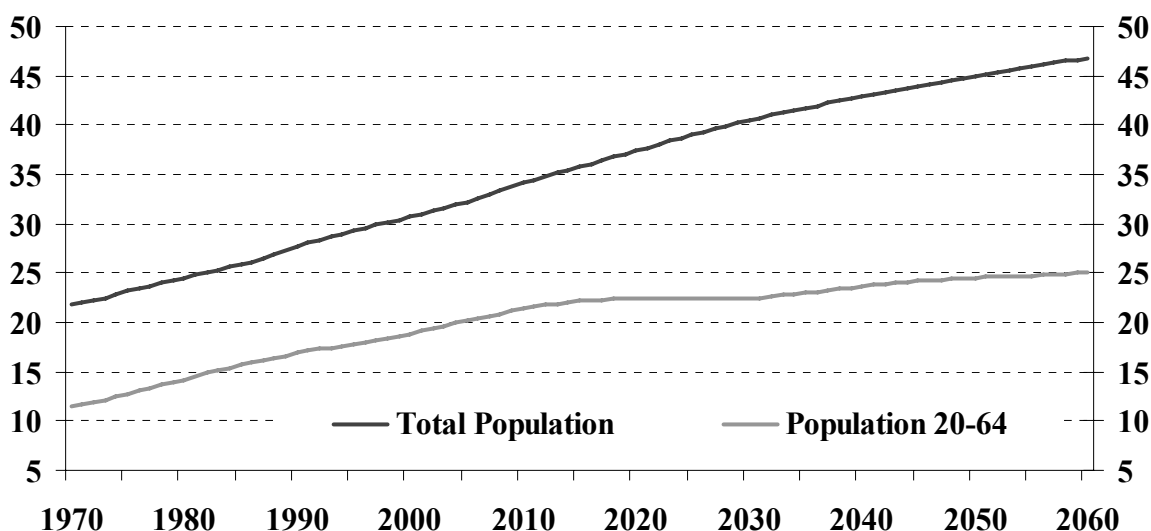


Table 28 Analysis of Population of Canada by Age

Year	% of Total Population			% of Total Population			Ages 65+ as % of Age 20-64
	Ages 0-17	Ages 18-69	Ages 70+	Ages 0-19	Ages 20-64	Ages 65+	
2010	20.3	69.9	9.8	23.0	62.9	14.2	22.5
2011	20.1	69.9	10.0	22.7	62.9	14.5	23.0
2012	19.9	69.9	10.2	22.4	62.7	14.9	23.8
2013	19.8	69.9	10.4	22.2	62.4	15.3	24.5
2014	19.7	69.7	10.6	22.1	62.2	15.7	25.3
2015	19.6	69.6	10.8	21.9	61.9	16.1	26.0
2020	19.6	67.8	12.6	21.7	59.9	18.4	30.6
2025	19.6	65.8	14.5	21.7	57.4	20.8	36.3
2030	19.2	64.2	16.7	21.4	55.5	23.2	41.8
2040	18.1	62.6	19.2	20.3	55.1	24.6	44.6
2050	18.2	62.5	19.3	20.2	54.6	25.2	46.2
2060	18.3	61.5	20.1	20.4	53.5	26.0	48.6

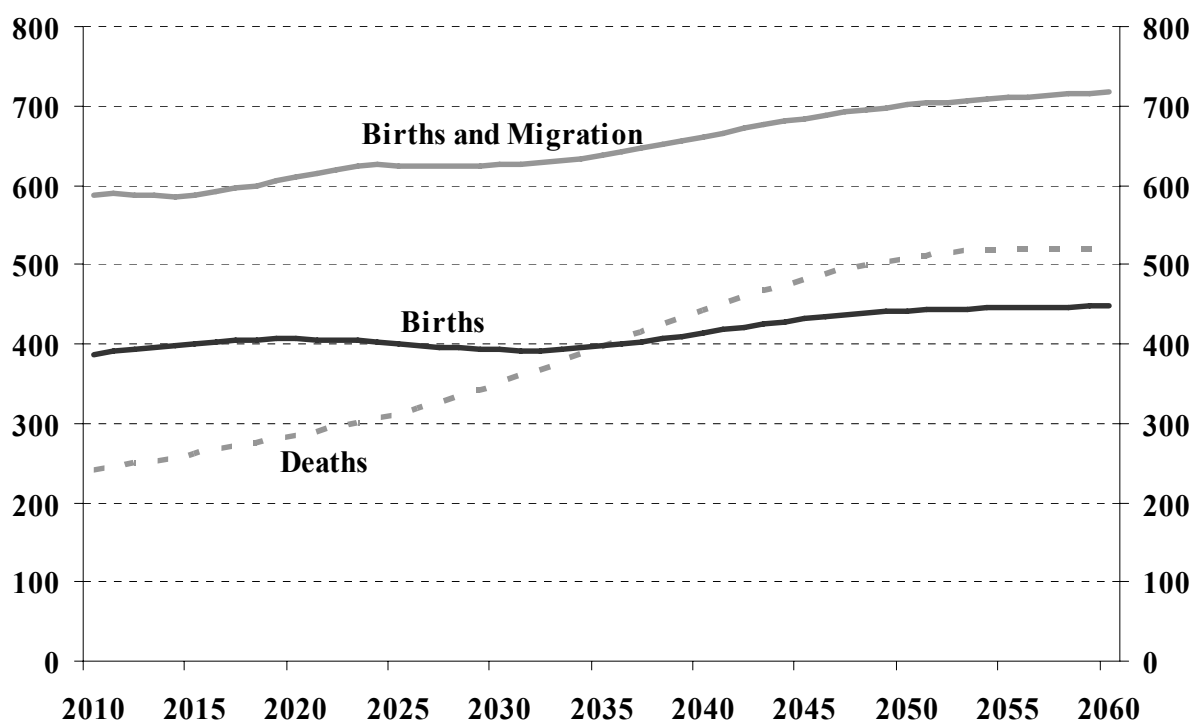
Table 29 shows the components of population growth, which is defined by the projected number of births plus net migrants less the projected number of deaths from 2010 to 2060, and Chart 8 presents these figures graphically for the next 50 years. Over the period 2010 to 2020, the population of Canada is projected to grow at about 0.9% per year. The annual growth slows to about 0.7% between 2020 and 2040 and to about 0.4% thereafter. The population of Canada is expected to reach 46.9 million by 2060.

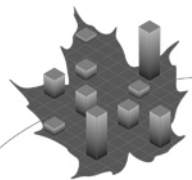


Table 29 Births, Net Migrants and Deaths for Canada
(thousands)

Year	Population 1 st July	Births	Net Migrants	Deaths	Change in Population	Annual Percentage Change		
						20-64	65+	Total
						(%)	(%)	(%)
2010	34,088	391	198	244	345	1.0	3.2	1.0
2011	34,433	393	195	248	340	0.7	4.1	1.0
2012	34,773	396	191	252	334	0.6	3.8	1.0
2013	35,107	398	187	256	328	0.6	3.6	0.9
2014	35,435	400	188	261	328	0.5	3.5	0.9
2015	35,763	402	190	265	327	0.4	3.5	0.9
2020	37,393	406	210	289	327	0.0	3.5	0.9
2025	39,004	398	227	319	306	0.0	3.2	0.8
2030	40,462	392	235	358	269	0.3	1.9	0.7
2040	42,876	417	249	450	216	0.5	0.7	0.5
2050	44,911	443	260	511	193	0.2	0.8	0.4
2060	46,854	449	272	518	203	0.4	0.6	0.4

Chart 8 Components of Population Growth for Canada
(thousands)





III. Economic Projections

The list of assumptions required to project the various economic indices, benefit expenditures, and cost measurement bases is quite extensive. The following sections cover the more important assumptions.

The economic outlook rests on the assumed evolution of the labour market, that is, labour force participation, employment, unemployment, inflation, and the increase in average employment earnings, as well as the increase in GDP. All these factors must be considered together and form part of an overall economic perspective.

The projected expenditures presented in this report are also expressed as cost ratios relative to three different measurement bases, namely total employment earnings, combined CPP/QPP contributory earnings, and the GDP. For this purpose, average employment earnings, the proportion of persons with earnings, and the proportion of CPP contributors are required and are assumed exactly as under the 25th CPP Actuarial Report. For calculation purposes, these measures are assumed to apply to Canada as opposed to Canada less Québec. Adjustments are then made in the projections of total employment earnings, combined CPP/QPP contributory earnings, and the GDP to reflect historical differences between Québec and the rest of Canada.

A. Economic Perspective

The future expenditures of the OAS Program and cost measurement bases depend on many demographic and economic factors. It is important to define the individual economic assumptions in the context of a long-term overall economic perspective. For this report, it is assumed that, despite the recent economic downturn, a moderate but sustainable growth in the economy will persist throughout the projection period.

The actuarial examination of the Program involves the projection of its expenditures as well as cost measurement bases over a long period of time. Although best judgment is used regarding future economic trends, it is nonetheless difficult to anticipate all of the social and economic changes that may occur during the projection period. There will always be a certain degree of uncertainty. The projected aging of the population combined with the retirement of the baby boom generation over the next few decades will certainly create significant social and economic changes. It is possible that the evolution of the working-age population, especially the active population, will be quite different from what has been historically observed and what has been assumed for the purpose of this report.

B. Annual Increase in Prices (Inflation Rate)

The inflation rate assumption is needed to determine the Pension Index for any given calendar year. It is also used in the determination of the annual nominal increase in average employment earnings. Price increases, as measured by changes in the CPI, tend to fluctuate from year to year. Over the last 50 years, the trend was generally upward through the early 1980s and downward since then. For example, the average annual increase in the CPI for the 50, 20 and 10-year periods ending in 2009 were 4.1%, 2.2%, and 2.1%, respectively. Going



forward, the Bank of Canada has reaffirmed its objective of keeping the inflation rate within a target range of 1% to 3% until the end of 2011.

For 2010 to 2016, it is assumed that the Bank of Canada will maintain its inflation target policy. An assumption of 2.0% is set for this period, which corresponds to the average forecast from various economists and falls in the middle of the Bank of Canada target range. On the other hand, the ultimate assumption for price increases for 2019 and thereafter has been set at 2.3%. This is lower than the assumption of 2.5% used in the 8th OAS Actuarial Report but remains higher than the level of inflation that has been experienced over the last decade, and is in the upper part of the current Bank of Canada target range. The main reasons for the choice of an ultimate assumption of 2.3% are as follows:

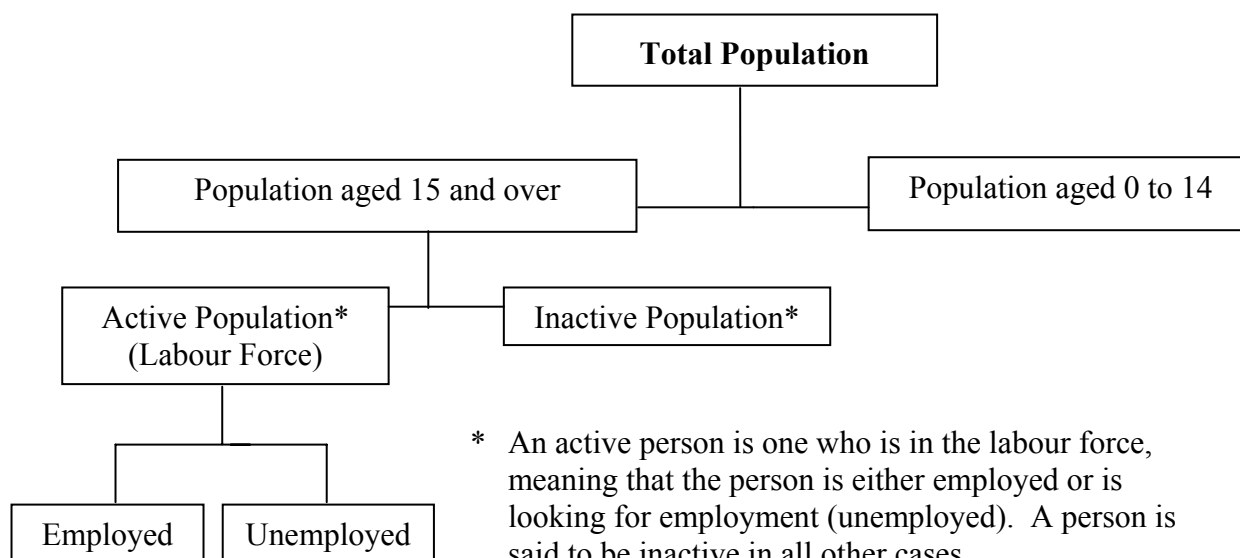
- The Bank of Canada's long-term monetary policy is known only until the end of 2011. When compared to a long-term projection period for the Program, the monetary policy of the Bank of Canada could be viewed as short-term.
- The expected upward pressure on real wages due to a possible labour shortage may create upward pressure on prices.
- There is uncertainty about future energy costs.

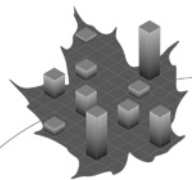
Finally, for years 2017 to 2019 the inflation rate is assumed to increase gradually from 2.0% to 2.3% by increments of 0.1% each year.

C. Labour Market

Chart 9 shows the main components of the labour market that are used to determine the number of earners to calculate the total employment earnings shown in Table 14. The number of earners is defined as the number of persons who had earnings during a given calendar year.

Chart 9 Components of the Labour Market





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1. Active Population

The overall labour force participation rates in Canada (the active population expressed as a proportion of the population aged 15 and over) from 1976 to 2009 clearly show a narrowing of the gap between male and female rates. The increase in the participation rates of females aged 15 to 69 has been significant over the past decades. Male participation rates for those aged 55 and older have partially rebounded in the last decade.

In 1976, overall male participation was at 78% compared to only 46% for females, which represents a gap of 32%. This gap has narrowed to 9% in 2009 with male and female participation at 72% and 63%, respectively. It is assumed that females will continue to narrow the gap in participation rates but at a slower pace, with the gap gradually reducing to about 8% by 2030 and further reducing slightly by 2060. Tables 30 to 32 provide projections of the active and employed populations and associated participation, employment, and unemployment rates for Canada. Over the near term, it is assumed that females aged 50 and over will continue to increase their overall labour force participation compared to previous cohorts.

Table 30 Active Population (Canada, ages 15 and over)

Year	Population ⁽¹⁾			Active Population			Employed		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
	(thousands)			(thousands)			(thousands)		
2010	13,628	14,037	27,665	9,813	8,784	18,597	8,932	8,104	17,035
2011	13,784	14,192	27,977	9,922	8,871	18,793	9,036	8,187	17,222
2012	13,932	14,335	28,267	10,015	8,942	18,956	9,124	8,254	17,377
2013	14,070	14,470	28,540	10,098	9,003	19,101	9,204	8,313	17,517
2014	14,201	14,598	28,799	10,175	9,057	19,232	9,277	8,363	17,640
2015	14,332	14,723	29,056	10,248	9,108	19,356	9,349	8,414	17,763
2020	14,954	15,312	30,266	10,426	9,254	19,680	9,700	8,693	18,393
2025	15,623	15,962	31,586	10,591	9,419	20,010	9,903	8,887	18,790
2030	16,296	16,624	32,920	10,808	9,663	20,471	10,103	9,119	19,222
2040	17,412	17,787	35,200	11,311	10,135	21,446	10,573	9,565	20,138
2050	18,174	18,602	36,775	11,694	10,468	22,163	10,932	9,879	20,811
2060	18,949	19,365	38,313	12,084	10,825	22,909	11,296	10,216	21,512

(1) Adjusted to the basis used by Statistics Canada in its Labour Force Survey.

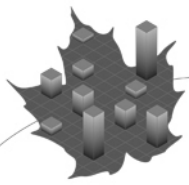
**Table 31 Labour Force Participation Rates (Canada, ages 15 and over)**

Year	Labour Force Participation Rate			Employment Rate			Unemployment Rate		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
		(%)			(%)			(%)	
2010	72.0	62.6	67.2	65.5	57.7	61.6	9.0	7.7	8.4
2011	72.0	62.5	67.2	65.6	57.7	61.6	8.9	7.7	8.4
2012	71.9	62.4	67.1	65.5	57.6	61.5	8.9	7.7	8.3
2013	71.8	62.2	66.9	65.4	57.4	61.4	8.9	7.7	8.3
2014	71.6	62.0	66.8	65.3	57.3	61.3	8.8	7.7	8.3
2015	71.5	61.9	66.6	65.2	57.1	61.1	8.8	7.6	8.2
2020	69.7	60.4	65.0	64.9	56.8	60.8	7.0	6.1	6.5
2025	67.8	59.0	63.4	63.4	55.7	59.5	6.5	5.6	6.1
2030	66.3	58.1	62.2	62.0	54.9	58.4	6.5	5.6	6.1
2040	65.0	57.0	60.9	60.7	53.8	57.2	6.5	5.6	6.1
2050	64.3	56.3	60.3	60.2	53.1	56.6	6.5	5.6	6.1
2060	63.8	55.9	59.8	59.6	52.8	56.1	6.5	5.6	6.1

Table 32 Labour Force Participation Rates (Canada)

Age Group	Males				Females			
	2010	2015	2030	2050	2010	2015	2030	2050
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
15-19	52.0	55.0	56.0	56.0	54.8	58.0	59.0	59.0
20-24	79.4	81.5	83.0	83.0	75.9	77.0	80.0	80.0
25-29	90.1	91.5	93.0	93.0	82.1	83.0	86.0	86.0
30-34	91.8	93.0	94.0	94.0	82.0	82.5	85.0	85.0
35-39	92.7	93.7	94.0	94.0	82.0	83.0	86.0	86.0
40-44	92.0	93.0	94.0	94.0	83.9	85.0	87.0	87.0
45-49	90.9	92.0	94.0	94.0	84.2	85.0	87.0	87.0
50-54	88.4	89.0	91.0	91.0	79.7	81.0	84.0	84.0
55-59	76.7	78.0	80.0	80.0	67.2	68.0	70.0	70.0
60-64	57.5	58.0	58.0	58.0	43.8	44.0	44.0	44.0
65-69	29.0	29.0	29.0	29.0	16.0	16.0	16.5	16.5
70 and Over	8.3	8.3	8.5	8.5	2.9	3.0	3.0	3.0
15-69	79.0	79.5	79.0	79.1	70.9	70.8	71.5	71.5
15 and Over	72.0	71.5	66.3	64.3	62.6	61.9	58.1	56.3

The aging of the population exerts downward pressure on the overall labour force participation rate in Canada. The overall participation rate from Table 31 would fall from 67.2% in 2010 to 58.0% in 2050, instead of 60.3%, if current participation rates by age and sex were to apply throughout the projection period. This can be explained by the projected increase in the proportion of people aged 55 to 69 exceeding the recent increase in participation in this age group, as well as the projected increase in the proportion of people aged 70 and over. A reduction in the overall participation rates is inevitable under these circumstances. To recognize this particular demographic trend, the projection period for purposes of projecting the participation rates has been divided into three periods: 2010 to 2015, 2015 to 2030, and from 2030 onward.



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Individuals of the baby boom generation who were born between 1945 and 1955 and are presently active will be aged 55 to 70 within the period 2010 to 2015. This cohort, which is much more active compared to same-aged cohorts of past generations, will continue to put upward pressure on the participation rate for the age group 55 to 64. It is projected that by 2015 the labour force participation rate of this age group (55 to 64) will increase slightly from its current level. Nonetheless, the assumed increase in the participation rate for this age group, and more generally for those aged 50 and over, is not sufficient to offset the decrease in the overall participation rate due to the demographic shift. As the population ages and labour shortages possibly arise, the participation rates for people under the age of 55 are also assumed to increase. However, it is also expected that these gains in participation rates will be offset to some extent by productivity increases by way of increases in employment earnings. Overall, this results in labour force participation rates for those aged 15 to 69 of 79.5% and 70.8% for males and females, respectively in 2015.

From 2015 to 2030, the baby boomers born between 1955 and 1965, who are more numerous than the older baby boomers, will be reaching the ages of 50 to 75. The first generation of boomers (1945 to 1955) will have mostly retired and will create downward pressure on the overall participation rate. It is thus assumed that those aged 55 to 64 during this period will participate more because of increased employment opportunities due to a possible labour shortage. This change in work patterns might be expected since this generation of workers is more adaptable, flexible, and better educated to prolong their work life. Since the early 1990s, young individuals under the age of 35 have entered the labour force later mainly due to longer schooling. For this reason, a later exit could be expected from the labour force. It is thus assumed that participation rates for those less than age 55 will increase. As for the previous period, it is also expected that during 2015 to 2030, the gains in participation rates will be partially offset by productivity increases through increases in employment earnings. Overall, this results in labour force participation rates for those aged 15 to 69 of 79.0% and 71.5% for males and females, respectively in 2030.

From 2030 onward, the participation rates are kept constant. This, combined with a slow growth in the working-age population, results in a low rate of growth of approximately 0.4% for the active population (that is, the labour force).

2. Employment

In Canada, the average annual job creation rate (that is, the change in the number of employed) has been about 1.7% since 1976. However, this rate has varied over the years. It is assumed that the job creation rate will be 1.1% in 2010, based on the most recent experience and various economic forecasts. It is further assumed that the job creation rate over the short term will be slightly higher than the labour force growth rate, so that the unemployment rate slowly decreases from its 2009 level of 8.3%.

Over the long term, the job creation rate is assumed to decrease gradually to the same growth rate as for the labour force of 0.4%. It is assumed that the unemployment rate will be slightly lower than in the 8th OAS Program Actuarial Report, reaching 6.1% by 2022 and remaining at that level thereafter.



Table 33 shows the projected number of employed persons, aged 18 to 69, in Canada.

Table 33 Employment of Population (Canada, ages 18 to 69)

Year	Population		Employed		Employment Rate	
	Males	Females	Males	Females	Males	Females
	(thousands)		(thousands)		(%)	
2010	11,932	11,889	8,607	7,820	72.1	65.8
2011	12,058	12,019	8,710	7,904	72.2	65.8
2012	12,173	12,139	8,797	7,972	72.3	65.7
2013	12,278	12,246	8,876	8,033	72.3	65.6
2014	12,369	12,342	8,946	8,084	72.3	65.5
2015	12,453	12,426	9,016	8,136	72.4	65.5
2020	12,689	12,658	9,324	8,402	73.5	66.4
2025	12,861	12,817	9,461	8,555	73.6	66.7
2030	13,005	12,959	9,596	8,751	73.8	67.5
2040	13,436	13,421	10,002	9,167	74.4	68.3
2050	14,035	14,050	10,351	9,482	73.7	67.5
2060	14,396	14,434	10,661	9,787	74.1	67.8

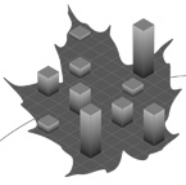
3. Number of Earners

The number of earners for any given year, namely anyone who had employment earnings during the year, is always more than the employed population and sometimes even close to the labour force, because it includes all individuals who had earnings at any time during the year, whereas the employed population only indicates the average number of employed in any given year. The projected number of earners is obtained by a regression based on a highly correlated historical relationship between the number of employed persons and the number of earners over the period 1976 to 2007.

D. Rate of Increase in Average Annual Employment Earnings

The assumed increase in average annual employment earnings (AAE) is used to project the total employment earnings, while the assumed increase in average weekly earnings (AWE) is used to project the increase in the Year's Maximum Pensionable Earnings (YMPE) from one year to the next, which serves to determine the CPP/QPP contributory earnings basis. The difference between real increases in the AWE and the AAE has been relatively small over the period from 1966 to 2008; that is, an absolute difference of approximately 0.08% per year. For several years in the 1990s, this difference was more pronounced; however, the real increases in AWE and AAE have shown a tendency to converge toward each other over time. Taking these factors into consideration, the real increases in AWE and AAE are assumed to be the same for 2010 and thereafter.

The real-wage differential has fluctuated significantly from year to year. For example, the five-year average real-wage differential, as measured by the difference between the increase in the nominal AWE and the CPI, was -0.4% for the period ending in 2004, while it was 1.2% for the period ending in 2009. The average real-wage differential averaged 0.9% for the 45-year period ending in 2009.



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The real-wage differential can also be measured using the difference between the increase in the nominal average wage and the CPI. Historically, the nominal average wage increase has been similar to the nominal AAE increase, and therefore it is assumed that they can be used interchangeably.

The growth in the real-wage differential is related to the growth in total labour productivity, which could be approximated as follows:

Real-Wage Differential = Growth in Labour Productivity + Growth in Compensation Ratio + Growth in Earnings Ratio + Growth in Average Hours Worked + Growth in Price Differential.

In addition to the factors included in the above equation, labour demand has a significant impact on real-wage increases. Real wages are subject to downward pressure as the demand for workers decreases. On the other hand, one could expect upward pressure on wages if the size of the labour force fails to keep pace with a growing economy.

Labour productivity in the above equation is defined as the ratio of the real GDP to total hours worked in the Canadian economy. The average annual growth in labour productivity was 1.74% for the 47-year period ending in 2008 and 0.79% for the 8-year period ending in 2008. It is assumed that a possible labour shortage from the retirement of the baby boom generation could result in higher labour productivity. Labour productivity growth of 1.5% is assumed in the long term.

The compensation ratio is the ratio of the total compensation received by workers to the nominal GDP. The compensation ratio has decreased on average by 0.14% per year for the 47-year period ending 2008 with a more significant decrease between 1989 and 2000 (an average decrease of 0.48% per year). However, during the more recent eight-year period ending in 2008, the trend reversed with an average increase in the compensation ratio of 0.12% per year. It is assumed that there will be no growth in the compensation ratio over the long term.

The earnings ratio is the ratio of total workers' earnings, defined as the sum of total wages, salary disbursements, and total self-employment earnings to total compensation. The historical decline in the earnings ratio (0.18% per year from 1962 to 2008 and 0.21% per year from 2001 to 2008) has been primarily due to the faster growth in supplementary labour income, such as pension plan contributions, health benefits, and Employment Insurance, compared to earnings. Based on the historical trend, it is assumed that the long-term earnings ratio will decline by 0.2% per year.

Average hours worked is defined as the ratio of total hours worked to total employment in the Canadian economy. The average annual growth rate for average hours worked was -0.36% over the 47-year period ending in 2008 and -0.29% over the 8-year period ending in 2008. In the future, the assumed steady increases in productivity could continue to apply negative pressure on average hours worked. At the same time, the assumed future increases in life expectancy and a possible labour shortage could raise the labour force participation rates for older workers and may also increase average hours worked. It is assumed that the average



hours worked will continue to decrease but at a slower pace of 0.1% per year over the long term.

Finally, the price differential is the ratio of the GDP deflator to the CPI. Including this ratio is necessary because labour productivity is expressed in real terms by using real GDP, while current dollar earnings are converted to real earnings using the CPI. The average annual growth in the price differential was 0.14% between 1961 and 2008 and 0.43% between 2000 and 2008. However, between 2003 and 2006, the price differential grew by approximately 0.9% per year as a direct consequence of rising commodity prices. It is assumed that the long-term increase in the price differential will be 0.1% per year.

The result of the foregoing discussion is that the assumed real-wage differential increase is 1.30% per year over the long term. Table 34 summarizes the historical information and the assumptions described above.

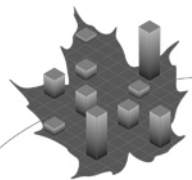
Table 34 Real-Wage Differential Growth and Related Components

	1961-2008 Average	2000-2008 Average	Long-Term Assumption
Labour Productivity Growth	1.74%	0.79%	1.50%
+ Compensation Ratio Growth	(0.14%)	0.12%	0.00%
+ Earnings Ratio Growth	(0.18%)	(0.21%)	(0.20%)
+ Average Hours Worked Growth	(0.36%)	(0.29%)	(0.10%)
+ Price Differential Growth	0.14%	0.43%	0.10%
Real-Wage Differential Growth	1.20%	0.84%	1.30%

The short-term real-wage differential assumption takes into account the recent economic downturn. As a result, the real-wage differential with respect to both the AWE and AAE is assumed to gradually increase from 0.0% in 2010 to 1.3% by 2019. This is consistent with the assumption that the economy will gradually return to a moderate level of growth. The long-term real-wage differential of 1.3% is consistent with the average of various economic forecasts and the upward pressure on real wages due to a possible labour shortage. Table 35 shows the assumptions regarding the annual increases in prices, real AAE, and real AWE.

Table 35 Inflation, Real AAE and AWE Increases

Year	Price Increases	Real Average Annual Earnings (AAE)	Real Average Weekly Earnings (AWE)
	(%)	(%)	(%)
2010	2.0	0.0	0.0
2011	2.0	0.3	0.3
2012	2.0	0.6	0.6
2013	2.0	0.7	0.7
2014	2.0	0.8	0.8
2015	2.0	0.9	0.9
2016	2.0	1.0	1.0
2017	2.1	1.1	1.1
2018	2.2	1.2	1.2
2019+	2.3	1.3	1.3



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E. Total Employment Earnings

Total employment earnings were obtained by applying the Canada less Québec proportion of earners and average employment earnings (both as determined under the 25th CPP Actuarial Report) to the entire population of Canada. Total employment earnings estimated were compared with historical statistics from Statistics Canada of total employment earnings for Canada. The estimates are on average for 2001 to 2010 about 0.5% lower than the corresponding experience data. For this reason projected employment earnings for Canada have been multiplied by an experience adjustment factor, which is graded from its 2009 actual-to-expected ratio to the ultimate level over five years. The ultimate factor of 100.5% corresponds to the actual-to-expected ratio over the most recent ten years.

F. Combined CPP and QPP Contributory Earnings

Combined CPP and QPP contributory earnings were obtained by applying the CPP proportion of contributors and average contributory earnings (both as determined under the 25th CPP Actuarial Report) to the entire population of Canada. Total contributory earnings were then compared to actual combined CPP and QPP contributory earnings for 1966 to 2009. Such validation reveals that, on average, this approach produces combined contributory earnings about 2.5% higher than the actual figures. For this reason, projected contributory earnings for Canada have been multiplied by an experience adjustment factor, which is graded from the 2009 actual-to-expected ratio to the ultimate level over five years. The ultimate factor of 97.5% corresponds to the actual-to-expected ratio over the most recent ten years.

G. Gross Domestic Product

The GDP is perhaps the most suitable basis for a comparison of costs since benefits are financed through general revenues and not on the basis of employment earnings. Historical GDP was compared to historical total employment earnings from 1966 to 2009 and was found to be about 2.1 times as much. For this reason GDP was projected as total employment earnings multiplied by an experience adjustment factor and further adjusted by a price differential. Including a price differential is necessary because total earnings are expressed in nominal terms by using the CPI, while the nominal GDP is expressed in terms of the GDP deflator. An ultimate experience adjustment factor of 2.2 is equal to the average ratio of GDP to total employment earnings over the most recent five years. This experience adjustment factor is graded from its 2009 level of 2.1 to the ultimate level of 2.2 by 2014, and the price differential is assumed to be equal to 0.1% per year starting in 2011.

IV. Recipient Rates and Distribution by Level of Benefit

Since benefits are computed for age-sex cohorts as opposed to individuals, recipient rates by age, sex, type and level of benefit are required. Data from Service Canada for each type of benefit consist of the number of beneficiaries as at June of each year (1983 to 2010) by sex, age and six levels of benefit as a percentage of the maximum benefit (0-19%, 20-39%, 40-59%, 60-79%, 80-99%, and 100% and over). Service Canada also provided statistics on individual beneficiaries as at 31 December for each year from 2001 to 2010 and as at 31 July



for 2010. The actual recipient rates in each of the cells described above are obtained by dividing the number of beneficiaries in each cell by the relevant population of Canada. The data include benefits paid outside Canada.

A. Basic Pension

The historical recipient rates of sex-distinct cohorts for the basic pension were studied to determine the best-estimate assumption. The ultimate basic pension recipient rates are set equal to the projected recipient rates for the cohort reaching age 65 in 2010. The assumed evolution of recipient rates from age 65 to ages 90 and over for the cohort aged 65 in 2010 is based on historical trends in the increase in recipient rates from one age to the next as observed for cohorts that have reached age 65 prior to 2010. Each cohort reaching age 65 after 2010 is assumed to experience the same recipient rates by age as those assumed for the cohort aged 65 in 2010.

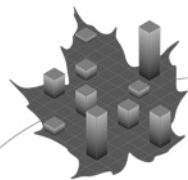
Recipient rates for cohorts aged 66 and over in 2010 are projected from their 2009 adjusted values up to ages 90 and over using the age-to-age increases based on the experience over the last 5 years. This approach is applied to both domestic and international recipient rates separately and produces basic pension recipient rates that increase from one age to the next for any given cohort.

The ultimate recipient rates for cohorts reaching age 65 in 2010 and thereafter are assumed to increase from 91.5% at age 65 to 102.8% at ages 90 and over for males and from 92.9% at age 65 to 101.5% at ages 90 and over for females. It is worth noting that basic pension recipient rates include benefits paid outside Canada and as such, can exceed 100%. For example, the recipient rates for the basic pension benefit paid outside of Canada were about 2.2% for males and 1.3% for females in 2010. These percentages are expected to increase over the projection period. Table 36 presents the projected basic pension recipient rates by age and sex for cohorts reaching age 65 in 2010 and thereafter.

Table 36 Basic Pension Recipient Rates by Age (%)

Age	Cohort Reaching Age 65 in 2010 and Thereafter	
	Males	Females
65	91.5	92.9
66	95.8	95.7
67	97.3	96.7
68	98.2	97.4
69	98.8	97.9
70	99.5	98.4
75	101.6	100.0
80	102.6	100.9
85	102.8	101.4
90+	102.8	101.5

The basic pension recipient rates by age and sex were further broken down by level of benefit using distributions of recipient rates by level of benefit, expressed as a percentage of the maximum benefit (based on number of years of residence in Canada). The historical



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distributions by level of benefit were derived based on individual OAS beneficiary data as at 31 December of each year over the period 2001 to 2009.

The distribution by level of benefit at age 65 is projected from its actual value in 2009 to year 2017 using historical trends by years of residence over the period 2001 to 2009. The projected distribution takes into account the introduction of partial benefits in 1977, which are to take full effect in 2017. The age 65 distribution projected to 2017 is assumed to apply thereafter.

For any given cohort reaching age 65 on or after 2017, the distributions by level of benefit for ages 66 and over are projected based on historical data that reveal that, for any given cohort, there is a large proportion of beneficiaries coming into pay after age 65 that has only a small number of years of residence and thus receive partial benefits. As a result, as a cohort progresses in age the proportion of beneficiaries receiving a full pension is assumed to decrease while the proportion of beneficiaries receiving a partial benefit is assumed to increase. Finally, the distributions for cohorts aged 66 and over in 2010 are linearly interpolated from their actual values in 2009 to their ultimate values. Table 37 shows the evolution of male and female recipient rates by level of benefit.

Table 37 Basic Pension Recipient Rates by Age, Sex and Level of Benefit (%)

Age	Cohort Reaching Age 65 in								
	2010			2025			2050		
	Level of Benefit:			Level of Benefit:			Level of Benefit:		
	Partial	Full	Total	Partial	Full	Total	Partial	Full	Total
Males									
65	5.9	85.6	91.5	7.8	83.7	91.5	7.8	83.7	91.5
70	10.7	88.8	99.5	13.1	86.4	99.5	13.1	86.4	99.5
75	13.0	88.6	101.6	15.3	86.3	101.6	15.3	86.3	101.6
80	14.9	87.7	102.6	17.1	85.5	102.6	17.1	85.5	102.6
85	16.1	86.7	102.8	18.3	84.5	102.8	18.3	84.5	102.8
90+	16.6	86.2	102.8	18.7	84.1	102.8	18.7	84.1	102.8
All Ages	12.7	87.8	100.5	15.1	85.5	100.6	15.2	85.5	100.7
Females									
65	6.3	86.6	92.9	8.0	84.9	92.9	8.0	84.9	92.9
70	10.4	88.0	98.4	12.3	86.1	98.4	12.3	86.1	98.4
75	12.1	87.9	100.0	14.0	86.0	100.0	14.0	86.0	100.0
80	13.2	87.7	100.9	15.1	85.8	100.9	15.1	85.8	100.9
85	14.0	87.4	101.4	16.0	85.4	101.4	16.0	85.4	101.4
90+	14.2	87.3	101.5	16.3	85.2	101.5	16.3	85.2	101.5
All Ages	11.8	87.7	99.5	13.9	85.7	99.6	14.0	85.7	99.7

The effect of the OAS Recovery Tax after pension income splitting (see section III of Appendix A), is estimated in this report. The OAS Recovery Tax reduces the amount payable for high-income pensioners by a repayment amount deduction. The 8th OAS Program Actuarial Report provided estimates of effects of pension income splitting on the repayment amount for the first time. Experience data from 2008 relating to the repayment amount after pension income splitting, although limited, provide a means of validating the initial estimates and improving upon them. This 9th OAS Program Actuarial Report also



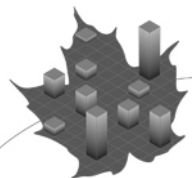
provides estimates of the impacts of the TFSAs on the repayment amount for the first time. However, no historical data relating to TFSAs are available at this point in time, since such accounts were only implemented recently in 2009. As such, the results presented in Tables 38 and 39 should be interpreted with caution. Over time it is expected that these estimates will be further improved upon as more data become available.

The numbers of beneficiaries who are fully or partially affected by the OAS Recovery Tax were estimated from Service Canada and Canada Revenue Agency (CRA) historical data over the period 2006 to 2008. The actual proportions of beneficiaries affected (fully or partially) by the recovery tax in 2009 and thereafter were projected by assuming that each subsequent cohort would be somewhat wealthier than the preceding one. To simulate this, a formula was developed that is a function of each cohort's average career employment earnings (over the ages of 18 to 65) and the inflation rate. The link with inflation is required since the recovery tax income limit has moved in line with inflation since the year 2000.

In 2008, Part 1 of Bill C-50 introduced TFSAs starting from 2009. Investment income earned within TFSAs and any withdrawals made from such accounts are excluded in the determination of the basic pension repayment amount due to the recovery tax. TFSAs could thus result in lower repayment amounts, or equivalently, in higher basic pensions being paid than would be paid otherwise.

For years 2010 and thereafter, the effects of TFSAs on the number of beneficiaries affected by the OAS Recovery Tax and the corresponding change in their basic pensions have been estimated and included in determining the overall impact of the recovery tax.

The proportion of beneficiaries affected by the OAS Recovery Tax is projected to increase from 6.0% in 2010 (2.3% full and 3.6% partial) to 6.7% (2.4% full and 4.2% partial) by 2050. Table 38 presents the projected number and percentage of OAS beneficiaries affected by the recovery tax, which include the impact of TFSAs. Initially, the effect of TFSAs on the repayments amounts is expected to be small given that TFSAs were only recently implemented. However, it is expected that as an increasing number of individuals contribute to TFSAs over time, the projected impact from excluding TFSA-related income will likewise increase. If it were not for TFSAs, there would be an expected 888,000 individuals instead of 750,000 affected by the recovery tax in 2050. In 2050, TFSAs have the effect of reducing the number of individuals subject to a full repayment of their pensions by 67,000 or 0.6% and of reducing the number of individuals subject to a partial repayment by 70,900 or 0.7%.



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Table 38 OAS Beneficiaries Affected by the OAS Recovery Tax⁽¹⁾
(in thousands)

Year	Full Repayment of OAS Pension		Partial Repayment of OAS Pension		Total		
	Number	% All OAS Beneficiaries	Number	% All OAS Beneficiaries	Number ⁽²⁾	% All OAS Beneficiaries	All OAS Beneficiaries
2010	110	2.3	173	3.6	283	6.0	4,732
2011	115	2.3	180	3.7	294	6.0	4,889
2012	121	2.4	188	3.7	310	6.1	5,091
2013	127	2.4	197	3.7	324	6.1	5,289
2014	132	2.4	206	3.8	337	6.2	5,482
2015	137	2.4	214	3.8	351	6.2	5,679
2020	167	2.5	261	3.9	428	6.3	6,782
2025	199	2.5	313	3.9	512	6.4	8,043
2030	230	2.5	363	3.9	593	6.4	9,302
2040	255	2.4	421	4.0	676	6.4	10,507
2050	274	2.4	476	4.2	750	6.7	11,282

(1) After taking into account the effect of pension income splitting and TFSAs.

(2) Components may not sum to totals due to rounding

To estimate the total repayment amount due to the recovery tax, the number of beneficiaries affected by a full repayment of their pensions was further broken down between beneficiaries receiving a full basic pension benefit (98%) and those receiving a partial basic pension benefit (2%). This was also done for beneficiaries affected by a partial repayment and, in this case, 98.9% of beneficiaries receive a full basic pension while 1.1% of beneficiaries receive a partial basic pension.

The impact of the OAS Recovery Tax on total benefits payable is obtained using the projected number of beneficiaries who are affected and the assumed reduction in their average benefit (100% reduction for those with a full repayment and a 38% reduction in benefit for those with a partial repayment). It is estimated that in 2010, the recovery tax will have the effect of reducing the total amount of basic pension benefits payable by about \$978 million or 3.5%. Table 39 presents the projected repayment amounts after taking into account the effect of TFSAs. TFSAs are estimated to reduce the total repayment amount due to the recovery tax by \$1.3 billion in 2050.

**Table 39 Financial Impact of OAS Recovery Tax⁽¹⁾**

Year	Repayment for Those Subject to Full Repayments		Repayment for Those Subject to Partial Repayments		Total Repayment	
	Amount (\$ million)	% of Total OAS Pensions	Amount (\$ million)	% of Total OAS Pensions	Amount ⁽²⁾ (\$ million)	% of Total OAS Pensions
2010	610	2.2	368	1.3	978	3.5
2011	649	2.2	390	1.3	1,039	3.5
2012	700	2.2	417	1.3	1,117	3.6
2013	745	2.2	446	1.3	1,191	3.6
2014	790	2.3	475	1.4	1,265	3.6
2015	838	2.3	504	1.4	1,342	3.6
2020	1,138	2.3	685	1.4	1,822	3.7
2025	1,523	2.3	920	1.4	2,443	3.8
2030	1,968	2.3	1,196	1.4	3,164	3.8
2040	2,749	2.3	1,740	1.5	4,489	3.8
2050	3,700	2.3	2,474	1.5	6,174	3.9

(1) After taking into account the effect of pension income splitting and TFSAs.

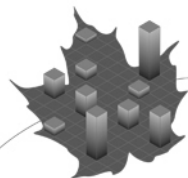
(2) Components may not sum to totals due to rounding.

B. GIS and Allowance

The actual 2010 recipient rates for the GIS and Allowance benefits for each age, sex, type and level of benefit are used as the starting point for determining the best-estimate assumption. The formula used in the projection of GIS and Allowance recipient rates takes into account the assumption that each new cohort of beneficiaries will be somewhat wealthier than the preceding one, and thus a smaller percentage of OAS beneficiaries are expected to become GIS or Allowance beneficiaries over the projection period. The projections also take into account that the newly introduced TFSA will eventually lead to an increase in the number of GIS and Allowance beneficiaries and amount of benefits. However, there are no historical data on TFSAs, since such accounts have only been implemented recently in 2009. As such, the results presented in Table 40 and Charts 10 to 13 should be interpreted with caution. Over time it is expected that these estimates will be further improved upon as more data become available.

For this report, experience adjustment factors were developed to adjust the projection formula so that characteristics and trends of historical recipient rates by age, sex, type and level of benefit observed over the last ten years would be reproduced more closely, while simultaneously incorporating the assumed future impact of TFSAs. The factors were used for the first ten years of the projection period. Given the additive nature of the experience adjustment factors, minimum values of recipient rates were set in order to eliminate the possibility of negative recipient rates. Minimum recipient rates were set by type of benefit in relation to the lowest prevailing recipient rates in the year 2010 at the benefit level category for a given type of benefit.

Initially, the effect of TFSAs on GIS and Allowance benefits is expected to be small given that TFSAs were only recently implemented. However, it is expected that as an increasing number of individuals contribute to TFSAs over time, the projected impact on GIS and



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Allowance benefits will likewise increase. For the cohort reaching age 65 in 2050, excluding the effects of TFSAs, the projected GIS recipient rates at all ages would be 19.6% for males and 26.2% for females as compared to 24.9% and 32.6% for males and females respectively. For Allowance benefits, the projected effect of TFSAs is much smaller.

The change in the assumed distribution by level of benefit is also automatically taken into account by the formula as is the increasing pattern of recipient rates by age. Table 40 presents the projected GIS and Allowance recipient rates for cohorts reaching ages 60 and 65 by sex, type and level of benefit. Charts 10 through 13 present recipient rates by year of birth.

Table 40 GIS and Allowance Recipient Rates (%)⁽¹⁾

Age	Cohort Reaching Age 65 in								
	2010			2025			2050		
	<u>Level of Benefit:</u>			<u>Level of Benefit:</u>			<u>Level of Benefit:</u>		
	Partial	Full	Total	Partial	Full	Total	Partial	Full	Total
GIS - Males									
65	15.5	4.1	19.6	14.5	4.2	18.7	12.0	3.5	15.5
70	24.6	5.5	30.2	22.9	5.3	28.2	18.9	4.3	23.3
75	30.5	6.0	36.4	27.1	5.3	32.4	22.3	4.3	26.6
80	31.4	5.6	37.0	27.9	4.8	32.7	23.0	3.8	26.8
85	30.6	5.2	35.8	27.3	4.4	31.7	22.8	3.5	26.3
90+	34.0	4.8	38.8	30.7	4.1	34.7	26.0	3.1	29.1
All Ages	27.8	5.4	33.2	25.2	4.9	30.1	21.1	3.9	24.9
GIS - Females									
65	19.3	4.6	23.9	19.3	4.7	24.0	15.9	3.8	19.7
70	28.4	6.6	35.0	26.2	6.0	32.2	21.6	4.8	26.4
75	35.5	7.7	43.2	31.6	6.7	38.3	26.3	5.3	31.6
80	38.7	7.7	46.4	34.5	6.6	41.2	28.8	5.3	34.1
85	42.2	7.0	49.2	37.8	6.1	43.9	31.7	4.8	36.5
90+	53.6	6.3	59.9	48.6	5.5	54.1	41.6	4.4	45.9
All Ages	35.9	6.8	42.8	32.8	6.1	38.9	27.8	4.8	32.6
Age	Cohort Reaching Age 60 in								
	2010			2025			2050		
	<u>Level of Benefit:</u>			<u>Level of Benefit:</u>			<u>Level of Benefit:</u>		
	Partial	Full	Total	Partial	Full	Total	Partial	Full	Total
Allowance - Males									
60	0.4	0.1	0.4	0.3	0.0	0.3	0.2	0.0	0.2
61	0.6	0.1	0.7	0.4	0.1	0.5	0.3	0.0	0.3
62	0.8	0.1	0.9	0.6	0.0	0.6	0.4	0.0	0.4
63	1.1	0.1	1.2	0.7	0.0	0.8	0.5	0.0	0.5
64	1.5	0.1	1.5	1.0	0.1	1.1	0.6	0.0	0.7
All Ages	0.9	0.1	0.9	0.6	0.0	0.7	0.4	0.0	0.4
Allowance - Females									
60	3.9	0.3	4.2	1.9	0.2	2.1	1.2	0.1	1.3
61	5.6	0.4	6.0	3.1	0.2	3.3	2.0	0.1	2.1
62	7.0	0.4	7.4	4.3	0.3	4.6	2.7	0.2	2.9
63	8.4	0.5	8.9	5.5	0.3	5.8	3.6	0.2	3.8
64	10.4	0.6	11.0	7.1	0.4	7.5	4.6	0.2	4.8
All Ages	7.0	0.4	7.5	4.4	0.3	4.7	2.8	0.2	3.0

(1) The GIS and Allowance recipient rates shown account for TFSAs.

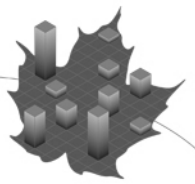


Chart 10 GIS Single Recipient Rates (Males)

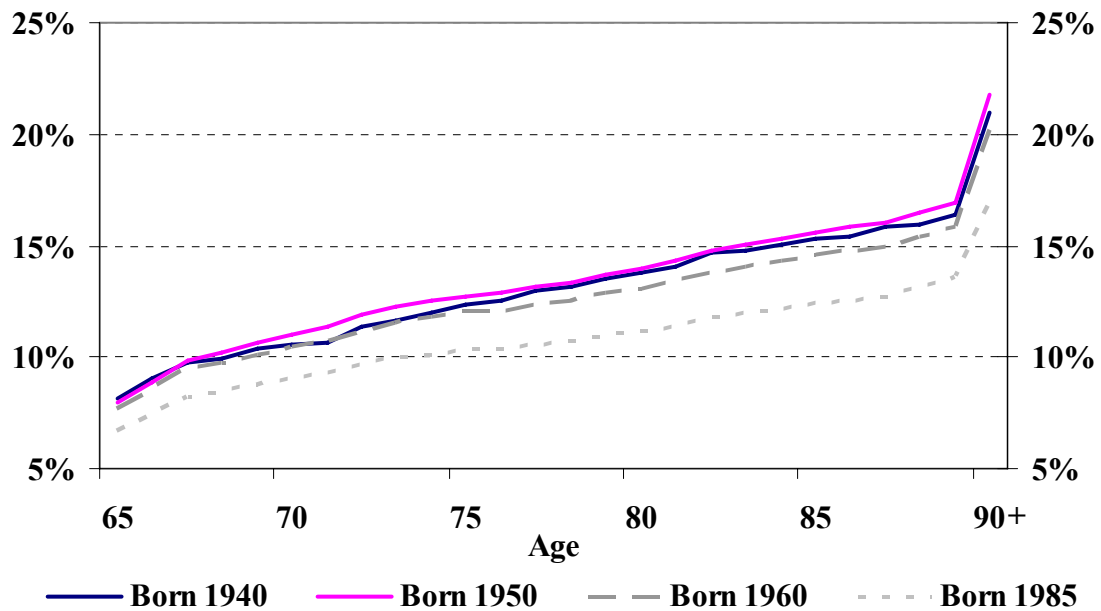
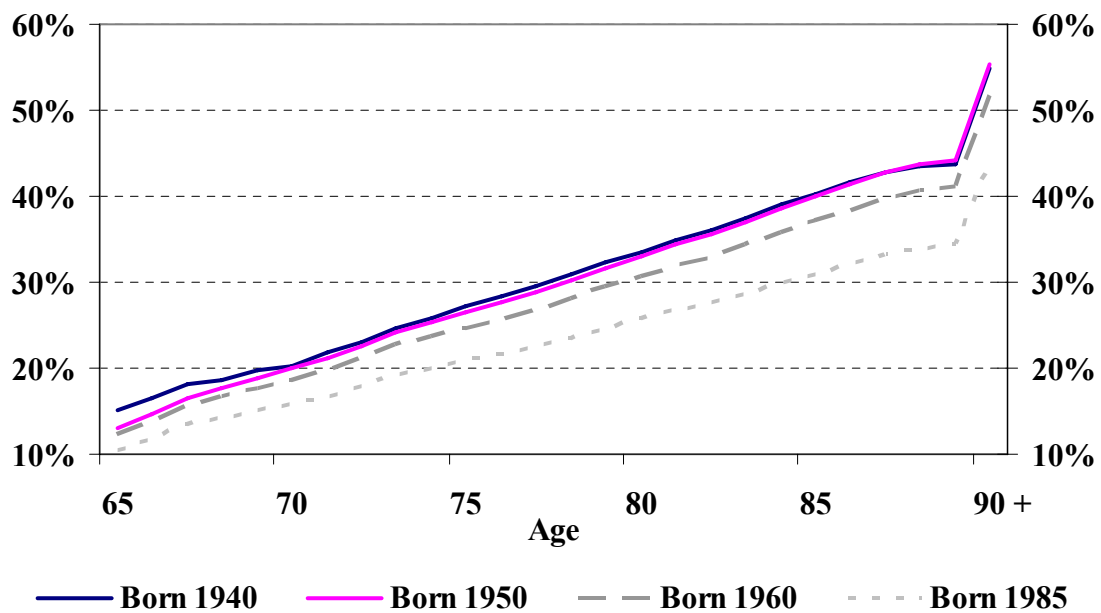
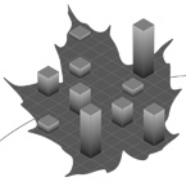


Chart 11 GIS Single Recipient Rates (Females)





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Chart 12 Allowance Recipient Rates (Males)

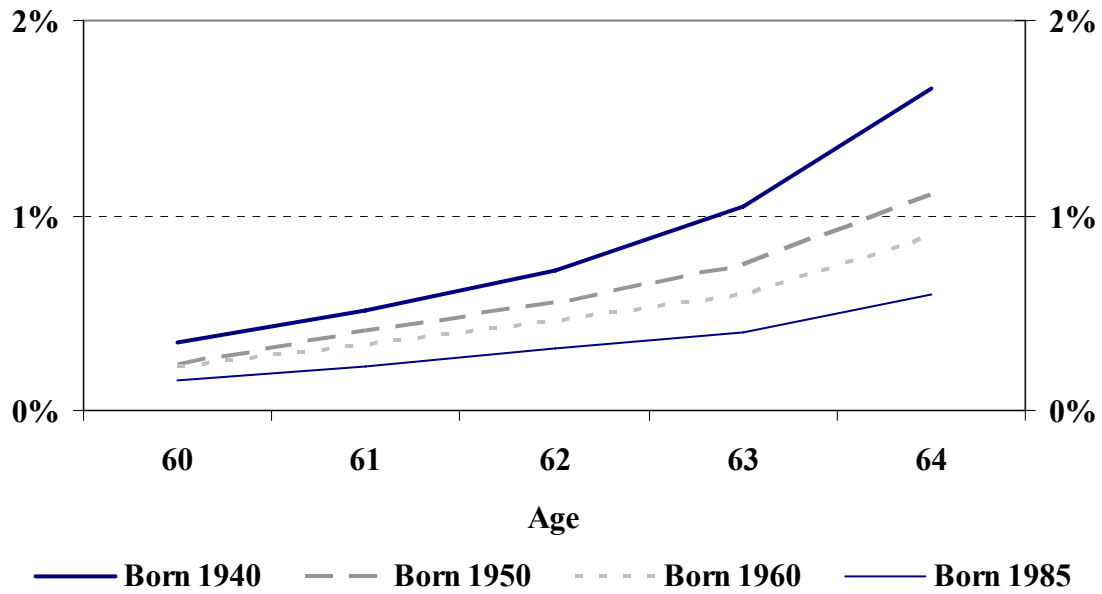
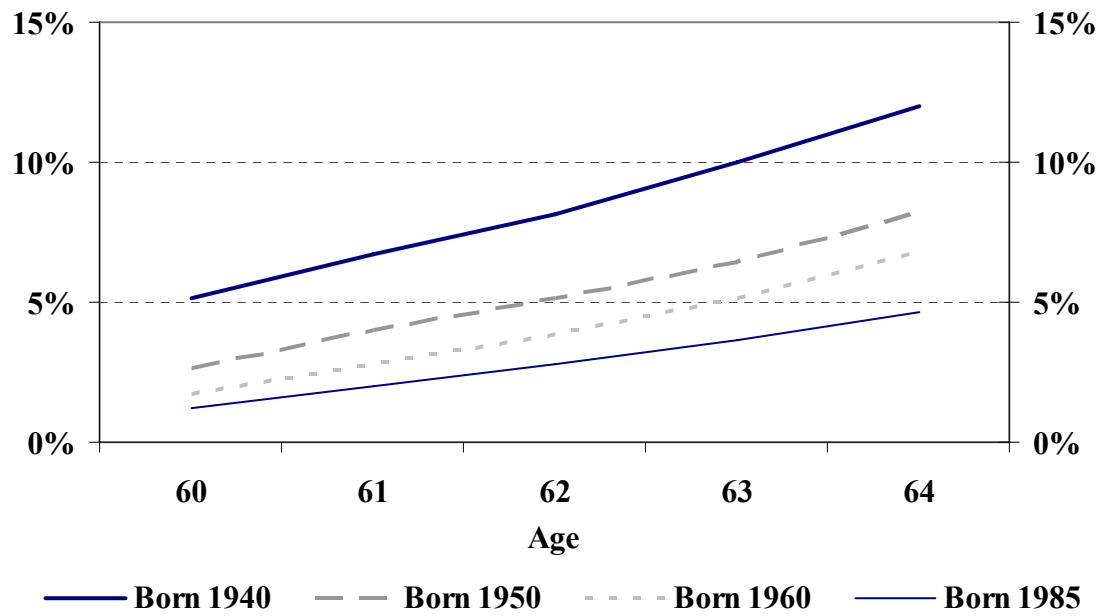


Chart 13 Allowance Recipient Rates (Females)





C. Average Benefits in Relation to Maximum Benefits

For each cell, determined by age group, sex, type of benefit and amount category, the average benefit paid was compared to the maximum benefit rate over the past 5 years ending in 2010. Except for the “100% and over” category for GIS shown in Table 42, it is assumed that these averages will remain constant in future years in accordance with their average levels over the most recent five-year period. The projected maximum benefits by type are presented in Table 41, and the assumed benefits as a percentage of their maximum amounts by level (partial, full, and overall average level of benefit) and type are presented in Table 42.

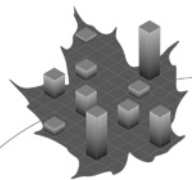
For the GIS, it is possible for a beneficiary to receive more than 100% of the maximum benefit if he or she is receiving a partial basic OAS pension. In these cases, the maximum GIS benefit is increased by the difference between the full and partial basic pension. For this purpose, it is assumed that the average benefit as a percentage of the maximum will be kept at the 2006-2010 levels throughout the projection period.

The projected distributions of GIS and Allowance beneficiaries by level as well as average benefit levels as a percentage of maximum amounts, with and without the expected effect of TFSAs are presented in tables 43 and 44, respectively. Although the averages per category are projected to remain constant, it is expected that over time TFSAs will have the effect of increasing the amounts of benefits payable to individuals. As such, it is expected that there will be a shift over time in the number of people to higher benefit categories. However, the emergence of new recipients in the lower benefit categories is expected to more than offset the effect of this shift over time.

Table 41 Projected Maximum Monthly Benefits

Year (1 July)	OAS (\$)	GIS ⁽¹⁾		Allowance ⁽¹⁾	
		Single (\$)	Married (\$)	Regular (\$)	Survivor (\$)
2010	518.51	654.47	432.19	950.70	1,053.83
2011	528.88	667.56	440.83	969.71	1,074.91
2012	539.46	680.91	449.65	989.11	1,096.40
2013	550.25	694.53	458.64	1,008.89	1,118.33
2014	561.25	708.42	467.82	1,029.07	1,140.70
2015	572.48	722.59	477.17	1,049.65	1,163.51
2020	637.04	804.08	530.99	1,168.02	1,294.73
2025	713.75	900.90	594.92	1,308.67	1,450.63
2030	799.69	1,009.38	666.56	1,466.25	1,625.31
2040	1,003.87	1,267.10	836.75	1,840.62	2,040.29
2050	1,260.18	1,590.62	1,050.39	2,310.58	2,561.22
2060	1,581.94	1,996.75	1,318.58	2,900.53	3,215.17

(1) GIS and Allowance maximum benefits shown account for TFSAs.



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Table 42 Average Benefits as Percentage of Maximum Rates⁽¹⁾

	Males					
	2010			2050		
	Level of Benefit:			Level of Benefit:		
	Partial	Full ⁽²⁾	All	Partial	Full ⁽²⁾	All
OAS	37.8	100.0	94.9	53.1	100.0	93.5
GIS-Single	58.0	131.6	67.9	55.2	131.8	64.4
GIS-Spouse as a pensioner	43.9	175.6	67.1	38.7	173.7	60.1
GIS-Spouse not a pensioner	46.2	137.0	62.5	46.2	138.1	62.8
GIS-Spouse with Allowance	61.9	135.9	88.4	55.8	135.4	84.8
Allowance-Regular	40.7	100.0	43.5	41.6	100.0	44.8
Allowance-Survivor	53.6	100.0	60.3	53.8	100.0	60.4

	Females					
	2010			2050		
	Level of Benefit:			Level of Benefit:		
	Partial	Full ⁽²⁾	All	Partial	Full ⁽²⁾	All
OAS	36.8	100.0	95.1	51.5	100.0	93.7
GIS-Single	57.1	135.5	70.9	52.8	134.9	65.0
GIS-Spouse as a pensioner	44.0	172.5	66.7	39.8	171.3	60.5
GIS-Spouse not a pensioner	65.7	135.4	80.6	71.5	133.9	83.7
GIS-Spouse with Allowance	60.7	121.9	81.7	51.6	122.1	74.2
Allowance-Regular	41.5	100.0	63.8	45.2	100.0	48.3
Allowance-Survivor	53.5	100.0	59.7	50.0	100.0	55.4

(1) GIS and Allowance average benefits shown account for TFSAs.

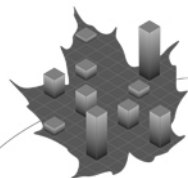
(2) The proportion exceeds 100% for GIS benefits, because the GIS maximum is raised for individuals receiving a partial OAS pension to the extent that such pension falls short of a full OAS pension.



Table 43 Distribution of GIS Beneficiaries and Average Level of Benefit by Percentage of Maximum Rates (%)

Males – before application of TFSAs								Average Level of Benefit as % of Maximum
Year	0-19%	20-39%	40-59%	60-79%	80-99%	100%	Total ⁽¹⁾	
2010	13.8	17.2	21.8	16.8	12.5	17.8	100	69.0
2020	14.9	16.6	20.3	16.8	12.9	18.5	100	69.6
2030	14.5	16.5	20.2	17.1	13.4	18.3	100	70.0
2040	14.4	16.9	20.2	17.1	13.4	18.0	100	69.9
2050	14.2	16.6	20.2	17.2	13.8	18.1	100	70.1
2060	13.8	16.3	20.2	17.4	14.1	18.1	100	70.5
Males – after application of TFSAs								Average Level of Benefit as % of Maximum
Year	0-19%	20-39%	40-59%	60-79%	80-99%	100%	Total ⁽¹⁾	
2010	13.9	17.3	21.8	16.8	12.5	17.8	100	68.9
2020	15.0	17.8	20.3	16.5	12.4	17.9	100	68.0
2030	16.1	18.2	20.0	16.3	12.4	17.0	100	66.5
2040	17.5	18.7	19.7	15.8	12.1	16.2	100	64.9
2050	18.5	18.6	19.4	15.5	12.2	15.9	100	64.0
2060	19.1	18.3	19.1	15.5	12.3	15.8	100	63.5
Females – before application of TFSAs								Average Level of Benefit as % of Maximum
Year	0-19%	20-39%	40-59%	60-79%	80-99%	100%	Total ⁽¹⁾	
2010	12.0	16.3	19.9	19.6	14.4	17.9	100	70.2
2020	13.0	16.5	19.8	19.1	13.6	18.1	100	69.8
2030	12.9	16.5	19.8	19.0	13.7	18.2	100	69.9
2040	12.7	16.7	19.9	19.4	13.5	17.8	100	69.5
2050	12.5	16.6	19.9	19.9	13.6	17.5	100	69.3
2060	12.4	16.4	19.9	19.9	13.9	17.6	100	69.5
Females – after application of TFSAs								Average Level of Benefit as % of Maximum
Year	0-19%	20-39%	40-59%	60-79%	80-99%	100%	Total ⁽¹⁾	
2010	12.0	16.3	19.9	19.6	14.3	17.9	100	70.1
2020	13.5	17.1	20.1	18.9	13.1	17.4	100	68.3
2030	14.6	17.3	20.0	18.7	12.8	16.6	100	66.7
2040	15.5	17.5	19.9	19.0	12.5	15.7	100	65.2
2050	16.1	17.4	19.7	19.2	12.5	15.2	100	64.4
2060	16.8	17.3	19.4	18.9	12.5	15.1	100	63.8

(1) Components may not sum to totals due to rounding.



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Table 44 Distribution of Allowance Beneficiaries and Average Level of Benefit by Percentage of Maximum Rates (%)

Males – before application of TFSAs								Average Level of Benefit as % of Maximum
Year	0-19%	20-39%	40-59%	60-79%	80-99%	100%	Total ⁽¹⁾	
2010	25.1	28.0	17.6	10.7	12.0	6.6	100	49.3
2020	26.4	26.2	17.9	10.8	12.7	6.1	100	49.1
2030	27.2	26.3	17.5	10.5	12.7	5.8	100	48.5
2040	27.7	26.3	17.2	10.4	12.8	5.7	100	48.2
2050	28.0	26.2	16.9	10.3	12.9	5.7	100	48.2
2060	27.9	25.9	16.5	10.4	13.0	6.3	100	48.5

Males – after application of TFSAs								Average Level of Benefit as % of Maximum
Year	0-19%	20-39%	40-59%	60-79%	80-99%	100%	Total ⁽¹⁾	
2010	24.8	28.0	17.6	10.7	12.0	6.7	100	49.7
2020	24.0	26.5	18.2	11.4	12.8	7.1	100	50.6
2030	25.1	26.6	17.7	11.1	12.7	6.7	100	49.7
2040	26.1	26.6	17.2	10.8	12.7	6.6	100	49.1
2050	26.9	26.6	16.7	10.6	12.6	6.5	100	48.6
2060	27.5	26.3	16.2	10.5	12.5	6.9	100	48.4

Females – before application of TFSAs								Average Level of Benefit as % of Maximum
Year	0-19%	20-39%	40-59%	60-79%	80-99%	100%	Total ⁽¹⁾	
2010	24.2	28.5	18.9	12.1	10.6	5.7	100	48.8
2020	25.2	25.0	19.8	12.1	12.9	5.0	100	49.7
2030	25.4	25.3	19.7	11.7	13.0	4.8	100	49.3
2040	25.5	25.5	19.5	11.6	13.2	4.7	100	49.2
2050	25.6	25.6	19.5	11.4	13.3	4.6	100	49.0
2060	25.6	25.8	19.4	11.2	13.4	4.5	100	48.9

Females – after application of TFSAs								Average Level of Benefit as % of Maximum
Year	0-19%	20-39%	40-59%	60-79%	80-99%	100%	Total ⁽¹⁾	
2010	23.9	28.4	19.0	12.2	10.7	5.8	100	48.9
2020	23.1	25.3	19.8	12.5	13.2	6.0	100	51.0
2030	23.9	25.6	19.5	12.0	13.2	5.8	100	50.3
2040	24.7	25.7	19.1	11.7	13.3	5.6	100	49.7
2050	25.4	25.7	18.8	11.4	13.2	5.4	100	49.1
2060	26.2	25.8	18.6	11.0	13.1	5.3	100	48.5

(1) Components may not sum to totals due to rounding.



V. Expenditures

A. Benefits

The expenditure for each year for a given type of benefit was computed as the sum, over all relevant population cells, of the product of:

- the population as at 1 July (by age and sex);
- the recipient rates (that vary by type of benefit, level of benefit, age, sex and calendar year);
- the average benefit of those in the level-of-benefit cell as a percentage of the maximum benefit (varies by type of benefit, age, sex and calendar year); and
- 12 times the maximum benefit as at 1 July.

As part of the methodology validation process, the number of beneficiaries and amounts of total annual benefits computed as above were compared to the actual results for 1983 through 2010 by type of benefit. Based on these comparisons, adjustments were made to the projected results, as described below.

The numbers of beneficiaries projected as described above were multiplied by experience adjustment factors. Furthermore, after adjusting the projected numbers of beneficiaries, the calculated total annual benefits tended to be lower than the actual benefits. Therefore, the projected amounts of benefits were also multiplied by experience adjustment factors.

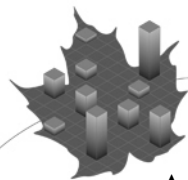
The resulting experience adjustment factors by type of benefit are presented in Table 45 and correspond to the ratio required to reflect as closely as possible actual results for 2010. Detailed tables for the projected number of beneficiaries and total expenditures by sex, type and level of benefit are presented in Appendix D.

Table 45 Experience Adjustment Factors

	GIS					Allowance	
	OAS	Single	Spouse a Pensioner	Spouse not a Pensioner	Spouse has Allowance	Regular	Survivor
Beneficiaries	0.997	0.986	0.985	0.914	0.970	0.969	0.927
Benefits	1.006	1.035	1.038	1.114	1.055	1.106	1.112

B. Administrative Expenses

Based on experience over the last five years, annual administrative expenses have averaged about 0.35% of total annual benefit payments. This has been assumed to continue throughout the projection period.



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Appendix D – Detailed Projections of Beneficiaries and Expenditures

The following tables present detailed projections of the number of beneficiaries and amounts of expenditures for the basic OAS pension, GIS, and Allowance benefits. All figures include benefits paid outside of Canada.

Table 46 Basic OAS Pension Beneficiaries (thousands)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Pension:		Partial	Level of Pension:		Partial	Level of Pension:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	189	1,920	2,108	224	2,400	2,624	413	4,320	4,732
2011	203	1,986	2,189	238	2,463	2,701	441	4,448	4,889
2012	220	2,072	2,291	254	2,546	2,800	473	4,618	5,091
2013	237	2,155	2,392	271	2,626	2,897	508	4,781	5,289
2014	255	2,235	2,490	288	2,704	2,992	543	4,939	5,482
2015	274	2,316	2,590	306	2,783	3,090	580	5,099	5,679
2020	380	2,763	3,143	409	3,230	3,639	789	5,993	6,782
2025	497	3,279	3,776	521	3,747	4,267	1,017	7,026	8,043
2030	612	3,793	4,405	631	4,265	4,897	1,243	8,059	9,302
2040	743	4,247	4,989	763	4,755	5,518	1,505	9,002	10,507
2050	801	4,559	5,360	822	5,100	5,923	1,623	9,659	11,282
2060	866	4,934	5,799	882	5,478	6,360	1,747	10,412	12,159

(1) The number of basic OAS pension beneficiaries are on a gross basis; that is, the numbers shown include those beneficiaries with pensions subject to full repayment by the OAS Recovery Tax.

(2) Components may not sum to totals due to rounding.

Table 47 Basic OAS Pension Expenditures (\$ million)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Pension:		Partial	Level of Pension:		Partial	Level of Pension:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	444	12,010	12,454	513	15,017	15,530	957	27,027	27,984
2011	505	12,672	13,177	574	15,718	16,291	1,079	28,389	29,468
2012	581	13,486	14,067	650	16,573	17,223	1,231	30,059	31,290
2013	663	14,308	14,971	732	17,438	18,170	1,395	31,746	33,141
2014	751	15,136	15,888	820	18,314	19,134	1,571	33,450	35,022
2015	847	15,998	16,845	914	19,228	20,142	1,761	35,226	36,987
2020	1,447	21,240	22,686	1,502	24,830	26,331	2,948	46,069	49,018
2025	2,214	28,242	30,456	2,243	32,268	34,511	4,457	60,510	64,967
2030	3,108	36,606	39,714	3,105	41,161	44,266	6,214	77,767	83,981
2040	4,749	51,442	56,191	4,733	57,601	62,334	9,482	109,043	118,525
2050	6,430	69,326	75,756	6,410	77,557	83,966	12,840	146,883	159,723
2060	8,733	94,182	102,915	8,632	104,571	113,203	17,365	198,753	216,118

(1) The amounts of basic OAS pension expenditures are on a gross basis; that is, before application of the OAS Recovery Tax.

(2) Components may not sum to totals due to rounding.



Table 48 GIS Beneficiaries (Total, thousands)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Benefit:		Partial	Level of Benefit:		Partial	Level of Benefit:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	497	107	605	836	182	1,018	1,333	289	1,623
2011	543	115	658	903	191	1,094	1,446	306	1,752
2012	570	122	693	930	198	1,127	1,500	320	1,820
2013	594	129	724	958	204	1,163	1,553	333	1,886
2014	622	136	758	988	210	1,199	1,611	346	1,957
2015	649	143	792	1,019	217	1,236	1,668	360	2,028
2020	805	176	981	1,198	252	1,451	2,003	428	2,431
2025	964	204	1,168	1,394	286	1,680	2,358	491	2,849
2030	1,117	229	1,346	1,597	317	1,914	2,714	546	3,260
2040	1,226	236	1,462	1,781	332	2,114	3,007	569	3,576
2050	1,220	231	1,451	1,805	324	2,129	3,025	554	3,580
2060	1,229	230	1,459	1,796	318	2,115	3,025	548	3,573

(1) The numbers of GIS beneficiaries shown account for TFSAs.

(2) Components may not sum to totals due to rounding.

Table 49 GIS Expenditures (Total, \$ million)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Benefit:		Partial	Level of Benefit:		Partial	Level of Benefit:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	1,696	994	2,690	3,295	1,851	5,146	4,991	2,845	7,836
2011	1,884	1,084	2,967	3,639	1,980	5,619	5,523	3,063	8,586
2012	2,020	1,175	3,195	3,791	2,080	5,872	5,812	3,255	9,067
2013	2,135	1,262	3,397	3,958	2,187	6,144	6,093	3,449	9,542
2014	2,279	1,352	3,631	4,137	2,292	6,428	6,416	3,643	10,059
2015	2,420	1,444	3,864	4,319	2,408	6,727	6,739	3,852	10,591
2020	3,321	1,973	5,295	5,531	3,106	8,636	8,852	5,079	13,931
2025	4,432	2,572	7,004	7,150	3,955	11,105	11,582	6,527	18,109
2030	5,698	3,239	8,936	9,133	4,928	14,061	14,831	8,167	22,997
2040	7,671	4,245	11,916	12,763	6,543	19,306	20,435	10,787	31,222
2050	9,530	5,191	14,721	16,248	7,975	24,223	25,778	13,166	38,944
2060	12,004	6,467	18,471	20,125	9,848	29,974	32,129	16,316	48,445

(1) The amounts of GIS expenditures shown account for TFSAs.

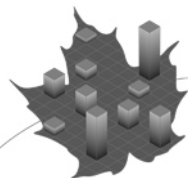
(2) Components may not sum to totals due to rounding.

Table 50 GIS Beneficiaries (Single, thousands)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Benefit:		Partial	Level of Benefit:		Partial	Level of Benefit:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	201	31	233	608	131	738	809	162	971
2011	216	34	250	653	138	791	868	173	1,041
2012	228	37	265	666	141	807	894	177	1,071
2013	237	38	275	681	144	824	918	182	1,100
2014	250	40	289	697	146	843	947	186	1,132
2015	261	41	302	714	149	863	974	191	1,165
2020	327	51	378	823	170	993	1,149	221	1,370
2025	397	61	458	963	194	1,157	1,359	255	1,614
2030	468	69	537	1,123	218	1,341	1,591	288	1,878
2040	534	75	609	1,316	239	1,555	1,850	314	2,164
2050	549	76	625	1,365	237	1,602	1,914	313	2,227
2060	557	76	633	1,356	234	1,590	1,913	310	2,223

(1) The numbers of GIS beneficiaries shown account for TFSAs.

(2) Components may not sum to totals due to rounding.



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Table 51 GIS Expenditures (Single, \$ million)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Benefit:		Partial	Level of Benefit:		Partial	Level of Benefit:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	917	325	1,243	2,723	1,390	4,112	3,640	1,715	5,355
2011	1,002	360	1,362	2,999	1,494	4,494	4,001	1,854	5,856
2012	1,087	389	1,476	3,108	1,552	4,659	4,195	1,941	6,135
2013	1,149	412	1,561	3,228	1,614	4,842	4,377	2,026	6,403
2014	1,236	437	1,673	3,360	1,674	5,034	4,596	2,111	6,707
2015	1,316	462	1,778	3,494	1,746	5,239	4,810	2,208	7,018
2020	1,841	637	2,477	4,420	2,209	6,629	6,261	2,846	9,106
2025	2,497	851	3,348	5,735	2,831	8,566	8,232	3,683	11,914
2030	3,259	1,091	4,350	7,404	3,572	10,975	10,663	4,663	15,326
2040	4,539	1,493	6,032	10,657	4,930	15,587	15,196	6,423	21,619
2050	5,785	1,901	7,686	13,765	6,105	19,869	19,550	8,005	27,555
2060	7,357	2,411	9,768	17,052	7,547	24,599	24,409	9,958	34,366

(1) The amounts of GIS expenditures shown account for TFSAs.

(2) Components may not sum to totals due to rounding.

Table 52 GIS Beneficiaries (Spouse as a Pensioner, thousands)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Benefit:		Partial	Level of Benefit:		Partial	Level of Benefit:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	207	44	251	208	45	252	415	89	504
2011	224	46	270	226	46	272	451	91	542
2012	235	49	284	239	49	288	474	98	572
2013	246	52	298	252	53	305	498	105	603
2014	258	55	313	265	56	321	523	111	634
2015	271	59	329	278	59	337	548	118	666
2020	342	73	416	344	73	417	686	147	833
2025	414	86	500	396	82	477	810	167	977
2030	485	97	582	435	88	523	920	185	1,105
2040	542	105	647	426	82	508	968	187	1,155
2050	521	98	619	401	75	476	922	173	1,095
2060	521	95	616	401	73	474	922	168	1,090

(1) The numbers of GIS beneficiaries shown account for TFSAs.

(2) Components may not sum to totals due to rounding.

Table 53 GIS Expenditures (Spouse as a Pensioner, \$ million)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Benefit:		Partial	Level of Benefit:		Partial	Level of Benefit:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	472	403	875	474	399	873	945	803	1,748
2011	522	423	945	526	415	941	1,049	837	1,886
2012	554	461	1,014	565	455	1,020	1,118	916	2,034
2013	588	500	1,089	604	497	1,101	1,192	997	2,189
2014	626	541	1,167	645	539	1,184	1,271	1,080	2,351
2015	667	584	1,251	688	581	1,269	1,355	1,165	2,520
2020	922	812	1,734	934	795	1,730	1,856	1,608	3,464
2025	1,233	1,060	2,293	1,190	996	2,186	2,423	2,056	4,478
2030	1,590	1,348	2,938	1,448	1,199	2,647	3,038	2,547	5,585
2040	2,159	1,838	3,997	1,731	1,413	3,145	3,891	3,251	7,142
2050	2,543	2,145	4,688	2,014	1,619	3,633	4,557	3,764	8,321
2060	3,141	2,603	5,743	2,481	1,983	4,464	5,621	4,586	10,207

(1) The amounts of GIS expenditures shown account for TFSAs.

(2) Components may not sum to totals due to rounding.



Table 54 GIS Beneficiaries (Spouse Not a Pensioner, thousands)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Benefit:		Partial	Level of Benefit:		Partial	Level of Benefit:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	52	11	64	17	5	21	69	16	85
2011	63	13	77	19	5	24	82	18	100
2012	66	14	80	20	5	25	86	19	105
2013	68	15	83	20	5	25	89	20	109
2014	70	16	86	21	5	26	91	21	112
2015	72	16	88	22	5	27	94	21	115
2020	81	19	100	24	6	30	106	24	130
2025	89	20	110	27	6	34	117	27	143
2030	95	21	116	30	7	37	125	29	153
2040	85	19	104	31	7	38	115	26	142
2050	81	18	99	30	7	38	112	25	137
2060	78	17	95	30	7	38	108	24	132

(1) The numbers of GIS beneficiaries shown account for TFSAs.

(2) Components may not sum to totals due to rounding.

Table 55 GIS Expenditures (Spouse Not a Pensioner, \$ million)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Benefit:		Partial	Level of Benefit:		Partial	Level of Benefit:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	190	123	313	86	48	135	276	171	448
2011	229	147	375	98	55	152	327	201	528
2012	243	158	400	103	56	159	345	214	559
2013	256	169	425	108	57	165	364	226	590
2014	269	179	448	113	59	172	382	238	620
2015	282	190	472	118	60	178	401	250	650
2020	360	244	604	151	72	224	512	316	828
2025	446	299	745	194	92	286	640	391	1,031
2030	532	354	886	245	115	360	776	469	1,246
2040	603	396	999	334	153	487	937	550	1,486
2050	717	472	1,189	413	190	603	1,131	661	1,792
2060	861	561	1,422	520	238	758	1,382	799	2,181

(1) The amounts of GIS expenditures shown account for TFSAs.

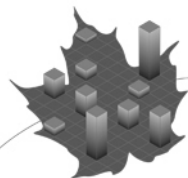
(2) Components may not sum to totals due to rounding.

Table 56 GIS Beneficiaries (Spouse with Allowance, thousands)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Benefit:		Partial	Level of Benefit:		Partial	Level of Benefit:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	36	20	57	4	2	6	40	22	63
2011	40	22	62	5	2	7	45	24	69
2012	42	23	64	5	3	8	47	26	72
2013	43	24	67	5	3	8	48	27	75
2014	44	26	70	6	3	9	50	29	79
2015	46	27	73	6	3	9	52	30	82
2020	55	33	88	7	4	11	63	36	99
2025	64	38	101	8	4	12	72	42	114
2030	70	41	111	9	4	13	79	45	125
2040	65	38	103	8	4	12	73	42	115
2050	69	39	108	8	4	13	77	44	121
2060	73	42	115	9	4	13	82	46	128

(1) The numbers of GIS beneficiaries shown account for TFSAs.

(2) Components may not sum to totals due to rounding.



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Table 57 GIS Expenditures (Spouse with Allowance, \$ million)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Benefit:		Partial	Level of Benefit:		Partial	Level of Benefit:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	117	142	259	13	13	26	129	156	285
2011	131	154	286	15	16	31	146	170	317
2012	137	167	304	16	18	34	153	185	338
2013	143	181	324	17	19	36	160	200	360
2014	149	194	343	18	20	38	167	214	382
2015	155	208	363	19	21	41	175	229	404
2020	199	281	480	25	29	54	224	310	533
2025	256	362	618	31	36	67	288	397	685
2030	316	445	762	37	42	79	354	487	841
2040	370	518	888	41	46	87	411	564	975
2050	485	674	1,159	56	62	118	541	736	1,276
2060	645	893	1,537	73	80	153	717	973	1,690

(1) The amounts of GIS expenditures shown account for TFSAs.

(2) Components may not sum to totals due to rounding.

Table 58 Allowance Beneficiaries (Total, thousands)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Benefit:		Partial	Level of Benefit:		Partial	Level of Benefit:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	9	1	9	78	5	83	86	5	92
2011	9	1	10	78	5	83	88	6	93
2012	9	1	10	75	5	79	84	5	89
2013	9	1	10	72	4	76	81	5	86
2014	9	1	10	70	4	74	79	5	84
2015	9	1	10	69	4	73	77	5	82
2020	9	1	10	65	4	69	74	5	79
2025	9	1	9	63	4	67	72	5	76
2030	7	1	8	51	3	54	58	4	61
2040	6	0	6	43	3	46	49	3	52
2050	6	0	6	42	2	44	47	3	50
2060	4	0	5	34	2	36	39	2	41

(1) The numbers of Allowance beneficiaries shown account for TFSAs.

(2) Components may not sum to totals due to rounding.

Table 59 Allowance Expenditures (Total, \$ million)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Benefit:		Partial	Level of Benefit:		Partial	Level of Benefit:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	49	9	57	429	66	496	478	75	553
2011	53	9	62	447	68	515	500	77	577
2012	53	9	62	438	66	505	491	76	567
2013	53	9	63	432	65	497	485	74	559
2014	54	10	64	430	64	494	484	74	558
2015	55	10	65	431	64	495	486	74	561
2020	63	11	74	457	68	525	520	79	599
2025	68	12	80	491	71	562	559	83	642
2030	61	11	72	443	63	506	504	74	578
2040	62	11	73	466	65	531	528	76	603
2050	74	13	87	555	76	630	629	88	717
2060	73	14	87	565	75	640	638	89	727

(1) The amounts of Allowance expenditures shown account for TFSAs.

(2) Components may not sum to totals due to rounding.



Table 60 Allowance Beneficiaries (Regular, thousands)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Benefit:		Partial	Level of Benefit:		Partial	Level of Benefit:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	6	0	6	54	2	56	60	2	62
2011	6	0	6	56	2	58	62	2	64
2012	6	0	6	54	2	56	60	2	62
2013	6	0	6	52	2	55	58	2	61
2014	6	0	6	52	2	54	57	3	60
2015	6	0	6	51	2	53	57	3	60
2020	6	0	6	51	3	54	57	3	60
2025	6	0	6	51	3	53	57	3	60
2030	5	0	5	42	2	44	47	2	50
2040	4	0	5	37	2	39	42	2	44
2050	4	0	5	37	2	39	41	2	43
2060	4	0	4	31	2	33	35	2	36

(1) The numbers of Allowance beneficiaries shown account for TFSAs.

(2) Components may not sum to totals due to rounding.

Table 61 Allowance Expenditures (Regular, \$ million)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Benefit:		Partial	Level of Benefit:		Partial	Level of Benefit:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	28	3	31	264	25	288	292	28	319
2011	31	3	34	283	28	311	314	31	345
2012	31	4	34	284	29	313	315	32	348
2013	31	4	35	287	30	317	318	34	352
2014	32	4	36	292	32	324	324	36	360
2015	33	4	37	299	34	333	332	38	370
2020	38	5	43	342	43	384	380	48	428
2025	43	6	48	380	47	428	423	53	476
2030	40	5	45	353	44	397	393	49	442
2040	42	6	48	389	48	438	432	54	486
2050	52	7	59	481	59	540	533	66	599
2060	53	7	60	503	62	564	555	69	624

(1) The amounts of Allowance expenditures shown account for TFSAs.

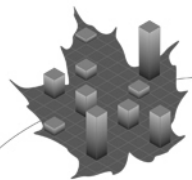
(2) Components may not sum to totals due to rounding.

Table 62 Allowance Beneficiaries (Survivor, thousands)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Benefit:		Partial	Level of Benefit:		Partial	Level of Benefit:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	3	0	3	24	3	27	27	3	30
2011	3	0	3	23	3	25	26	3	29
2012	3	0	3	21	2	23	24	3	27
2013	3	0	3	20	2	22	23	3	25
2014	3	0	3	18	2	21	21	2	24
2015	3	0	3	17	2	19	20	2	23
2020	3	0	3	14	1	16	17	2	19
2025	3	0	3	12	1	13	15	2	16
2030	2	0	2	9	1	10	11	1	12
2040	1	0	2	6	1	7	7	1	8
2050	1	0	1	5	0	5	6	1	7
2060	1	0	1	3	0	3	4	0	5

(1) The numbers of Allowance beneficiaries shown account for TFSAs.

(2) Components may not sum to totals due to rounding.



ACTUARIAL REPORT

OLD AGE SECURITY

as at 31 December 2009

Table 63 Allowance Expenditures (Survivor, \$ million)⁽¹⁾

Year	Males			Females			Both Sexes		
	Partial	Level of Benefit:		Partial	Level of Benefit:		Partial	Level of Benefit:	
		Full	Total ⁽²⁾		Full	Total ⁽²⁾		Full	Total ⁽²⁾
2010	21	6	26	166	42	207	187	47	234
2011	22	6	28	164	40	205	186	46	232
2012	22	6	28	154	37	191	176	43	219
2013	22	6	28	145	35	180	167	40	207
2014	22	6	28	138	32	170	160	38	198
2015	23	6	28	132	31	163	155	36	191
2020	24	6	31	115	25	141	140	32	171
2025	25	6	31	111	24	135	136	31	166
2030	21	5	27	90	19	109	111	25	136
2040	20	5	25	76	17	93	96	22	118
2050	22	6	28	74	16	90	96	22	118
2060	20	7	27	62	13	76	83	20	103

(1) The amounts of Allowance expenditures shown account for TFSAs.

(2) Components may not sum to totals due to rounding.



Appendix E – Acknowledgements

Service Canada provided statistics on the Old Age Security Program and the Canada Pension Plan.

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