

9505E



---

**POLICY PAPER**

---

**TROUBLED TOMORROWS –  
THE REPORT OF  
THE CANADIAN INSTITUTE OF ACTUARIES’  
TASK FORCE ON RETIREMENT SAVINGS**

**JANUARY 1995**

*Ce rapport est disponible en français  
© 1995 Canadian Institute of Actuaries*

## TABLE OF CONTENTS

<b>HIGHLIGHTS AND CONCLUSIONS .....</b>	<b>1</b>
<b>1. AN AGING SOCIETY .....</b>	<b>8</b>
1.1 – CANADA IN THE NEXT CENTURY .....	8
1.2 – DEPENDENCY RATIOS .....	9
1.3 – THE COST OF AGING .....	10
1.4 – MITIGATING FACTORS .....	12
1.5 – AN AGING ELECTORATE .....	14
1.6 – CONCLUSION .....	15
<b>2. SOCIAL SECURITY .....</b>	<b>16</b>
2.1 – OVERVIEW .....	16
2.2 – PUBLIC PENSIONS AND THE ALLEVIATION OF POVERTY .....	16
2.3 – COST PRESSURES .....	18
2.4 – PASSING THE TORCH .....	21
2.5 – CAN CANADIANS RELY ON SOCIAL SECURITY? .....	24
2.6 – CONCLUSION .....	25
<b>3. RETIREMENT SAVINGS AND CAPITAL FORMATION .....</b>	<b>27</b>
3.1 – THE GROWTH OF RETIREMENT SAVINGS PLANS .....	27
3.2 – RETIREMENT SAVINGS, PERSONAL SAVINGS AND PRIVATE SAVINGS .....	28
3.3 – GOVERNMENT BORROWING .....	29
3.4 – BORROWING FROM NONRESIDENTS .....	30
3.5 – REAL INTEREST RATES .....	30
3.6 – CONCLUSION .....	32
<b>4. THE RETIREMENT SAVINGS SYSTEM .....</b>	<b>33</b>
4.1 – TAX SYSTEM FOR RETIREMENT SAVINGS .....	33
4.2 – BENEFIT ADEQUACY AND RETIREMENT SAVINGS TARGETS .....	34
4.3 – ASSESSMENT OF CURRENT RETIREMENT SAVINGS PRACTICES .....	39
4.4 – CONCLUSION .....	43
<b>5. THE COST OF THE RETIREMENT SAVINGS SYSTEM .....</b>	<b>44</b>
5.1 – GOVERNMENT ESTIMATES .....	44
5.2 – COMBINING FEDERAL AND PROVINCIAL TAX EXPENDITURES .....	46
5.3 – THE BENCHMARK TAX SYSTEM .....	46
5.4 – BEHAVIORAL RESPONSE .....	48
5.5 – THE REAL COST OF THE RETIREMENT SAVINGS SYSTEM .....	50
5.6 – CONCLUSION .....	56
<b>6. THE LEVEL PLAYING FIELD .....</b>	<b>57</b>
6.1 – EQUITY VERSUS SIMPLICITY .....	57
6.2 – THE FACTOR OF 9 .....	57
6.3 – DEFINED BENEFIT AND DEFINED CONTRIBUTION .....	59
6.4 – RRSPs AND PENSION PLANS .....	60
6.5 – ANCILLARY BENEFITS .....	61
6.6 – SECTORAL DIFFERENCES .....	61

6.7 – INCOME DIFFERENCES .....	63
6.8 – MOBILE EMPLOYEES .....	64
6.9 – INTERGENERATIONAL EQUITY .....	66
6.10 – EMPLOYEE CONTRIBUTIONS TO PENSION PLANS .....	66
6.11 – CONCLUSION.....	66
<b>7. LESSONS FROM OTHER COUNTRIES.....</b>	<b>68</b>
<b>APPENDIX A – PRINCIPAL ASSUMPTIONS ADOPTED FOR THE REPORTS ON THE CANADA PENSION PLAN AND THE OLD AGE SECURITY PROGRAM AS AT DECEMBER 31, 1991.....</b>	<b>A – 1</b>
<b>APPENDIX B – ACTUARIAL ASSUMPTIONS USED IN THIS REPORT .....</b>	<b>B – 1</b>
<b>APPENDIX C – THE ACCRUED LIABILITIES OF SOCIAL SECURITY PROGRAMS .....</b>	<b>C – 1</b>
<b>APPENDIX D – COVERAGE AND SAVINGS PATTERNS .....</b>	<b>D – 1</b>
<b>APPENDIX E – ESTIMATING THE COST OF THE RETIREMENT SAVINGS SYSTEM .....</b>	<b>E – 1</b>
<b>APPENDIX F – THE FACTOR OF 9 .....</b>	<b>F – 1</b>
<b>APPENDIX G – PRACTICES IN OTHER COUNTRIES .....</b>	<b>G – 1</b>
<b>EXHIBIT I – NUMERICAL VALUES FROM GRAPHS .....</b>	<b>EXB – 1</b>

## HIGHLIGHTS

---

*"If pensions in Canada have a face, it is not that of doctors and lawyers, but of railroad workers, bus drivers and miners."*

Pension Investment Association of Canada's  
Presentation to the House Finance Committee,  
November 1994

Canada's social security and retirement savings systems share a common goal: a decent standard of living for retired Canadians. The social security system provides life's necessities: food, shelter, clothing and medical care. The retirement savings system allows middle class Canadians to go farther – to retire without a disruption in their standard of living – if they, in conjunction with their employers, save enough to achieve this goal.

An aging population will put these systems to the test. The cost of Canada's social security system will increase during the first part of the next century, forcing Canadians to choose between

- a gradual, but significant, increase in taxes and social security contributions, or
- a gradual, but significant, reduction in social security benefits.

A strong retirement savings system can help Canada meet the challenges of the next century, first, by increasing government revenues when the generation born during the baby boom retires, and second, by lessening the dependence of middle class Canadians on the social security programs that may need to be cut back.

Our report is organized in seven sections, which are summarized below.

### **Section 1: An Aging Society**

As the generation born during the 1952-1966 baby boom ages, Canada's population is being transformed. In 1966, there were 5.5 Canadians under the age of 20 for each Canadian over the age of 65. Today, there are 2.3. In 2030, there will be 1.1.<sup>1</sup>

The number of senior citizens will increase dramatically: from 19.8% of the working-age population in 1995 to 38.9% of the working-age population in 2030.

Senior citizens are significant beneficiaries of government programs – in 1992, they collected \$45 billion more from social security programs than they paid in income tax.<sup>2</sup> If future seniors are to enjoy the same level of financial support as today's seniors, future workers will need to contribute more to social security programs than today's workers do.

An aging population also means an aging electorate. The median age of Canadian voters<sup>3</sup> is currently 44. In 20 years it will be 50.<sup>4</sup> Today, 17% of those who vote have attained age 65. In 2030, it will be 29%.<sup>5</sup> If social security programs are to be modified, the modifications must be made soon. Otherwise, they will encounter stiff resistance from an electorate increasingly composed of senior citizens who will have relied, to their detriment, on government assurances that these programs could be maintained in their current form.

---

<sup>1</sup> Section 1.2, Table 1.2

<sup>2</sup> Section 1.3, Table 1.3

<sup>3</sup> Those who vote in federal elections

<sup>4</sup> Section 1.5, Table 1.8

<sup>5</sup> Section 1.5, Graph 1.4

## Section 2: Social Security

Canada's social security programs deserve much of the credit for alleviating poverty among the elderly. By one measure, it has been eradicated. By others, it has been significantly reduced.<sup>6</sup>

Canadians are concerned about the future of their social security programs. Less than 30% of Canadians under the age of 50 are confident that they will receive benefits from the Old Age Security Program and the Canada/Québec Pension Plans.<sup>7</sup>

Most Canadians believe that by contributing to the Canada or Québec Pension Plans and by paying taxes to support programs like Old Age Security and Medicare, they acquire a right to similar benefits and support when they retire. This right imposes a financial obligation on future generations, just as does our national debt. Using the actuarial methods and assumptions described in the Appendices, we estimate these obligations to be \$1,784 billion at the end of 1991.<sup>8</sup>

During the next 35 years, the cost of our social security programs will increase by about 7% of gross domestic product (GDP),<sup>9</sup> or \$50 billion per annum based on an estimated 1994 GDP of \$740 billion.

To tackle both the debt and aging problems will require tax increases and/or spending cuts totalling 10% of GDP, or \$74 billion per annum. Without spending cuts, this would require

- a 70% increase in federal and provincial personal income taxes, or
- a 400% increase in the GST, from 7% to 35%, or
- new payroll taxes totalling 17% of pay.

Our social security programs may not be sustainable in their current form.<sup>10</sup> Those who can afford to save for retirement should be encouraged to do so, thereby relying less on government programs.

## Section 3 – Retirement Savings and Capital Formation

The capital accumulating in retirement savings plans will, if invested wisely, lessen the financial burdens associated with an aging population.

Canadians had accumulated \$523 billion in their retirement savings plans at the end of 1992. Contributions, as a percent of employment earnings, have increased slowly since the early 1980s.<sup>11</sup> Retirement savings have become the dominant element in personal savings, and a significant contributor to domestic capital formation.<sup>12</sup>

Governments borrowed at a rate equal to 30% to 50% of Canada's net private savings in the early 1980s. Recently, governments have been borrowing at a rate equal to 80% to 100% of these savings.<sup>13</sup> Our net domestic savings, the difference between the amounts saved by individuals and businesses and the amounts borrowed by governments, have all but disappeared. Thus, while Canadians are saving individually, they are not saving collectively.

---

<sup>6</sup> Section 2.2, Graph 2.1

<sup>7</sup> Section 2.3, Graph 2.2

<sup>8</sup> Section 2.4, Table 2.7

<sup>9</sup> From 8.5% of GDP to 14.8% - 16.0% of GDP (Section 2.3 and Graph 2.3)

<sup>10</sup> The federal government has already taken steps, such as clawing back Old Age Security benefits and the Old Age Tax Credit, that will deny benefits to many of those born during the baby boom (see Section 2.5).

<sup>11</sup> Section 3.1, Graph 3.1

<sup>12</sup> Section 3.2, Graph 3.2

<sup>13</sup> Section 3.3, Graph 3.3

The decline in net domestic savings has forced Canadian borrowers, in particular, Canadian governments, to turn to nonresidents for capital. Foreign holdings of Canadian debt increased from \$81 billion in 1981 to \$346 billion in 1993.<sup>14</sup> Real interest rates, typically between 0% and 4% prior to the 1980s, have recently averaged 6% or more.<sup>15</sup> Relative to inflation and wage increases, Canada's interest rates are among the highest in the G-7.<sup>16</sup>

#### Section 4: Retirement Savings and Income Adequacy

For the purposes of this report, an "adequate" retirement income is one that replaces

- 80% of employment earnings up to one-third of the average wage,<sup>17</sup> plus
- 70% of employment earnings over one-third of the average wage.

This retirement income target permits low income Canadians (those earning less than 50% of the average wage) to replace almost 100% of their take-home pay once income taxes and social security contributions are taken into account. Those earning more than the average wage would replace 70% to 85% of their take-home pay.

Canadians receive retirement income from many sources. The most important are

- social security, including the Canada/Québec Pension Plans, the Old Age Security Program and the Guaranteed Income Supplement, and
- retirement savings plans – employer sponsored pension plans, registered retirement savings plans and deferred profit sharing plans.

The income target for retirement savings plans depends upon a taxpayer's income, family structure and attained age. Using the methods described in Section 4.2, the 1992 retirement savings targets were developed for Canadians expecting to retire at age 65.<sup>18</sup>

Using information provided by Statistics Canada, we calculated retirement savings rates for Canadian taxpayers by age, income, sector, gender and region<sup>19</sup> and compared them to the retirement savings targets with the following results:

- Among those for whom the retirement savings system was intended,<sup>20</sup> the average retirement savings rate in 1992<sup>21</sup> was 10.1% of income versus a retirement savings target of 8.9%.<sup>22</sup>
- On earnings up to \$80,000 per annum, the savings rate increases with income, as does the retirement savings target. The pattern is close to what one would expect based on the need for retirement savings.<sup>23</sup>

---

<sup>14</sup> Section 3.4

<sup>15</sup> Section 3.5, Graph 3.5

<sup>16</sup> Section 3.5, Table 3.3

<sup>17</sup> The average wage was about \$30,000 per annum in 1994

<sup>18</sup> Assuming the individual saves this percentage of employment earnings between the ages of 30 and 65

<sup>19</sup> See Section 4.3 and Appendix D

<sup>20</sup> C/QPP contributors between the ages of 25 and 64 earning between \$20,000 and \$80,000 per annum

<sup>21</sup> Employer contributions to pension plans and deferred profit sharing plans combined with employee contributions to pension plans and RRSPs, expressed as a percent of employment income

<sup>22</sup> The estimated amount that Canadians need to save if their retirement income at age 65, including social security benefits, is to reach the retirement income target described earlier

<sup>23</sup> Table 4.3, Section 4.3

One might argue that Canada's tax incentives for retirement savings should be similar to those of our major trading partners. However, their tax and social security systems have so little in common, and there are so many differences in the mix of private and public plans, that they provide little guidance.

### Final Observations

The high real interest rates that Canada has endured since 1980 will, if they continue, touch almost every aspect of our retirement savings and social security systems.

- High real interest rates undermine public support for the Canada and Québec Pension Plans, as future generations realize that the contributions made by, and for, them will, if set aside and invested at these high real interest rates, accumulate to much more than the benefits they stand to collect.
- High real interest rates make other pay-as-you-go social security programs, such as Old Age Security and Medicare, appear expensive relative to funded alternatives.
- High real interest rates reduce the cost of pension plans and the amounts that individuals need to save for retirement. Even modest contributions will, if they earn a 6% or 7% real rate of return, provide a generous pension.
- High real interest rates make RRSPs and defined contribution pension plans more tax effective than defined benefit pension plans, as contributing 18% of pay to an RRSP will buy much more than a pension equal to 2% of final average earnings.
- High real interest rates aggravate intergenerational inequities, as young Canadians are typically borrowers while older Canadians are typically lenders.
- Finally, high real interest rates destabilize public finance by forcing governments to borrow more of our declining savings pool, and increasingly, to borrow offshore to relieve pressure on Canadian interest rates.

Our hopes for a comfortable retirement are built on a foundation of public debt.

#### Retirement Savings Assets and Liabilities at December 31, 1991

Assets		Liabilities <sup>35</sup>	
	(\$ billion)		(\$ billion)
Canada/Québec Pension Plans	58	Canada/Québec Pension Plans	425
Registered Pension Plans and RRSPs	480	Registered Pension Funds and RRSPs <sup>36</sup>	480
	538	Old Age Security	235
Public Sector Debt Held in Retirement Savings Plans	(269) <sup>37</sup>	Medicare	630
Retirement Savings Invested in the Private Sector	269	Total Liabilities	1,770

<sup>35</sup> Section 2.4 and Appendix C

<sup>36</sup> Assuming that these plans are, on average, fully funded

<sup>37</sup> We estimate that 50% of the combined assets of the Canada and Québec Pension Plans, trustee and insured employer sponsored pension plans, RRSPs and pension plans funded through consolidated revenue funds are invested in federal and provincial debt.

Only 15%<sup>38</sup> of the benefits that Canadians expect to receive after retirement are backed by private sector investments. The other 85% are backed by claims on the taxes of future generations.

We do not mean to imply by this comparison that the entitlements of all Canadians should be fully funded. At some point, the additional savings depress returns and interest rates, and become counter-productive. However, with \$300 to \$400 billion of Canadian debt held by non-residents and real interest rates that are among the highest in the developed world, Canada is not near this point.

---

<sup>38</sup> 269/1770



# 1. AN AGING SOCIETY

## 1.1 – Canada in the Next Century

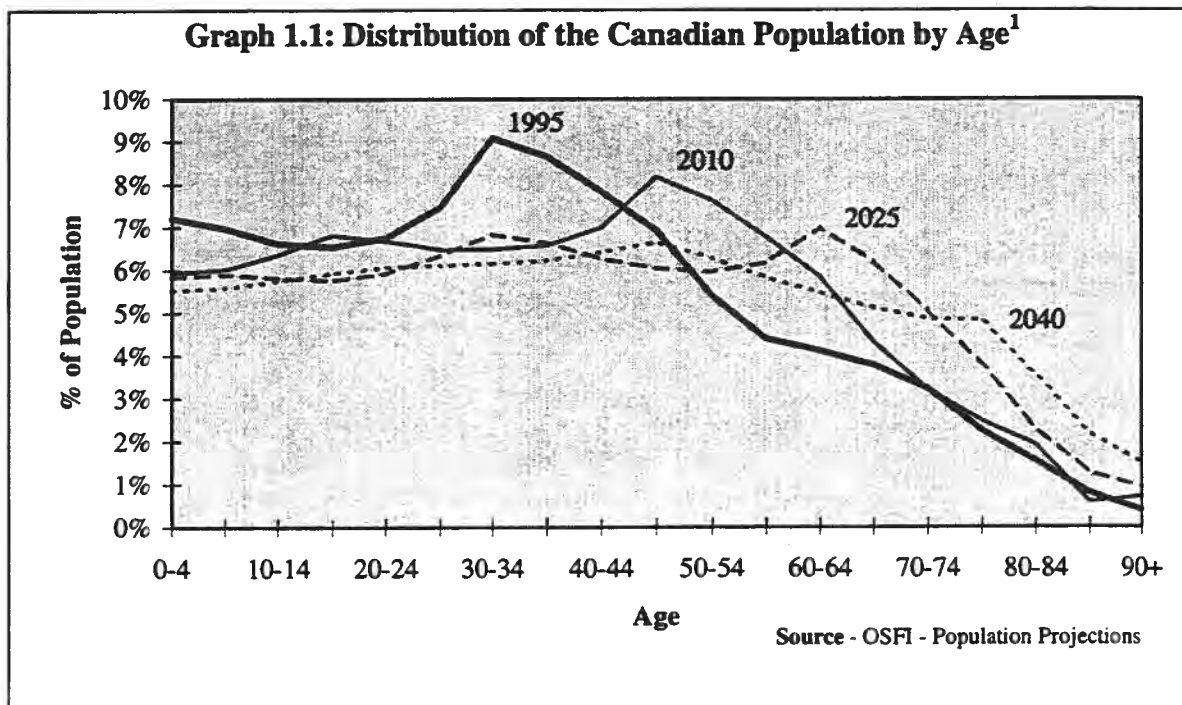
Canada is a young country with a young population, at least relative to other G-7 countries.

**Table 1.1: Percent of Population Over Age 65 in 1990, by Country**

Country	Percentage of the Population Over Age 65 – 1990
Canada	11.3%
Japan	11.9%
United States	12.3%
France	13.8%
Italy	14.8%
Germany	14.9%
United Kingdom	15.7%

Source • Averting the Old Age Crisis  
 • A World Bank Policy Research Report, 1994

In the first half of the next century, as the children born during the 1952-1966 baby boom grow older, the Canadian population will mature.



<sup>1</sup> See Exhibit I

The aging of Canada's population is neither surprising nor alarming. The process is well understood and essentially irreversible: declining fertility rates, slow population growth, healthier lifestyles, medical advances and longer life expectancies. The transition from a young population to an old one will be gradual – almost imperceptible to those who experience it. But the consequences are profound, and will reshape our society and institutions.

## 1.2 – Dependency Ratios

Dependency ratios track changes in the population over time. The following ratios are of particular interest.

- The Youth Dependency Ratio – the number of Canadians under age 20 expressed as a percentage of the working age population,<sup>2</sup>
- The Senior Dependency Ratio – the number of Canadians who have attained age 65, expressed as a percentage of the working age population.
- The Total Dependency Ratio – the sum of the Youth and Senior Dependency Ratios, and
- The Expenditure Ratio – the sum of
  - the Senior Dependency Ratio, and
  - the Youth Dependency Ratio divided by 3

where 3 is the assumed ratio of the average per capita government transfer to senior citizens to the average per capita government transfer to youth.<sup>3</sup>

The baby boom has changed Canada's dependency ratios during the last 30 years, and will continue to do so for some time.

**Table 1.2: Dependency & Expenditure Ratios**

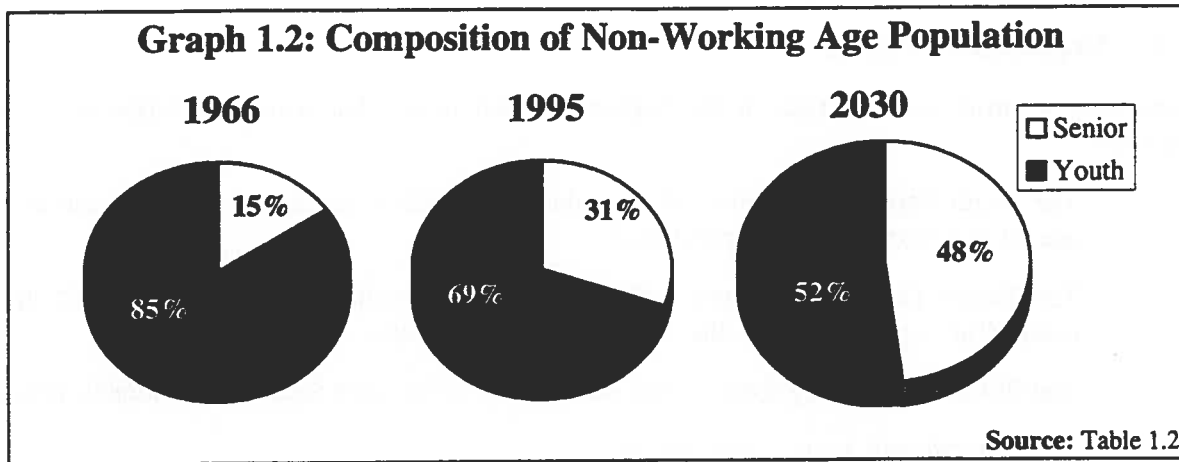
Calendar Year	Population (000)			Dependency Ratios			Expenditure Ratio $\left(\frac{a}{3} + c\right) / b$
	Under 20 (a)	20 – 64 (b)	65 and Over (c)	Youth a/b	Senior c/b	Total (a+c)/b	
1951	5,308	7,616	1,086	.697	.143	.840	.375
1966	8,430	10,046	1,539	.839	.153	.992	.433
1995	7,933	17,594	3,485	.451	.198	.649	.348
2030	8,649	20,615	8,019	.420	.389	.809	.529

Sources: • The Canadian Global Almanac, 1994  
• OSFI – Population Projections

<sup>2</sup> Those between the ages of 20 and 64 inclusive

<sup>3</sup> David Foot's study "Canada's Population Outlook - Demographic Factors and Economic Challenges" mentions research in Canada and the United States placing this ratio somewhere between 2.5 and 3.

The fact that the total dependency ratio will increase from 0.649 to 0.809 during the next 35 years is, of and by itself, not a cause for concern. The total dependency ratio was larger in 1966 than it will be in 2030. But in 1966, seniors accounted for only 15%<sup>4</sup> of the total dependency ratio, while in 2030 they will account for 48%.<sup>5</sup>



### 1.3 – The Cost of Aging

Senior citizens are significant beneficiaries of government programs.

**Table 1.3: Net Transfer to Seniors, 1992**

	Estimated 1992 Transfers (\$ billion)
Old Age Security	14.3
Guaranteed Income Supplement	4.1
Canada/Québec Pension Plans	11.8*
Medicare	24.2*
<b>Total</b>	<b>54.4</b>
Federal and Provincial Income Tax Paid by Senior Citizens	(9.0)
<b>Net Transfer</b>	<b>45.4</b>

\* estimated benefits paid to Canadians who have attained age 65

- Sources:
- Revenue Canada and Revenue Québec
  - OSFI Medicare Projections
  - The Canadian Global Almanac – 1994
  - Statistics Canada

<sup>4</sup> .153/992, from Table 1.2

<sup>5</sup> .389/.809, from Table 1.2

This analysis ignores, among other things, the fact that

- senior citizens contributed toward the cost of these programs for earlier generations, albeit at a relatively low rate;
- senior citizens pay other taxes, such as the GST and property tax;
- governments provide other benefits to senior citizens, such as provincial drug plans, housing grants and refundable tax credits; and
- a portion of the cost of other programs should properly be charged to seniors.

Nonetheless, if future seniors are to enjoy the same level of financial support as today's seniors, the additional transfer from working age Canadians to senior citizens will be significant. The absolute and relative number of seniors will increase dramatically by the time the baby boom retires.

**Table 1.4: Increase in the Number of Senior Citizens, 1992-2030**

	Calendar Year		Percentage Increase
	1992	2030	
Canadians age 65 and over			
• Number	3.3 million	8.0 million	142%
• As a percentage of the working age population	19.0%	38.9%	105%

Source: OSFI Population Projections

To understand the implications of an aging population, one must imagine what Canada would have been like in 1992 with an additional 3.5 million<sup>6</sup> senior citizens. The additional cost of government programs, net of the additional taxes collected, would have been about \$48 billion. This is equivalent to

- a 45% increase in personal income taxes (both federal and provincial),<sup>7</sup>

or

- a 270% increase in the GST, from 7% to 26%<sup>8</sup>

assuming, in each case, no change in the working, saving or spending habits of Canadians.

<sup>6</sup> 105% of 3.3 million

<sup>7</sup> Source (for the estimated annual revenue produced by personal income tax): National Income & Expenditure Accounts: 1982 - 1993

<sup>8</sup> Source (for the estimated annual revenue produced by the GST): National Income & Expenditure Accounts: 1982-1993

## 1.4 – Mitigating Factors

Three factors are frequently cited by those who believe that Canadians should not be concerned about the aging population:

- the reduction in the youth dependency ratio will be accompanied by reductions in government spending on young Canadians,
- other developed countries will have similar problems, and
- future economic growth will make future tax increases bearable.

### *The Reduction in the Youth Dependency Ratio*

The potential for savings from a reduction in the youth dependency ratio is small for two reasons. First, the change in the number of young Canadians will be undramatic, in both absolute and relative terms.

**Table 1.5: Changes in the Number of Young Canadians, 1992-2030**

	Calendar Year		Percentage Change
	1992	2030	
Canadians under age 20			
• Number	7.7 million	8.6 million	12%
• As a percentage of the working age population	45.2%	42.0%	(7)%

Source: OSFI Population Projections

While Canada spends a significant amount on young people,<sup>9</sup> a reduction in the number of young Canadians may not produce a commensurate reduction in the cost of the programs supporting them. In 1965, when the school age population<sup>10</sup> was 62% of the working age population, the cost of education was 5.9% of Canada's gross domestic product. In 1990 the school age population was only 33% of the working age population, but the cost of education had increased to 6.6% of gross domestic product.

### *Aging is an International Problem*

Canada is not the only country with an aging population. The populations of most developed countries will age significantly during the next 35 years. Many of these countries have public pension systems that provide larger benefits than Canada's combination of the Guaranteed Income Supplement, Old Age Security and the Canada/Québec Pension Plans, and pay significantly more to support these programs than Canada does.

The fact that other countries have similar problems should be little comfort to Canadians. In comparing the state of public pensions in OECD countries to terminally troubled programs in Latin America, Eastern Europe and the Soviet Union, the World Bank observed

<sup>9</sup> e.g., \$50 billion on education each year according to the Canadian Almanac, 1994

<sup>10</sup> Those between the ages of 5 and 19 inclusive

*“Countries that belong to the Organization for Economic Cooperation and Development (OECD) face similar problems, as their populations age and their productivity stagnates. Public old age security programs covering almost the entire population have paid out large pensions over the past three decades of prosperity, as poverty declined faster among the old than among the young. But over the next two decades, payroll taxes are expected to rise by several percentage points and benefits to fall. That will intensify the intergenerational conflict between old retirees (some of them rich) who are getting public pensions and young workers (some of them poor) who are paying high taxes to finance these benefits and may never recoup their contributions. Such social security arrangements may, in addition, have discouraged work, saving, and productive capital formation – thus contributing to economic stagnation.”*

Source: Averting the Old Age Crisis –  
A World Bank Policy Research Report, 1994

While other countries have similar problems, they have yet to find solutions on which Canadians can rely.

### ***Future Economic Growth***

Economic growth would help Canada support an older population. The Canadian economy grew, in real terms, at an average rate of 3.8% per annum during the last 35 years. Among the factors contributing to this growth:

- the working age population increased by 2% per annum,
- the work force participation rate (i.e., the work force as a percentage of the working age population) increased by 0.5% per annum as women entered the work force in large numbers, and
- real wages increased at the rate of 1.3% per annum.

During the next 35 years, the working age population will increase by less than 0.5% per annum. Labour force participation rates may increase, but probably not as quickly as during the 1960s and 1970s. For the purposes of the Canada Pension Plan's annual report, real wages are assumed to increase at the rate of 1% per annum – halfway between the 2% rate commonly experienced prior to the 1980s, and the stagnation of the last 15 years. Putting these factors together, the economy might reasonably be expected to grow at about 2% per annum, half the rate of the last 35 years.

Those who believe that Canada's social security programs can be maintained in their current form argue that the taxes required to support these programs will, if imposed gradually, be borne comfortably by a population whose standard of living is rising.

Others point out that

- the standard of living in Canada stopped improving 15 years ago;
- the financial burdens associated with an aging society will be compounded by the actions required to address the national debt/correct Canada's fiscal imbalances; and
- Canadians will may not tolerate the additional taxes and social security contributions required to deal with these problems.

### 1.5 – An Aging Electorate

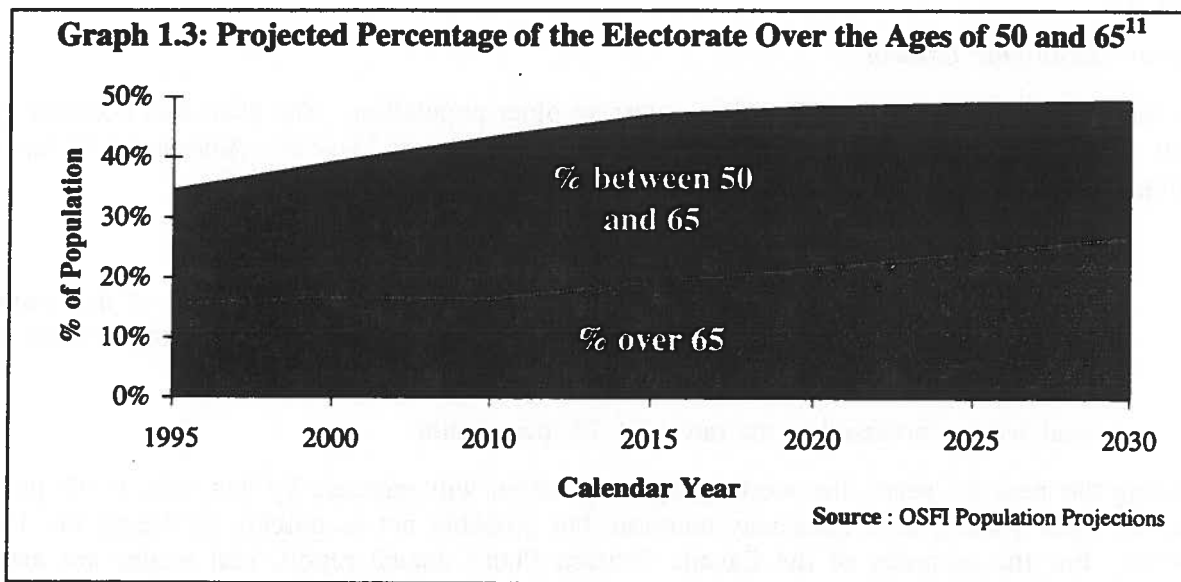
As the population ages, so will the electorate.

**Table 1.6: Projected Median Age of the Canadian Electorate, 1995-2030**

Calendar Year	Median Age of the Canadian Electorate
1995	42.0
2015	48.1
2030	49.5

Source: OSFI Population Projections

By 2030, almost 50% of the electorate will be over the age of 50, versus 34% today.



Older Canadians are more likely to vote than younger Canadians.

**Table 1.7: Voter Turnout by Age**

Age	% of Eligible Voters Who Vote
18 – 21	63%
22 – 29	71%
30 – 39	83%
40 – 49	85%
50 – 59	88%
60 and over	88%

Source: • Voter Turnout in Canada – Volume 15 (1984 Federal Election)  
 • Studies Commissioned by the Royal Commission on Electoral Reform and Party Financing

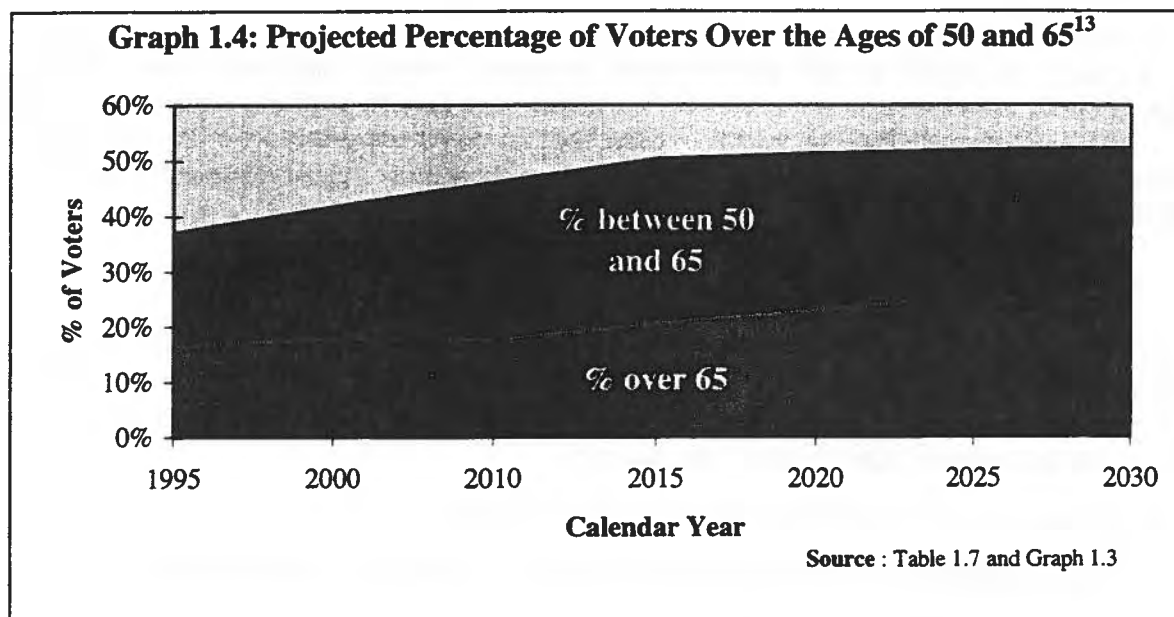
<sup>11</sup> See Exhibit I

If these rates accurately predict future behaviour, then the median age of the Canadian voter (as opposed to the median age of those eligible to vote) will increase as follows:

**Table 1.8 – Projected Median Age of Canadian Voters, 1995-2030<sup>12</sup>**

Calendar Year	Median Age of the Canadian Electorate
1995	43.7
2015	50.1
2030	51.4

The percentage of voters over age 50 will increase as well.



## 1.6 – Conclusion

As our population ages, government spending on seniors will increase without a commensurate reduction in government spending on other age groups. Starting early in the next century, the pressure to increase taxes, increase social security contributions or decrease social security benefits will grow. These pressures will be magnified by Canada's continuing fiscal imbalances, which require similar remedies.

If real wages grow at the rates experienced prior to the 1980s, Canada can afford its social security programs. However the required level of taxation, and the high percentage of gross domestic product that would then flow through government, may not be compatible with the rapid economic growth needed to fuel higher wages.

If real wages stagnate as they have since the 1970s, the tax increases needed to address Canada's fiscal imbalances and aging population will place an unprecedented burden on its working population. Any attempt to roll back social security benefits will, if delayed too long, meet with stiff resistance from an electorate increasingly composed of senior citizens who will have relied, to their detriment, on government assurances that these programs could be maintained in their current form.

<sup>12</sup> Calculated from Table 1.7 and Graph 1.3

<sup>13</sup> See Exhibit I



## 2. SOCIAL SECURITY

---

### 2.1 – Overview

The social security system<sup>1</sup> and the retirement savings system have a common objective: a decent standard of living for retired Canadians.

The traditional objective of public pensions<sup>2</sup> has been the eradication of poverty.

Medicare and the provincial drug plans for seniors, while not income support programs, relieve senior citizens of what would otherwise be a significant expense. Approximately 50% of Canada's Medicare spending<sup>3</sup> is in respect of senior citizens. By 2030, close to two thirds of medicare spending will be for senior citizens.

By supplementing public pensions, Canada's retirement savings system<sup>4</sup> permits working Canadians to avoid a serious disruption to their pre-retirement standard of living when they retire. The retirement savings system is voluntary; no employer is obliged to establish a pension plan; no individual is obliged, by law, to contribute to an RRSP. Tax shelters provide the incentive to save; contributions to retirement savings plans and the investment income earned on these contributions are taxed when the money is withdrawn, not when it is contributed or earned.

### 2.2 – Public Pensions and the Alleviation of Poverty

By one measure, public pensions have been a great success in Canada. In the 1960s, when Medicare, the C/QPP and the GIS were introduced, over 40% of Canada's senior citizens lived below the poverty line. In the 1970s and 1980s, as the public pension system matured,<sup>5</sup> the percentage of senior citizens living below the poverty line declined dramatically.

Canada has several low income/poverty measures, including:

- the Canadian Council on Social Development's poverty line (the "CCSD");
- Statistics Canada's low income measure (the "LIM");
- Statistics Canada's low income cut-off (the "LICO"); and
- Professor Christopher Sarlo's estimate of the cost of purchasing the necessities of life ("Sarlo").

---

<sup>1</sup> Public pensions, as defined below, and Medicare.

<sup>2</sup> Public pensions refers broadly to Old Age Security ("OAS"), the Canada and Québec Pension Plans ("C/QPP"), the Guaranteed Income Supplement ("GIS"), provincial social assistance (such as GAINS in Ontario), and numerous refundable and nonrefundable tax credits available to senior citizens.

<sup>3</sup> \$24 billion in 1992 – similar to the amount that senior citizens collect from Old Age Security and the Canada/Québec pension plans combined

<sup>4</sup> For the purposes of this report, the retirement savings system means employer sponsored pension plans, RRSPs and Deferred Profit Sharing Plans.

<sup>5</sup> Full C/QPP benefits are not available to those who retired prior to 1976. The proportion of senior citizens who receive C/QPP benefits is now approaching a mature level.

In 1991, these low income/poverty measures were at the following levels:

**Table 2.1: Low Income/Poverty Measures in 1991**

Low Income/ Poverty Measure	1991	
	One Person Family	Two Person Family
CCSD	\$13,417	\$22,362
LIM	\$11,896	\$16,654
LICO*	\$12,604	\$16,619
Sarlo**	\$ 7,203	\$10,047

\* for Canadians living in a city with between 100,000 and 500,000 residents

\*\* Ontario

Sources: • Income Distribution by Size in Canada – 1992 – Statistics Canada  
• Poverty in Canada – The Fraser Institute, 1992

The first two measures are relative, i.e., they define poverty relative to the income of other Canadians. If the real income of all Canadians doubled overnight, the limits would also double, and there would be no change in the percentage of Canadians thought to be poor.

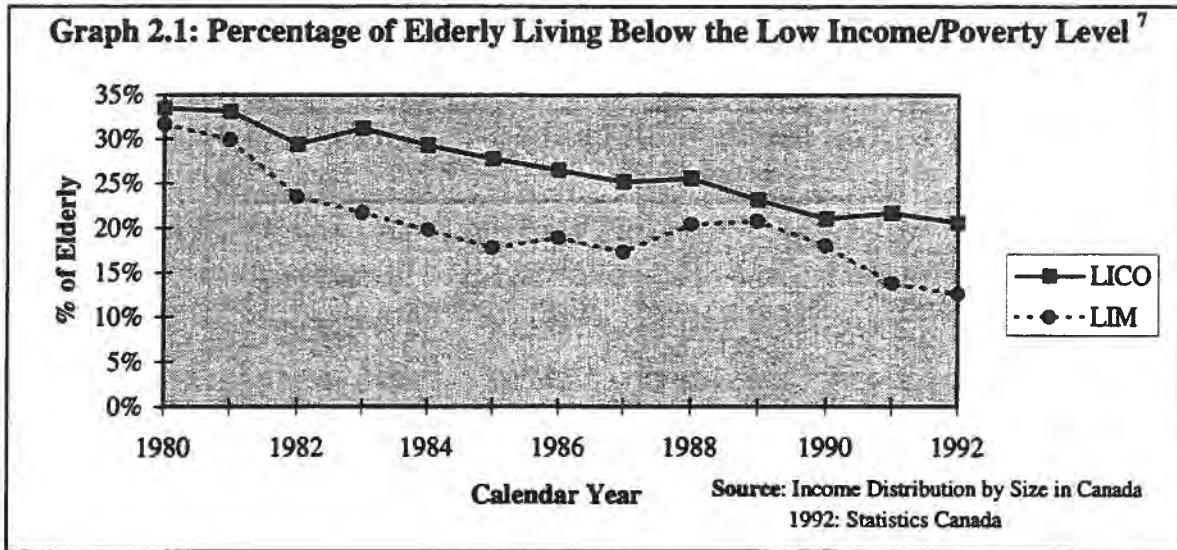
The third measure, the LICO, is the income level at which a family's expenditures on the necessities of life total, as a percent of income, 20% more than an average family, i.e., if an average family spends 35% of its income on necessities, a poor family is one that spends more than 55% of its income on necessities.

The Sarlo measure is absolute. It is an estimate of the cost of food, shelter, clothing and other necessities.

Using the Sarlo poverty measure, the levels of income guaranteed by GIS/OAS in 1991<sup>6</sup> are 30% and 50% respectively above the poverty line. By this measure, poverty among the aged has been eliminated.

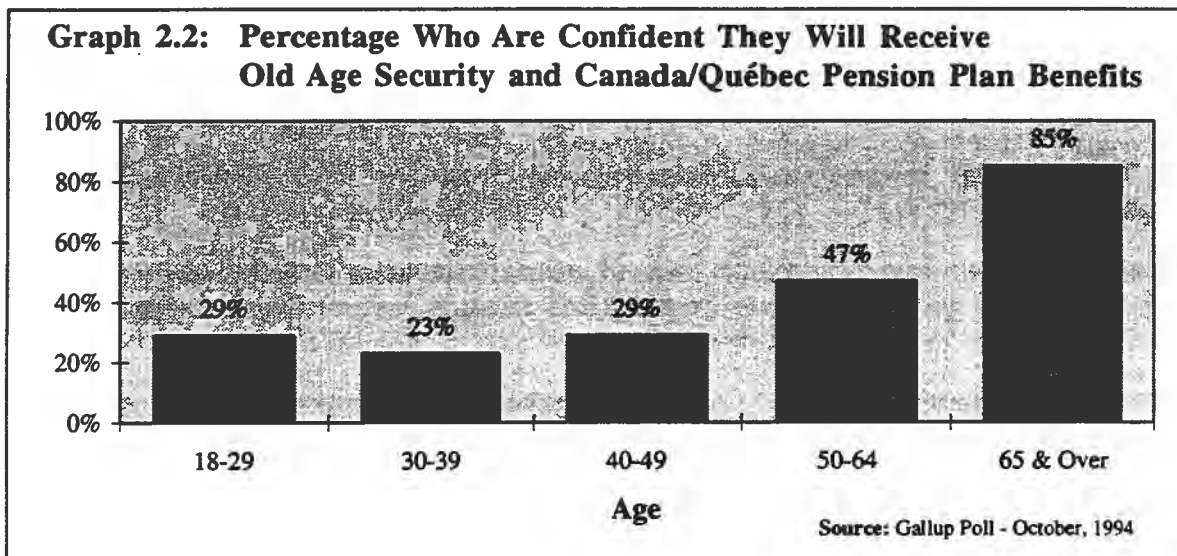
Using the other measures, some of Canada's senior citizens remain poor. But the proportion of senior citizens with low incomes has declined dramatically during the last decade.

<sup>6</sup> \$9,321 for a family of one; \$15,112 for a family of two.



### 2.3 – Cost Pressures

Canadians, in particular young Canadians, are concerned about the future of public pension plans.

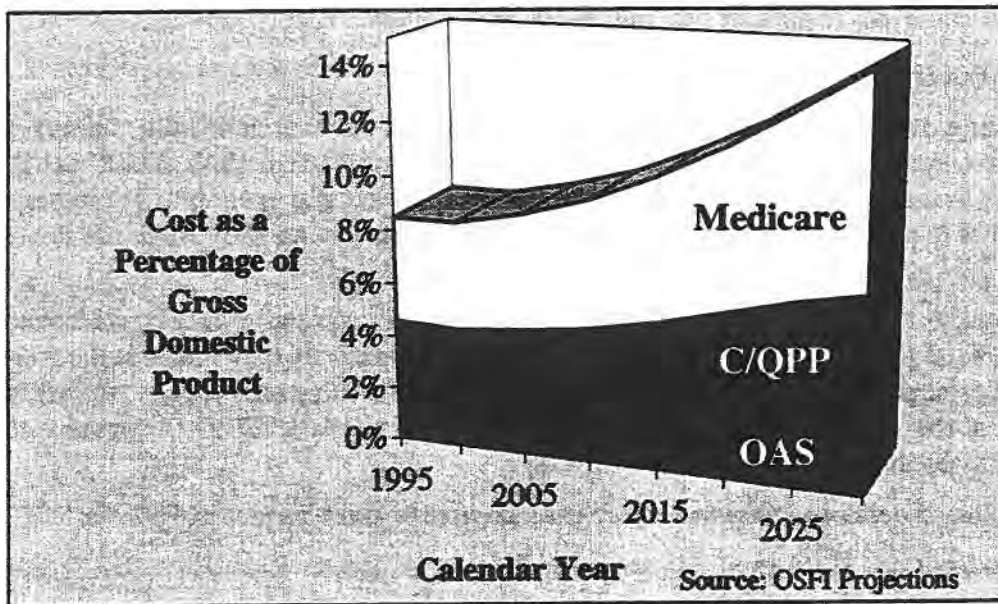


Old Age Security, the Canada Pension Plan, the Québec Pension Plan and Medicare are essentially funded on a pay-as-you-go basis. Old Age Security and Medicare are paid from current tax revenues. The Canada and Québec Pension Plans have funds that could pay benefits for about three years if contributions ceased.

<sup>7</sup> See Exhibit I

The Office of the Superintendent of Financial Institutions uses a model to project the cost of Old Age Security and the Canada Pension Plan. This model can also be used to project the cost of Medicare. Using OSFI's standard projections,<sup>8</sup> the cost of our social security programs will accelerate in the first quarter of the next century.

**Graph 2.3: Social Security Cost Projections<sup>9 10</sup>**



The cost of our social security programs will increase by about 6.3%<sup>11</sup> of gross domestic product during the next 35 years. Based on an estimated 1994 gross domestic product of \$740 billion, this is equivalent to \$47 billion per annum in 1994 dollars.

The cost would be higher but for the fact that Old Age Security benefits are indexed at the rate of increase in the Consumer Price Index, which for the purpose of these projections is assumed to grow at a rate 1% less than the rate of growth in Canadian wages. This means that Old Age Security benefits, when expressed as a percentage of the earnings of the average Canadian, will reduce by about 30% over the 35 years, i.e., the benefit will drop from 16% of the Industrial Aggregate Wage in 1995 to 11% of the Industrial Aggregate Wage in 2030.

<sup>8</sup> Which are based on the actuarial assumptions summarized in Appendix A and described in detail in the Second Actuarial Report of the Old Age Security Program as at December 31, 1991.

<sup>9</sup> See Exhibit I

<sup>10</sup> At each age, per capita medical costs are assumed to increase 1% faster than the rate of increase in the Consumer Price Index. This is optimistic given the experience of the last 20 years, this assumption may underestimate future costs.

Period	Real Annual Rate of Increase in Per Capita Canadian Health Costs
1975-1980	2.2%
1980-1985	2.9%
1985-1990	2.8%
1990-1993	0.7%

Source: National Health Expenditures in Canada - 1975-1993 Policy Consultation Branch, Health Canada, June 1994

<sup>11</sup> 14.8% minus 8.5%; see Graph 2.3 in Exhibit I

If Old Age Security benefits increase in line with wages, by 2030 the Old Age Security Program will cost an additional 1.2% of gross domestic product, or \$8 billion per annum in 1994 dollars.

To maintain social security benefits at present levels will require either significant spending cuts or significant increases in taxes and social security contributions. The cost pressures will be relatively modest during the next 15 years: .08% of GDP or \$600 million per annum, most of which can be achieved by implementing the already scheduled increases in contributions to the Canada/Québec Pension Plans. Between 2010 and 2030, costs will increase at three times this rate: 0.25% of GDP per annum or about \$1.75 billion per annum in 1994 dollars.

### **Addressing the National Debt**

Similar pressures will arise from efforts to address Canada's national debt. The combined debt of our federal and provincial governments has increased from 45% of GDP in 1982 to 91% of GDP in 1992.<sup>12</sup> For Canada to stabilize its debt as a percent of GDP means cutting spending, or raising taxes, by the equivalent of 4% to 5% of GDP (\$30 billion – \$37 billion per annum) from the levels of the last decade.

To tackle both the fiscal and aging problems means increasing taxes, or cutting government spending, by 10% to 12% of gross domestic product over the next 35 years. Part of this will come from the taxes paid by a larger population of senior citizens. If future senior citizens pay taxes comparable to today's senior citizens, the additional revenue will amount to 1% to 2% of GDP. To address the remainder (10% of GDP) through tax increases would mean:

- increasing federal and provincial personal income taxes by about 70%, or
- increasing the GST from 7% to about 35%, or
- increasing payroll taxes by about 17% of pay.

Government spending, which has already increased from 35% of GDP in 1970 to 51% of GDP in 1993 would continue to increase, possibly approaching 60% of GDP in 2030.

Who will pay these higher taxes? Recent OECD studies show that Canadians are heavily taxed in all but one area – social security contributions.

**Table 2.3: Canadian Taxes vs. the G-7**

	1993	
	Canadian Taxes (All Levels of Government) as a % of GDP	Rank Among G-7 Countries*
Direct Taxes on Individuals (including income tax and GST)	14.3%	1 <sup>st</sup>
Direct Taxes on Corporations	2.1%	4 <sup>th</sup>
Social Security Contributions	5.5%	7 <sup>th</sup>
Indirect Taxes	14.1%	2 <sup>nd</sup>
Other Taxes	0.3%	2 <sup>nd</sup>
<b>Total Taxes</b>	<b>36.3%</b>	<b>4<sup>th</sup></b>

\* Canada, the United States, the United Kingdom, France, Germany, Italy and Japan

Source: Economic & Fiscal Reference Tables  
September 1994 – Department of Finance

<sup>63</sup> Economic & Fiscal Reference Tables, September 1994 - Department of Finance. Public Accounts Basis

The three G-7 countries with higher taxes (France, Germany and Italy) have social security contributions that exceed Canada's by 10% to 16% of GDP. Given the limited scope for income tax increases in Canada and the hostile reception afforded the GST, higher social security contributions appear inevitable. Alternatively, Canada might continue to index its personal tax credits and income tax brackets at a rate 3% lower than the increase in the Consumer Price Index, gradually moving to something resembling a 50% flat tax. Either way, the burden will fall predominantly on middle class Canadians.

Employers usually pay a large portion of social security contributions. Regardless of who pays, in a global economy the burden is ultimately borne by those who work (through a reduction in take home pay or increased prices) or by those whose jobs are lost when employers economize in an attempt to remain competitive.

*"Who bears the tax earmarked for old age security? In most countries, the payroll tax is nominally shared by workers and employers. But the ultimate impact of the tax depends on the relative elasticities of demand and supply. In industrial countries, the supply of labour is relatively inelastic with respect to wages: most workers, especially prime age males, continue working when a tax lowers their disposable wage. In that case, workers pay not only their share but their employers' share as well, in lower wages, since wages fall enough to keep everyone employed. "*

Averting the Old Age Crisis –  
The World Bank Policy Research Report

Will future generations tolerate a system where all but the poor pay close to 50% of their earnings to the government? Will they accept a 35% GST? Will they support social security contributions totalling 30% of payroll? None of these are viable if imposed abruptly – but over 35 years?

If real wages increase by 1% per annum, we are asking a generation of Canadians to forego increases in their standard of living for the best part of their working lifetime. If real wages do not increase, we are asking them to accept a significant reduction in their standard of living. Either way, it is a lot to ask.

## 2.4 – Passing the Torch

*"If a retirement income system is not, and is seen not to be, fair in its treatment of successive generations, it will be changed sooner or later".*

The Lazar Report – 1979

In Canada, public pensions and Medicare are funded on a pay-as-you-go basis. Today's taxes and contributions pay for today's seniors. Nothing is left to pay for tomorrow's seniors, other than the relatively small amounts that have accumulated in the Canada and Québec Pension Plans, most of which has been lent to the provinces. Workers rely on intergenerational solidarity to secure their benefits. If they take care of their parents and grandparents, then their children and grandchildren should take care of them.

The cost of a pay-as-you-go social security system will increase dramatically after the first generation. To quote the World Bank Report:

*"In all cases, earlier generations have done better than later generations, regardless of income. That is, covered workers aged 30 to 50 at the inception of the scheme always gain, whereas their children and grandchildren always lose."*

Averting the Old Age Crisis –  
A World Bank Policy Research Report

The Canada and Québec Pension Plans were enacted in 1965. At the time, Canada was nearing the end of an unprecedented 20-year boom. The economy had grown quickly in real terms. Interest rates, in both nominal and real terms, were low. Economists believed that this environment, and the concurrent baby boom, would endure and that pay-as-you-go systems could ride a wave of prosperity.

*"The beauty of social insurance is that it is actuarially unsound. Everyone who reaches retirement age is given benefit privileges that far exceed anything he has paid in . . . . How is this possible? It stems from the fact that the national product is growing at compound interest and can be expected to do so for as far ahead as the eye cannot see. Always there are more youths than old folks in a growing population. More important, with real incomes growing at some 3% a year, the taxable base upon which benefits rest in any period are much greater than the taxes paid historically by the generation now retired . . . . A growing nation is the greatest Ponzi game ever contrived."*

Paul Samuelson –  
Newsweek Editorial – February 13, 1967

Today's economy bears little resemblance to that of the 1950s and 1960s.

*"Today, just as the OECD plans are beginning to mature, the conditions conducive to a successful pay-as-you-go scheme are fast disappearing. Population growth is coming to a halt. Mortality rates are decreasing among the old, raising their share in the population. Wage growth is slowing dramatically, and public pension plans are in trouble in industrial countries."*

Averting the Old Age Crisis –  
The World Bank Policy Research Report

The contrast between the 1960s and 1990s is striking.

**Table 2.4: Comparing the 1990s Environment to the 1960s Environment**

	Long-Term Economic Assumptions*	
	1960's Environment	1990's Environment
Senior Dependency Ratio**	0.33	0.40
Annual Increase in Real Wages	2%	1%
Real Interest Rate***	2%	4%

- \* assumptions that might reasonably have been adopted at the end of the decade in question to assess long-term costs
- \*\* as defined in Section 1.2
- \*\*\* the spread between the yield to maturity on long-term Canada bonds and the prevailing rate of increase in the Consumer Price Index

The 1960s environment favoured pay-as-you-go social security plans. The 1990s environment does not.

**Table 2.5: The Cost of Pay-As-You-Go vs. Funded Plans**

	Estimated Long-Term Cost (as a % of Covered Payroll) of a Public Pension Plan* Based on the Indicated Long-Term Assumptions	
	1960's Assumptions	1990's Assumptions
Pay-As-You-Go Plan	11.0%	14.5%
Fully Funded Plan**	16.5%	7.2%

\* Assuming the benefit equals 40% of final earnings, and is fully indexed to changes in the Consumer Price Index. The combination of Old Age Security and the Canada/Québec Pension Plans currently provides this level of benefit to a retiring Canadian who earns the Industrial Aggregate Wage.

\*\* Assuming, in the case of a fully funded plan, that contributions are made for 40 years and benefits are paid for 20 years.

In the 1960's environment, pay-as-you-go social security systems were hard to resist. They promised a windfall to the first generation, while future generations would pay less as well.<sup>13</sup>

In the 1990's environment, pay-as-you-go social security programs are troubled. Slow population growth and stagnant real wages drive costs above the expected levels.<sup>14</sup> High real interest rates make the alternatives<sup>15</sup> significantly less expensive.<sup>16</sup> In the 1990's environment, participants inevitably compare their benefits to what their contributions might have purchased in a private plan. If the difference is large, support for public plans will decline.

Should Canada abandon the pay-as-you-go approach? We think not. No retirement income system – funded or unfunded, public or private – is free from risk. Any attempt to fund or replace Canada's public pension plans will be expensive in the short term, with no guarantee of a commensurate reduction in long-term cost. Today's environment favours funded retirement savings plans, but tomorrow's environment, like the environment of the 1960's, might not.

Still, the pay-as-you-go approach will add significantly to the burden on future generations. Most Canadians believe that by contributing to the Canada or Québec Pension Plans and by paying taxes to support Old Age Security Benefits and medicare for older generations, they acquire a right to similar benefits and support when they retire. This right imposes a financial obligation on future generations – an obligation that is not recognized in the country's financial statements.

Using the financial models maintained by the Office of the Superintendent of Financial Institutions, together with the actuarial methods and assumptions described in Appendix C, we estimate the accrued liabilities of Canada's social security programs to be:

<sup>13</sup> In Table 2.5, 11% of pay vs. 16.5% of pay

<sup>14</sup> In Table 2.5, 14.5% vs. 11.0%

<sup>15</sup> Funded plans, public or private, with comparable benefits

<sup>16</sup> In Table 2.5, 7.2% vs. 14.5%



**Table 2.6: Accrued Liabilities of Social Security Programs**

Program	Accrued Liability as at December 31, 1991
Canada Pension Plan	\$ 325 billion
Québec Pension Plan	\$ 100 billion
Old Age Security	\$ 235 billion
Medicare	<u>\$ 630 billion</u>
Total	\$1,290 billion

The Canada and Québec Pension Plans have assets totalling \$58 billion. This means that future generations will inherit about \$1.2 trillion of unfunded social security obligations, in addition to the debts officially acknowledged by our federal and provincial governments.

**Table 2.7: Financial Burden on Future Generations**

	Financial Obligations to be Borne by Future Generations as at December 31, 1991	
	\$ billion	% of GDP
Federal debt*	425	63%
Provincial debt*	127 <sup>17</sup>	19%
Unfunded social security obligations	<u>1,232</u>	<u>183%</u>
Total	1,784	265%

\* Public Accounts Basis as at March 31, 1992

Source – Economic & Fiscal Reference Tables – September 1994:  
Department of Finance

The debt is, of and by itself, not a problem. The debt is not due on a single day and, at least in theory, it can be passed from generation to generation without landing unfairly on anyone. But the cost of carrying the debt is significant – perhaps ruinous to a small generation bequeathed a troubled economy. Canadians should remember the cautionary note near the end of the Lazar Report (1979).

*“the working generation should ensure that the capital stock it passes on is not impaired, so as not to reduce the capacity of the next generation to pay the expected pensions.”*

## 2.5 – Can Canadians Rely on Social Security?

All retirement income systems expose beneficiaries to risk. Savings plans are vulnerable to low interest rates, poor stock markets and unanticipated bouts of inflation. Members of employer sponsored pension plans contend with the risk of job loss, employer insolvency and inflation.

<sup>17</sup> The Fraser Institute estimates that the provinces had an additional \$40 billion of unfunded pension liabilities that were not recorded in their balance sheets. *Inside Canada's Government Debt Problem and the Way Out - The Fraser Institute; May 1994*

Public pension plans have their own risks. All around the world, the programs introduced 30 to 50 years ago are being cut back.

- Germany, Sweden and the United States have scheduled increases in the age at which pensions first become payable. France, Italy and the United Kingdom are considering similar changes.
- Japan, Germany, France and the United Kingdom have modified their benefit formulas to reduce pensions.
- The United States changed tax exempt benefits into benefits that were taxed at 50% of normal rates in 1984, and 85% of normal rates in 1994.
- Iceland converted its universal flat benefit pension into a means-tested benefit.
- The United States and Belgium have skipped some scheduled cost-of-living adjustments.

Adjustments are the inevitable consequence of changing circumstances – some economic, some demographic. Static programs, no matter how well designed, will not serve the public good indefinitely.

Many of Canada's programs have been, or are scheduled to be, cut back. Benefit reductions take many forms.

- Some are overt:
  - the clawback of Old Age Security benefits;
  - the clawback of the old age tax credit;
  - the elimination of drug benefits for well-to-do seniors in New Brunswick;
  - the introduction of income-tested premiums for the Seniors' Drug Plan in Alberta; and
  - widespread reductions in out-of-country medical coverage.
- Some are covert:
  - the nonindexation of the pension income tax credit, refundable tax credits and provincial social assistance; and
  - the indexation of the Old Age Security clawback threshold, and the old age credit threshold, at a rate 3% lower than the rate of increase in the CPI.<sup>18</sup>

Canada's public pension plans face many challenges in the coming years. Their cost will increase, and support for them among working age Canadians may decline as contributions rise. Canadians, to the extent that they can afford to, should make reasonable provision for their own retirement, expecting some reduction in government support from current levels.

## 2.6 – Conclusion

Canada's social security system has, to date, achieved its primary objective. Poverty among the aged has been substantially alleviated. Old age has been transformed, in the public's eye, from a short period of financial deprivation to a potentially comfortable time at the end of one's working years.

But there are significant challenges ahead. We have accumulated a significant debt – a debt that must be addressed just as social security costs are poised to accelerate.

---

<sup>18</sup> A procedure which, if continued until 2030, would see the Old Age Security benefits clawed back starting at 50% of the Average Industrial Wage, versus today's 175%.

The architects of our social security system assumed that future generations could comfortably bear the rising cost of these programs. In the 1960s, this may have been a reasonable assumption, but in the 1990s, it is harder to defend the underlying premise – that future generations should pay taxes that the current generation will not tolerate. Any changes to the social security system must address intergenerational inequities. Too often, benefits have been introduced by one generation and paid for by the next. Too often, cutbacks have been gradual – hitting future generations more than the current generation.

Our social security programs may not be sustainable in their current form. Contributions will rise. Benefits may be cut; retirement ages deferred; universality curtailed. Those who can afford to save for retirement must be encouraged to do so, and to rely less on government programs.

### 3. RETIREMENT SAVINGS AND CAPITAL FORMATION

#### 3.1 – The Growth of Retirement Savings Plans

Retirement savings plans have grown rapidly during the last 10 years. Most of the assets are held in Registered Pension Plans or RRSPs. Deferred Profit Sharing Plans are small by comparison.<sup>1</sup>

**Table 3.1: Growth of RRSP and Pension Assets, 1982-1992**

	Value of Assets		Average Annual Rate of Growth
	December 31, 1982 (\$ billion)	December 31, 1992 (\$ billion)	
Registered Pension Plans*	\$125.3	\$376.5	11.6%
RRSPs	<u>26.9</u>	<u>146.7</u>	<u>18.5%</u>
Total	\$152.2	\$523.3	13.1%

\* includes the consolidated revenue funds of the federal and provincial governments

Source: • Trusteed Pension Funds – 1992 (Statistics Canada)

Contributions to RRSPs are growing faster than contributions to pension plans.

**Table 3.2: Growth in RRSP and Pension Contributions, 1983-1992**

	Annual Contributions		Average Annual Rate of Growth
	1983 (\$ billion)	1992 (\$ billion)	
Registered Pension Plans*	11.2	19.7	6.5%
RRSPs	<u>5.0</u>	<u>14.8</u>	<u>12.8%</u>
Total	16.2	34.5	8.8%

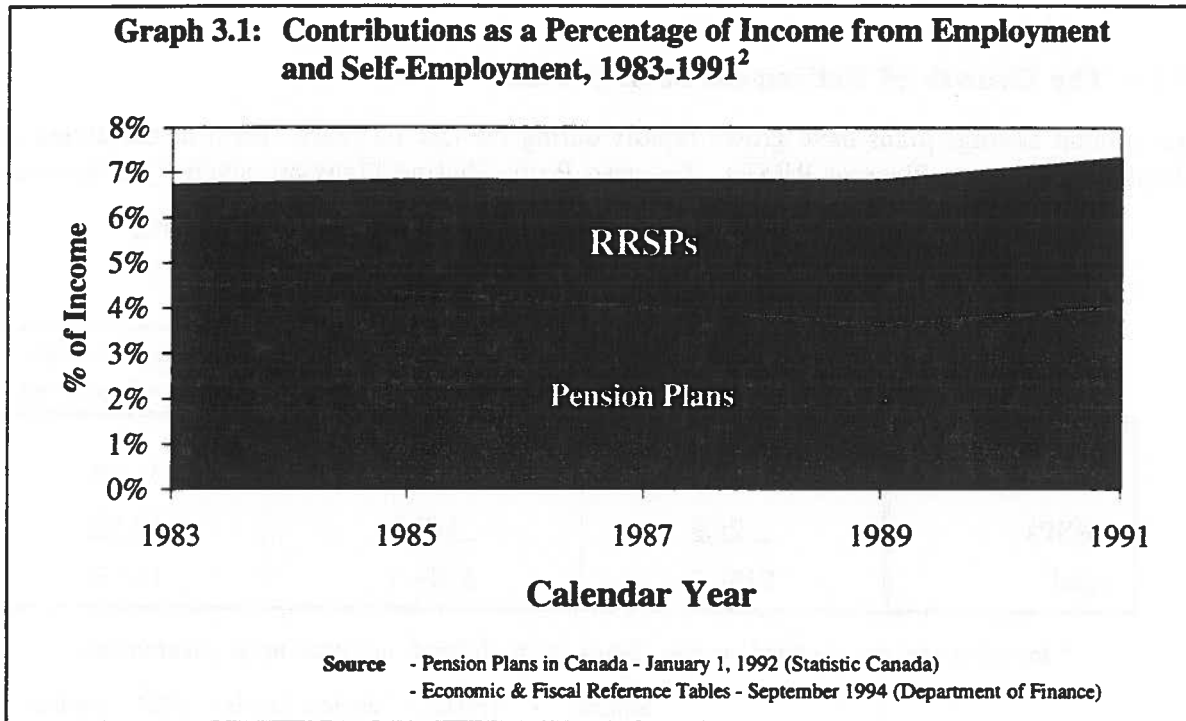
\* both employer and employee contributions; includes contributions to consolidated revenue funds

Source: • Pension Plans in Canada – January 1, 1992 (Statistics Canada)

• Unpublished Statistics – Statistics Canada

Contributions, when expressed as a percentage of employment income, have increased slightly during the last eight years – a significant increase in RRSP contributions compensating for a reduction in pension contributions.

<sup>1</sup> According to Benefits Canada's 1994 Money Purchase Plan Survey. \$1.4 billion had accumulated in DPSPs as at June 30, 1994.



### 3.2 – Retirement Savings, Personal Savings and Private Savings

In Canada's system of national accounts, savings are measured differently. Among other things, the system of national accounts ignores contributions to, and the investment income earned by, consolidated revenue funds.<sup>3</sup>

Retirement savings plans have become the dominant element in our national savings. Between 1983 and 1992, retirement savings, as measured by the annual increase in the assets held in RRSPs and pension plans (excluding any assets in consolidated revenue funds) accounted for 93% of the contractual savings<sup>4</sup> identified in the National Income and Expenditure Accounts.

The Economic Council of Canada in its 1979 examination of Canada's pension system observed, at a time when the personal savings rate was about 10% of GDP and rising,

*“the further aging of the work force and any further growth in occupational pensions should, if anything, lead to increased personal savings for at least several decades.”*

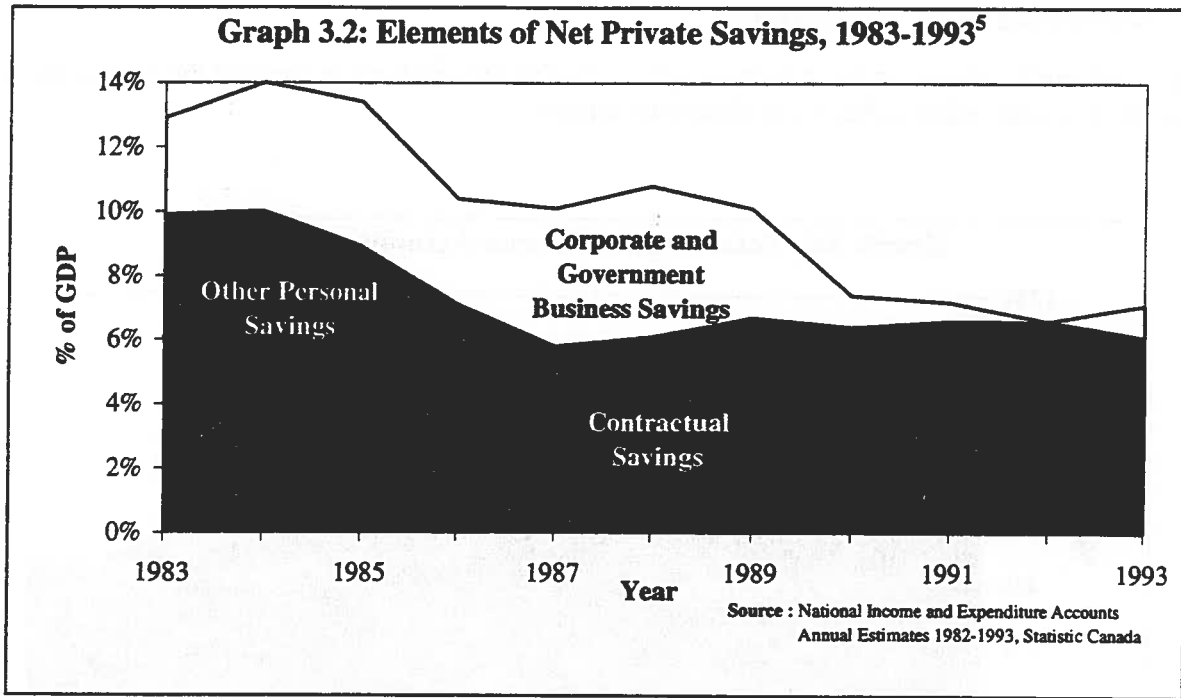
This has not happened.

Contractual savings have been the only stable feature of Canada's net private savings. Noncontractual personal savings have all but disappeared. Corporate and government business savings have been modest since the recession.

<sup>71</sup> See Exhibit I

<sup>72</sup> Accounts maintained by the federal and some provincial governments to pay pensions to their employees.

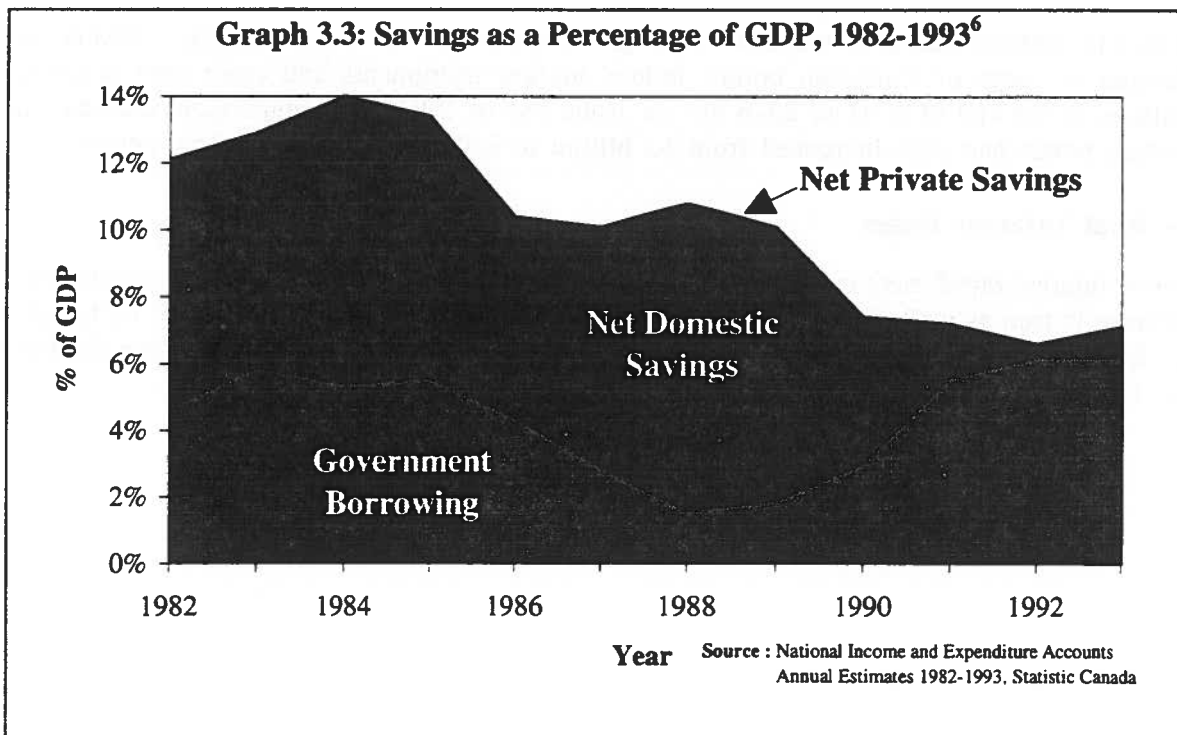
<sup>73</sup> In the system of national accounts, contractual savings includes RRSPs, trustee pension plans, assets held by Canadian life insurance companies and certain other assets. It excludes the assets in consolidated revenue funds.



This is not the pattern one would expect from an aging population with ambitious plans to retire at an early age.

### 3.3 – Government Borrowing

Governments borrow a significant percentage of Canada’s diminishing pool of savings.

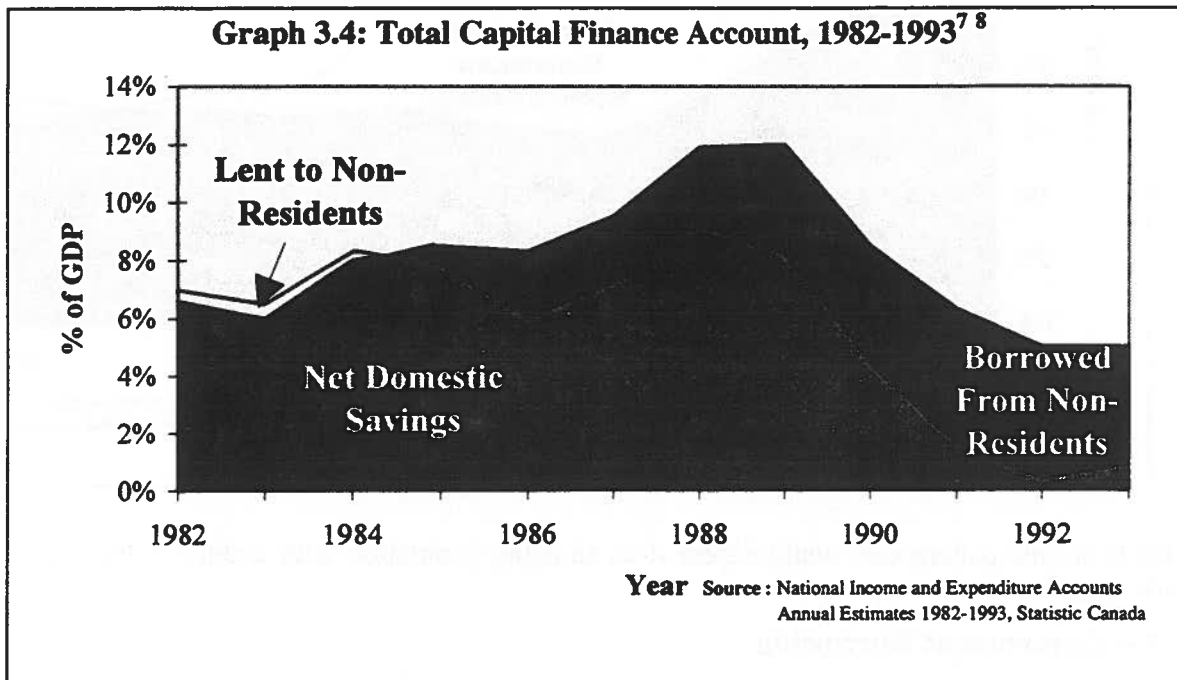


<sup>5</sup> See Exhibit I

<sup>6</sup> See Exhibit I

### 3.4 – Borrowing from Nonresidents

Private and public borrowers have increasingly turned to nonresidents to provide the capital that cannot be raised at a reasonable price from domestic sources.



Canadian investment has been sustained by a growing reliance on foreign savings. The consequence – foreign holdings of Canadian bonds, money market instruments and other debt increased from \$81 billion at the end of 1981 to \$346 billion at the end of 1993. By comparison, Canada's holdings of foreign bonds and debt increased from \$3 billion to \$20 billion over the same period.

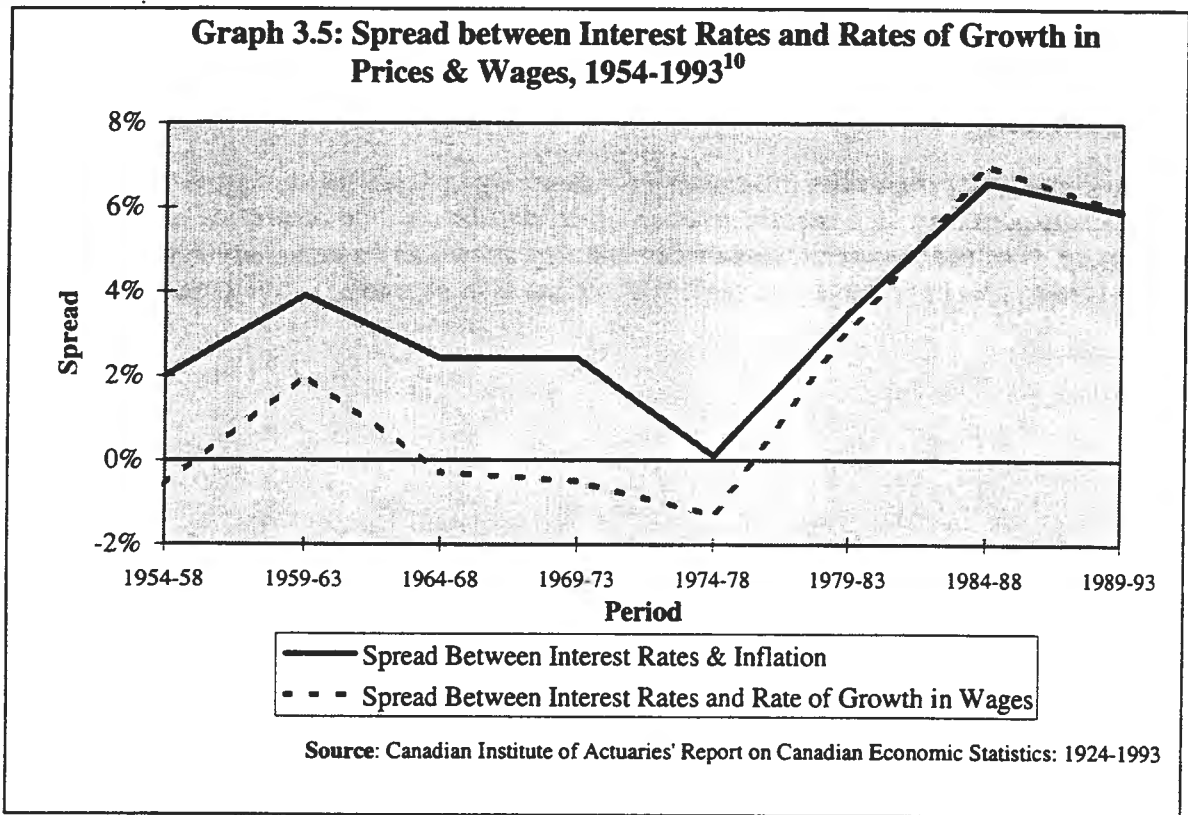
### 3.5 – Real Interest Rates

High real interest rates<sup>9</sup> have contributed to Canada's debt problems, and many economists believe that the reverse is true as well, i.e., that Canada's debt problems have contributed to our high real interest rates. Relative to the rates of growth in wages and prices, interest rates are much higher than they were in the 1950s and 1960s.

<sup>7</sup> See Exhibit I

<sup>8</sup> Excluding capital consumption allowances

<sup>9</sup> The "real" interest rate is the difference between the interest rate and the rate of increase in the Consumer Price Index



Relative to the larger G-7 countries, Canada's real interest rates have been high and the spreads have been widening.

**Table 3.3: Canadian Interest Rates Relative to Other G-7 Countries**

	1980-1993 Differences Between Interest Rates and . . .		1989-1993 Differences Between Interest Rates and . . .	
	Increases in the Consumer Price Index	Increases in the Average Wage	Increases in the Consumer Price Index	Increases in the Average Wage
<b>Canada</b>	<b>5.7%</b>	<b>5.0%</b>	<b>5.9%</b>	<b>5.3%</b>
U.S.	4.7%	4.5%	3.5%	3.3%
Japan	4.0%	2.8%	3.3%	2.5%
Germany	4.7%	3.2%	4.3%	2.6%
United Kingdom	4.3%	2.3%	4.1%	2.5%
France	5.4%	4.4%	6.1%	5.1%
Italy	4.9%	3.5%	7.2%	5.7%

Source: OECD Statistical Tables

<sup>10</sup> See Exhibit I



Since 1980, relative to the rate of growth in wages, Canadian interest rates have been higher than in any other G-7 country. During the last five years, only Italy had higher rates.

### 3.6 – Conclusion

Canada's retirement savings rates have held up well during the last decade, but have not increased as one might have expected in a country with an aging population. Other sources of domestic savings have dried up. The gap between Canada's demand for capital and its domestic savings has been filled by nonresidents, who have demanded high real interest rates in exchange for lending us their capital.



Country	1980	1985	1990	1995
Canada	10.0	12.0	15.0	10.0
USA	8.0	7.0	6.0	5.0
UK	12.0	10.0	8.0	7.0
France	6.0	5.0	4.0	3.0
Germany	5.0	4.0	3.0	2.0
Italy	3.0	4.0	10.0	15.0
Japan	2.0	2.0	2.0	2.0

## 4. THE RETIREMENT SAVINGS SYSTEM

---

### 4.1 – Tax System for Retirement Savings

#### *Objectives of the Tax System*

*“Retirement income policies in Canada are based on three main principles which were set in the 1982 Green Paper. They are:*

- *Elderly Canadians should be guaranteed a reasonable minimum income.*
- *The opportunities and arrangements available to Canadians to provide for their retirement should be fair.*
- *Canadians should be able to avoid serious disruption of their pre-retirement living standard upon retirement.”*

1984 Federal Budget Papers

According to the 1984 Federal Budget Papers, the retirement savings system should also promote greater self-reliance and the accumulation of investment capital.

#### *Structure of the Current System*

Under Canada’s tax system:

- individuals and their employers are permitted tax deductions for amounts contributed to approved retirement savings plans;
- investment income on these contributions is not taxed as earned; but
- all benefits, including those attributable to investment earnings, are taxed in full when they are received.

In essence, individuals are permitted to defer taxes on the earnings they save from their working years to their retirement years. As discussed in Section 5 of this report, this confers an economic benefit on those who save.

The tax system limits the amount of retirement savings qualifying for tax assistance. Contributions in excess of 18% of earnings are not eligible for tax assistance, with earnings for this purpose capped at \$86,111.

These limits apply to RRSPs, RPPs and DPSPs on a combined basis. Coordination is achieved by a complex system of annual reporting for RPPs and DPSPs [referred to as Pension Adjustments (PAs) and Past Service Pension Adjustments (PSPAs)]. In effect, each individual’s RRSP contribution limit is reduced by the deemed value of any benefits earned under RPPs and DPSPs. This approach ensures that the overall retirement savings limits are respected, and it causes the tax rules for RRSPs to be tied to those for RPPs and DPSPs.

## 4.2 – Benefit Adequacy and Retirement Savings Targets

*“Canadians in the middle and higher income brackets must supplement their public pensions with income from employer-sponsored pension plans, individual retirement savings plans, or other investments to assure maintenance of living standards after retirement. Tax assistance for retirement savings is the government’s means of encouraging and helping them to do so.”*

1984 Federal Budget Papers

### *Benefit Adequacy*

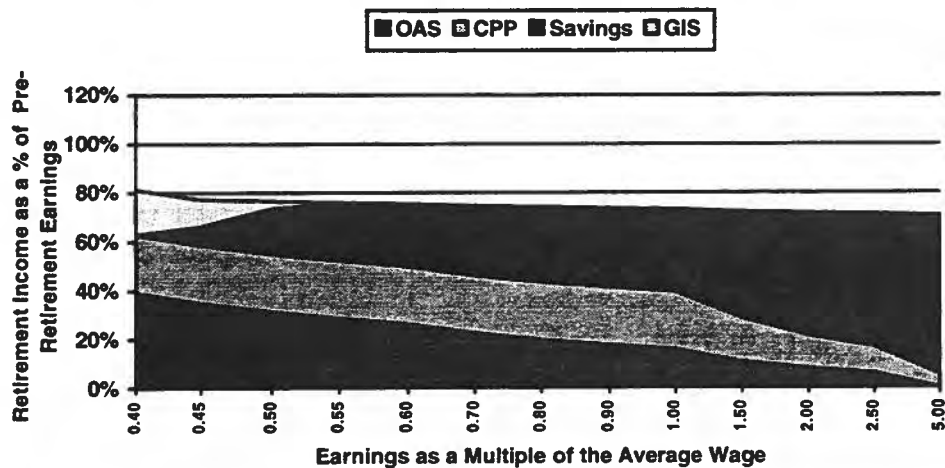
The ratio of post-retirement income to pre-retirement earnings is a common measure of the adequacy of retirement income. Plans that, in conjunction with social security benefits, replace 70% to 80% of pre-retirement earnings generally permit members to retire without a disruption in their standard of living.

The Task Force adopted the following retirement income target as its measure of adequacy for an individual retiring at age 65:

- 80% of earnings up to one third of the average wage, plus
- 70% of earnings in excess of the average wage

Retirement income comes from many sources: retirement savings plans, Old Age Security, the Canada and Québec Pension Plans and possibly the Guaranteed Income Supplement. The relative importance of each of these sources depends on the individual’s income.

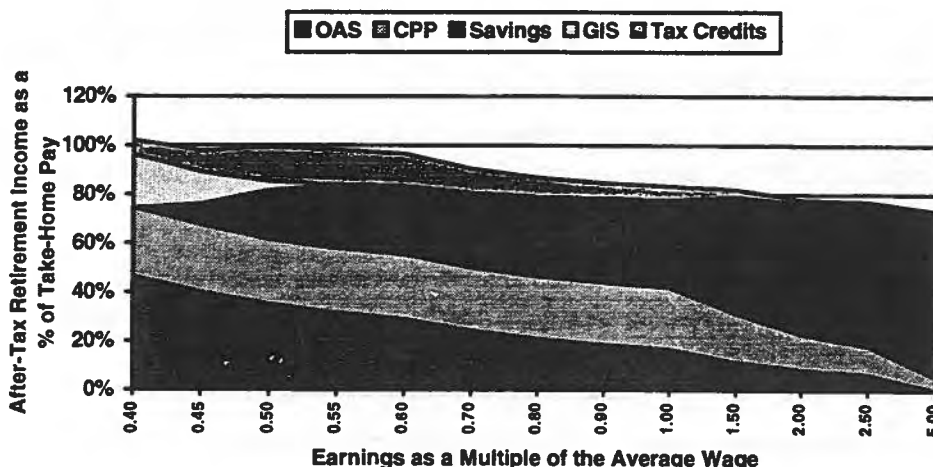
**Graph 4.1: Target Retirement Income, by Source  
Two-Income Family Retiring @ 65 in 1995**



The after-tax ratios<sup>1</sup> are higher than the pre-tax ratios, due to tax credits, social security contributions, the non-taxable status of GIS benefits and other factors.

<sup>1</sup> The ratio of after-tax retirement income to pre-retirement earnings less taxes and social security contributions

**Graph 4.2: After-Tax Retirement Income, by Source  
Two-Income Family Retiring @ 65 in 1995**

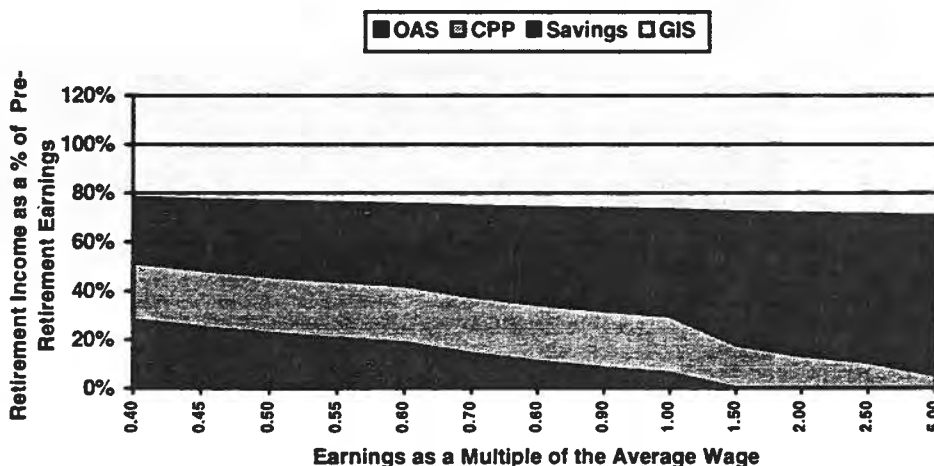


Accordingly, our retirement income target<sup>2</sup> replaces, after tax, close to 100% of take-home pay for those earning less than 50% of the average wage.

This retirement income target will also produce a reasonable result for two income families retiring in 2030, if we assume that

- OAS and GIS benefits are fully indexed to changes in the CPI,
- the Canada and Québec Pension Plans remain in their current form,
- the basic income tax credits and exemptions are fully indexed to changes in the CPI (except the clawback thresholds which are indexed at CPI – 3% and other amounts, like the pension income credit, which have been frozen for some time),
- Unemployment Insurance contributions remain at current levels,
- Canada/Québec Pension Plan contributions increase according to the schedule in the most recent Canada Pension Plan report.

**Graph 4.3: Target Retirement Income, by Source  
Two-Income Family Retiring ,@ 65 in 2030**

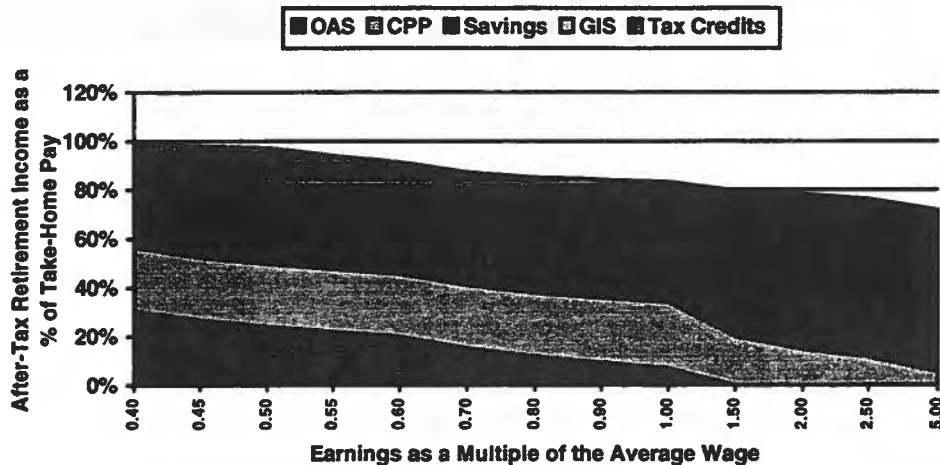


<sup>2</sup> 80% of earnings to one-third the average wage plus 70% of earnings in excess of one-third the average wage

In 2030, a smaller portion of the retirement income target is provided by social security plans because OAS and GIS decline, as a percentage of the average wage, with the passage of time, and because the OAS clawback becomes more important as inflation erodes the clawback threshold. Still, the retirement savings target will replace a reasonable percentage of take-home pay, although more of the income will need to come from retirement savings plans.

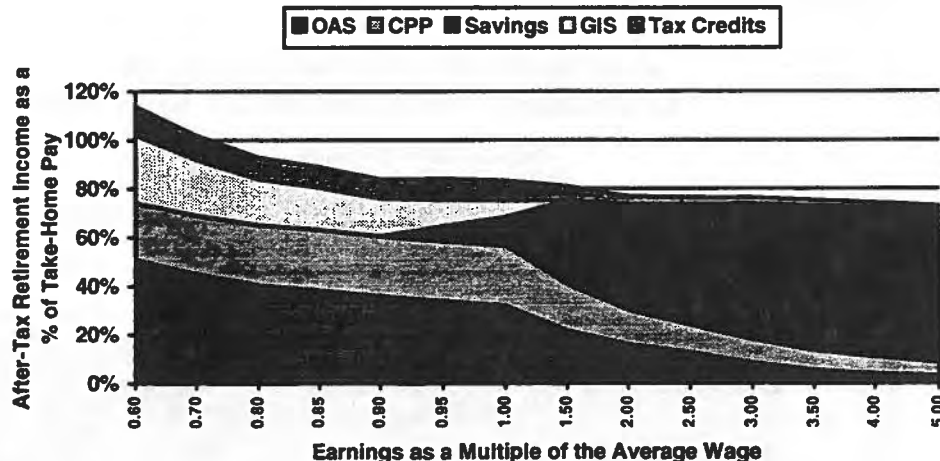
As was the case for two-income families retiring in 1995, on an after-tax basis the retirement income target replaces almost 100% of take-home pay for those earning less than 50% of the average wage.

**Graph 4.4: After-Tax Target Retirement Income, by Source  
Two-Income Family Retiring @ 65 in 2030**



For one-income families, our retirement income target is too high, especially for those with low incomes.<sup>3</sup>

**Graph 4.5: After-Tax Target Retirement Income, by Source  
One-Income Family Retiring @ 65 in 1995**



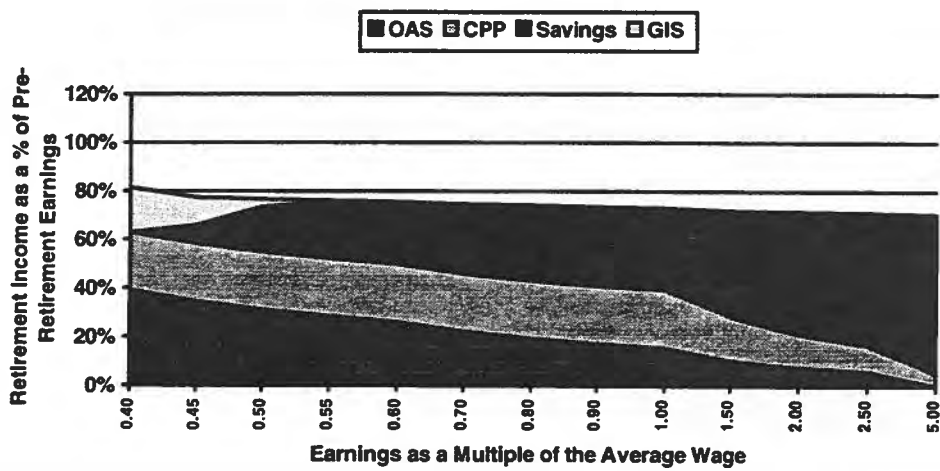
<sup>3</sup> One-income families have a higher portion of the family income replaced by OAS and GIS because both spouses collect OAS and GIS benefits while only one had employment earnings.

One-income families do not need to rely on retirement savings plans to the same extent as two-income families, but the *Income Tax Act* gives both the same opportunity to save. If a single limit is desirable, it should be one that makes sense for two-income families.

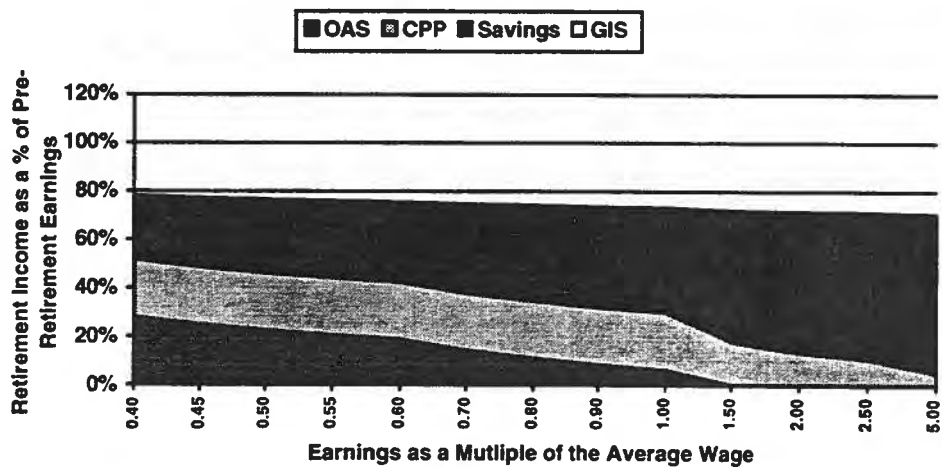
The following three graphs show the target retirement income, by source, for Canadians retiring

- in 1995,
- in 2030, assuming that the Canada and Québec pension plans are maintained in their current form,
- in 2030, assuming that the age at which unreduced benefits are payable under the Canada and Québec Pension Plans is gradually increased to 70, and hence that benefits for those who retire at 65 are reduced by 30%.

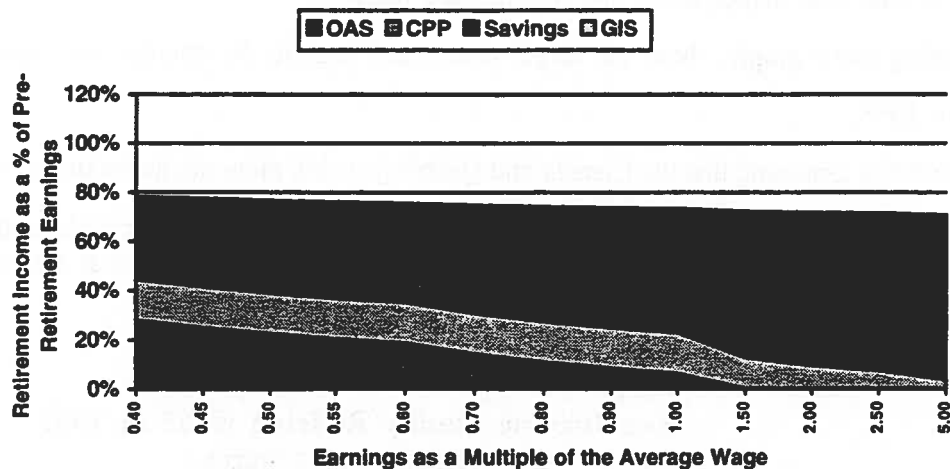
**Graph 4.6: Target Retirement Income, by Source  
Two-Income Family Retiring @ 65 in 1995**



**Graph 4.7: Target Retirement Income, by Source – Current C/QPP  
Two-Income Family Retiring @ 65 in 2030**



**Graph 4.8: Retirement Income, by Source – Reduced C/QPP  
Two-Income Family Retiring @ 65 in 2030**



Future generations will need to rely more heavily on personal and employer-sponsored retirement savings plans, especially if cost pressures lead to reductions in the benefits paid by the Canada/Québec Pension Plans.

#### *Retirement Savings Targets*

The level of retirement savings that is needed to achieve the retirement income target depends on several factors:

- income level, since the target varies by income as does the portion of the target delivered by social security programs;
- the composition of the individual's family unit since, in relative terms, a single-income family can rely on social security to replace more of its pre-retirement earnings than can a two-income family;
- the expected retirement age;
- the individual's year of retirement, since our social security programs are eroding with the passage of time, and may be further cut back to control costs; and
- the age at which an individual starts to save for retirement.

In developing savings targets, we assumed that Canadians start saving at age 30, and continue to save a level percentage of earnings until retirement. We concentrated on two-income families; for this purpose, each of the two partners was assumed to have the same earnings. The resulting retirement savings targets, based on the actuarial assumptions summarized in Appendix B, are as follows:

**Table 4.1: Retirement Savings Targets\* in 1992, as a Percent of Earnings**

Expected Retirement Age	Income	Attained Age in 1992	
		35	53
65	\$ 15,000	6.9%	5.3%
	\$ 30,000	9.0%	7.3%
	\$ 60,000	12.0%	10.7%
	\$120,000	12.8%	12.6%
60	\$ 15,000	12.0%	9.8%
	\$ 30,000	14.2%	13.0%
	\$ 60,000	17.4%	16.1%
	\$120,000	18.4%	18.2%

\* These results are premised on the continuation of the present tax system for retirement savings; OAS is assumed to decline over time as the clawback feature matures; the age at which the Canada/Québec Pension Plans provide full benefits is gradually extended from age 65 (for retirements on or before the year 2000) to age 70 (for retirements after 2030).

### 4.3 – Assessment of Current Retirement Savings Practices

#### *General*

A detailed analysis of participation rates and savings patterns appears in Appendix D. This information is based on 1992 experience.

The following analysis focuses on individuals who:

- are active members of the work force – only contributors to the Canada/Québec Pension Plan were included in the analysis;
- derive most of their income from employment or self-employment – individuals whose income comes primarily from pensions or investments have been excluded;
- are between the ages of 25 and 65; and
- have an annual income of between \$20,000 and \$80,000. Individuals who earn less than \$20,000 do not need to save as much for retirement and, perhaps more importantly, have little incentive to save, as government benefits and tax credits are income tested. Individuals earning over \$80,000 were excluded because the dollar limits in the tax system prevent them from saving as much as they should.

#### *Overall Results Mask Deficiencies*

For all Canadians in the study group, the overall level of retirement savings during 1992 was 10.1% of earnings, comprising:



**Table 4.2: Retirement Savings Rates, by Vehicle**

Retirement Savings Vehicle	Retirement Savings as a Percentage of Income
Contributions to Registered Pension Plans and Deferred Profit Sharing Plans	
• By employees	2.2%
• By employers	4.3%
• RPP/DPSP total	6.5%
Contributions to Registered Retirement Savings Plans	3.6%
Overall Retirement Savings Rate	10.1%

The savings rate required to reach the retirement income target at age 65 was 8.9%. If anything, this target is somewhat high as it is based on the two-income family. One-income families, for the reasons cited earlier, don't need to save as much. Accordingly, Canadians are, in aggregate, saving at a reasonable rate.

The savings pattern by income was relatively close to the pattern suggested by the retirement savings target.

**Table 4.3: Retirement Savings Rates, by Income – C/QPP Contributors Between the Ages of 25 and 64**

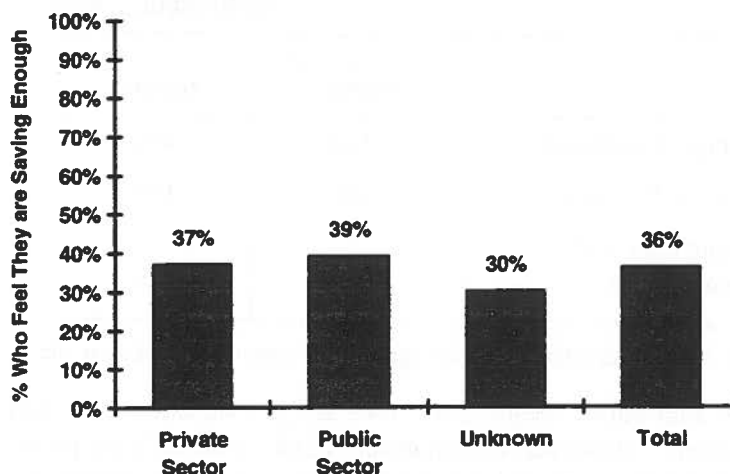
Income	Savings Target** for Retirement at 65	Savings Rate
Less than \$20,000	4.5%	2.9%
\$20,000 to \$40,000	6.9%	7.2%
\$40,000 to \$80,000	10.7%	12.6%
Over \$80,000	12.4%	8.3%*

\* The *Income Tax Act* prevents Canadians earning more than \$86,111 from saving enough to reach the retirement income target.

\*\* The targets were developed in the same way as those presented in Table 4.1, but for individuals as outlined in Appendix D.

While the overall savings rate, at 10.1%, is reasonable, the overall results mask significant deficiencies:

- outside the public sector, savings rates are well below what is required to maintain the pre-retirement standard of living, even for those retiring at age 65; and
- many Canadians expect to retire before age 65.

*The Private Sector is Saving Too Little***Graph 4.9: Perceived Adequacy of Savings**

Source: Gallup Poll, November 1994

Despite individual perceptions, the Task Force found that the level of retirement savings for public sector employees is sufficient to maintain their pre-retirement standard of living upon retirement at a relatively young age. However, outside the public sector, Canadians are not saving enough to maintain their pre-retirement living standards for retirement at age 65.

**Table 4.4: 1992 Retirement Savings Rates by Sector -  
C/QPP Contributors Between the Ages of 25 and 64 with Incomes  
Between \$20,000 and \$80,000**

Sector	Savings Target for Retirement at 65* (a)	Retirement Savings Rate (b)	Actual Rate Less Target Rate (c) = (b) - (a)
<b>Public Sector Employees</b>	9.2%	15.7%	6.5%
<b>Employees of Business</b>			
• Members of pension plans/DPSPs	8.8%	9.1%	0.3%
• Nonmembers of pension plans/DPSPs	8.8%	4.5%	(4.3%)
• All employees	8.8%	6.8%	(2.0%)
<b>Other Employees and the Self-Employed</b>	8.3%	6.8%	(1.5%)
<b>All Sectors</b>	8.9%	10.1%	1.2%

\* The above target rates differ among the sectors due to the age and income composition of each sector.

Within the private sector, those who participate in employer sponsored plans are in reasonable shape. The overall poor showing of the private sector stems from that sector's relatively low participation rate in such plans.

**Table 4.5: 1992 Participation Rates, by Sector -  
C/QPP Contributors Between the Ages of 25 and 64 with Incomes  
Between \$20,000 and \$80,000**

Sector	Participation Rate		
	Pension Plan/ DPSP	RRSP	Combined
Public Sector Employees	84%	47%	92%
Employees of Business	46%	49%	71%
Other Employees and the Self-Employed	19%*	48%	59%

\* Many of these individuals are ineligible for registered pension plans.

It is interesting to note that public sector employees are just as likely to contribute to an RRSP as their private sector counterparts. However, contributions made to RRSPs by public sector employees are at a much lower level, because generous pension benefits reduce an employee's RRSP room.

**Table 4.6: RRSP Contribution Rates, by Sector -  
C/QPP Contributors Between the Ages of 25 and 64 with Incomes  
Between \$20,000 and \$80,000**

Sector	1992 RRSP Contributions as a Percent of Earnings
Public Sector Employees	2.7%
Employees of Business	3.9%
Self-Employed and Other	5.7%
All Sectors	3.6%

### ***Early Retirement Expectations are Unsupportable***

Only in the public sector is the current level of retirement savings sufficient to maintain the pre-retirement standard of living on retirement at or near age 60.

**Table 4.7: 1992 Retirement Savings Rates by Sector -  
C/QPP Contributors Between the Ages of 20 and 64 with Incomes  
Between \$20,000 and \$80,000**

Sector	Savings Target for Retirement at 65* (a)	Retirement Savings Rate (b)	Actual Rate Less Target Rate (c) = (b) - (a)
<b>Public Sector Employees</b>	14.0%	15.7%	1.7%
<b>Employees of Business</b>			
• Members of pension plans/DPSPs	13.5%	9.1%	(4.4%)
• Nonmembers of pension plans/DPSPs	13.5%	4.5%	(9.0%)
• All employees	13.5%	6.8%	(6.7%)
<b>Other Employees and the Self-Employed</b>	13.0%	6.8%	(6.2%)
<b>All Sectors</b>	13.6%	10.1%	3.5%

#### **Other Observations**

The Task Force also found that the level of retirement savings for females exceeded that for males, and that the level for individuals paying union dues exceeded the level for those not paying union dues.

- The savings rate for females is 1.5% higher than for males.
- The savings rate for unionized workers is 3.0% higher than for non-unionized workers.

These differences likely arise from the disproportionately high number of females and unionized workers in the public sector.

#### **4.4 – Conclusion**

At first glance, it may appear that Canadians are saving at a level sufficient to maintain their pre-retirement standard of living. However, analysis shows that the retirement savings rates of most Canadians fall considerably short of what is needed. Only public sector employees are saving at a sufficient level. In the public sector, retirement savings are at a level sufficient to support retirement before age 60; in the private sector, the savings rate is not compatible with retirement at or before age 65.

## 5. THE COST OF THE RETIREMENT SAVINGS SYSTEM

### 5.1 – Government Estimates

*“The level of tax assistance provided to savings in registered pension plans, deferred profit sharing plans and registered retirement savings plans was estimated to be \$14.915 billion at the federal level in 1991.”*

Source: Creating a Healthy Fiscal Climate -  
Department of Finance, October 1994

The Department of Finance estimates that the retirement savings system costs the federal government \$14.9 billion in 1991, easily the largest federal “tax expenditure.”

The methods and assumptions used to produce this estimate are described in Personal and Corporate Income Tax Expenditures (Department of Finance; December, 1993). The document divides the tax expenditure between registered pension plans and RRSPs as follows:

**Table 5.1: 1991 Tax Expenditure for RRSPs and Pension Plans**

	1991 Tax Expenditure (\$ billion)
Registered Pension Plans	9.4
RRSPs	<u>5.5</u>
Total	14.9

The tax expenditure for deferred profit sharing plans was not estimated. Presumably it is small. The Department of Finance uses the “current cash flow” method. The tax expenditure consists of three elements.

#### 1. Tax Expenditure on Contributions

This is the additional personal income tax that the federal government would have collected in 1991 if

- contributions to RRSPs had not been deductible,
- employee contributions to registered pension plans had not been deductible, and
- employer contributions to registered pension plans had been imputed to employees as taxable benefits, and taxed at the employees’ marginal rates.

#### 2. Tax Expenditure on Sheltered Investment Income

This is the additional income tax the federal government would have collected in 1991 if

- the assets in retirement savings plans had earned a rate of return equal to the average yield to maturity on long-term Canada bonds (9.76% in 1991), and
- the investment income had been taxed in the hands of the person on whose behalf the money was held. For pension plans, this means that all investment income is effectively attributed to plan members.

Investment income is assumed to be taxable at full marginal rates. No allowance is made for dividend tax credits or for the tax-exempt portion of capital gains.

### 3. Tax Credit on Benefits Paid

The tax expenditure is reduced by a credit equal to the income tax that the federal government collected in 1991 on benefits paid from RRSPs and registered pension plans.

For convenience, the Department of Finance assumes that the average marginal tax rate applicable to the taxable benefits arising from employer pension contributions equals the average marginal tax rate applicable to employee pension contributions. It also assumes that the average marginal tax rate for investment income is the same as the average marginal tax rate for contributions.

The "current cash flow" method provides

*"a reasonably accurate picture of the ongoing cost of maintaining a particular tax provision in a mature tax system"*

Source: Personal and Corporate Income Tax Expenditures –  
Department of Finance

However, the document later points out that

*"the RRSP/RPP tax expenditure estimates do not reflect a mature system because contributions currently exceed withdrawals"*

Source: Personal and Corporate Income Tax Expenditures –  
Department of Finance

While we find that the Department of Finance's estimates of the cost of the retirement savings system are substantial overestimates, we also find, in contrast to the Department of Finance, that the cost should not be expected to decline over time.<sup>1</sup>

The distinction between the tax expenditure for RRSPs and the tax expenditure for registered pension plans is not meaningful without a tracking of transfers between the two, i.e., pension contributions can emerge as RRSP benefits and vice versa. Combining the two, the 1991 tax expenditure was calculated as follows:

**Table 5.2: Calculation of the 1991 Tax Expenditure for Retirement Savings Plans**

	Basic Amount (\$ billion) (a)	Average Marginal Rate (Federal Only) (b)	Tax Expenditure (\$ billion) (c) = (a) x (b)
Contributions	30.2	25.8%	7.8
Investment Income	46.1	25.8%	11.9
Benefit Payments	(22.3)	22.1%	(4.9)
Total	54.0		14.8*

\* differs from the published amount (\$14.9 billion) due to a subsequent upward revision in RRSP benefits

Source: Department of Finance

<sup>1</sup> In a mature system, both the investment income and the benefit payments will be much higher. The first will increase the tax expenditure under the current cash flow method by more than the second will depress it. See Part 3 of Appendix E.

The Department of Finance attaches two significant caveats to this estimate (in addition to the concerns about the current cash flow method mentioned earlier). The first is the choice of the "benchmark" tax system. The second is the failure to allow for a behavioural response, which will be addressed in Section 5.4.

## 5.2 – Combining Federal and Provincial Tax Expenditures

The Department of Finance's estimate covers only the federal tax expenditure in respect of retirement savings plans. There is a significant tax expenditure by provincial governments as well.

In 1991, the personal income tax collected by the provinces was about 59% of the personal income tax collected by the federal government.

	<u>1991</u>
Personal income tax collected by the provinces, excluding Québec	\$24.1 billion
Personal income tax collected by Québec	<u>\$11.5 billion</u>
Total personal income tax collected by the provinces	\$35.6 billion
Total personal income tax collected by the federal government	\$60.3 billion
Provincial tax as a percent of federal tax	59.0%

Source: Taxation Statistics – Revenue Canada, 1991  
Portrait de la fiscalité des particuliers au Québec  
– Revenu Québec

If we assume that the ratio of provincial to federal taxes is 59% at all income levels, then

- Total federal and provincial tax expenditure for retirement savings plans (\$14.8 billion x 1.59) = \$23.5 billion
- Average federal and provincial marginal rate for contributions (25.8% x 1.59) = 41%
- Average federal and provincial marginal rate for benefits (22.1% x 1.59) = 35%

## 5.3 – The Benchmark Tax System

*"It is important to recognize that reasonable differences of opinion exist as to the definition of the benchmark tax system, and hence what constitutes a tax expenditure."*

Source: Personal and Corporate Income Tax Expenditures –  
Department of Finance

Tax expenditures are measured relative to a benchmark tax system. The tax expenditure is calculated as the difference between

- the taxes Canadians would have paid under the benchmark system, and
- the taxes Canadians do pay under the current system.

If the current system is chosen as the benchmark, there are no tax expenditures. Instead, the Department of Finance chooses a more onerous tax system,<sup>2</sup> posits it as the benchmark, and identifies any difference between the tax revenues yielded by this more onerous system and the tax revenues yielded by the current system as a tax expenditure. The benchmark system always imposes higher taxes than the current system. Every increase in tax rates and every new surtax immediately becomes part of the benchmark system.

<sup>2</sup> One with few deductions or exemptions

If a tax expenditure appears high relative to the benefit the public derives from it, there are two possible explanations:

1. the beneficiaries of the tax expenditure are too well treated by the current system; or
2. the beneficiaries of the tax expenditure would be too harshly treated by the benchmark system.

The benchmark tax system discourages savings in general, and retirement savings in particular, for the following reasons.

### *Failure to Adjust for Inflation*

Investment income consists of two elements.

- an inflation element, and
- a real element.

No increase in real wealth accompanies the inflation element. The value of the asset increases in line with other prices to counteract the declining purchasing power of the dollar.

The “real” element, i.e., the remainder after inflation is removed from the total return, represents a real increase in the investor’s wealth.

The average interest rate on five-year Guaranteed Investment Certificates (GICs) was 10% during the last 25 years. The average inflation rate was about 6%. Sixty percent of the 10% return earned by GIC holders was needed to keep up with rising prices. The benchmark tax system does not distinguish the inflation element from the real element, taxing both at full marginal rates. A saver with a 41% marginal tax rate<sup>3</sup> would have earned the following rate of return in the benchmark system, after adjusting for taxes and inflation:

(a)Gross Rate of Return	10.0%
(b)Tax (41% of (a))	<u>4.1%</u>
(c)Net Rate of Return ((a) – (b))	5.9%
(d)Inflation	<u>6.0%</u>
(e)Real Rate of Return After Tax ((c) – (d))	(0.1%)

Expressed differently, the tax paid by the investor (4.1%) exceeded the 4% pre-tax “real” return on the investment.

### *Use of Pre-Retirement Marginal Rates*

The Department of Finance assumes that all contributions to, and the investment income earned by, retirement savings plans should be taxed at the high marginal tax rate in effect before retirement, not the typically lower rate found after retirement.

In the benchmark system, taxpayers can’t afford to save for retirement. The savings targets mentioned in Section 4.2 provide an adequate retirement income to those who save within the current system. Within the Department of Finance’s benchmark tax system, an adequate retirement income becomes prohibitively expensive.

---

<sup>3</sup> The average federal and provincial marginal rate for contributors to retirement savings plans



**Table 5.3: Retirement Savings Targets in the Benchmark Tax System**

Employment Income	Retirement Savings Target*	
	Current Retirement Savings System	Department of Finance's Benchmark System
\$30,000	9.0%	17.4%
\$60,000	12.0%	28.0%

\* The percentage of earnings that an employee who is 35 years old in 1992 would need to save between the ages of 30 and 65 to provide an adequate pension in conjunction with social security benefits, assuming that Old Age Security and the Old Age Security clawback stay in their current form, and that the normal retirement age for the Canada/Québec Pension Plans is gradually extended to age 70 from age 65.

By taxing nominal returns instead of real returns, the benchmark tax system gradually confiscates the saver's wealth. Retirement savings become profitable for government and unprofitable for savers.

We look at the impact of measuring tax expenditures relative to a more neutral benchmark tax system in Section 5.5 and Part 2 of Appendix E.

#### 5.4 – Behavioral Response

*“ . . . the omission of behavioral response in the estimating methodology generates cost estimates which may exceed the revenue increases that would have resulted if a particular provision had been eliminated.”*

Source: Personal and Corporate Income Tax Expenditures –  
Department of Finance

In estimating the cost of the retirement savings system, the Department of Finance assumes that retirement savings incentives can be removed without changing the savings patterns of Canadians. Taxpayers are assumed to pay the additional taxes on contributions and investment income from money that would otherwise have been spent, so that their savings can accumulate as before. In essence, the Department of Finance assumes that retirement savings incentives do not incent.

Would the federal and provincial governments collect an additional \$23.5 billion of income tax if the tax incentives for retirement savings were eliminated? Would taxpayers really save the same amount, and invest the same way?

Consider a 55 year old Ontario high school teacher with 30 years of teaching experience. In 1991, such a teacher would have earned about \$55,000. How much of the \$23.5 billion tax expenditure was for this teacher?

A.	The teacher's personal pension contribution	\$4,400
B.	The province's matching contribution	\$4,400
C.	The value of the accrued pension*	\$340,000
D.	Assumed investment income (9.76% x (C + 1/2 (A + B)))	\$33,600
E.	Marginal tax rate	41%
F.	Tax expenditure (E x (A + B + D))	\$ 17,384

- \* For the purpose of this demonstration, we assume that the Ontario Teachers' Pension Plan was fully funded in 1991. This increases the estimate of the investment income (because the plan wasn't fully funded) but reduces the contributions made on the teacher's behalf (because additional contributions were required to address the funding deficiency).

This additional tax is 52% of the teacher's estimated take home pay of \$33,700, determined as follows:

Gross Income	\$55,000
Pension Contribution	(\$4,400)
CPP Contribution	(\$633)
Unemployment Insurance Contribution	(\$893)
Federal and Provincial Income Tax*	<u>(\$15,374)</u>
Net Income	\$33,700

\* under the current system

The Department of Finance assumes that our teacher would endure a 50% reduction in take home pay to preserve his or her pension. The teacher's pre-retirement income, after tax and payroll deductions, would then be about \$16,000, much less than the teacher's after-tax income after retirement.

The benchmark tax system will influence investment decisions just as it influences savings decisions. In the benchmark tax system, interest, dividends and capital gains are fully taxed at marginal rates. Capital gains on the taxpayer's principal residence continue to be tax exempt. Repaying the outstanding principal on mortgages or consumer debt would continue to generate a tax exempt return, by reducing future interest payments

Assuming an average marginal tax rate of 41%, the before and after-tax returns on GICs, Canadian common stock, mortgage repayments and home purchases during the 25 years ending in 1992, were as follows:

**Table 5.4: After-Tax Returns on Investment, 1968-1992**

Investment Option	Before-Tax Rate of Return (1968-1992) (a)	Tax Rate in the Benchmark System (b)	After-Tax Rate of Return (c) = (a) x (1-(b))
5-Year GIC	9.9%	41%	5.8%
Canadian common stock	9.5%	41%	5.6%
Mortgage repayment*	11.7%	0%	11.7%
Principal residence**	8.7%	0%	8.7%

\* the average rate of return on five-year GICs plus the average interest rate differential between NHA mortgage rates and five-year GIC interest rates

\*\* increase in the price of the average Canadian home (this is an imperfect measure of the rate of return earned by a homeowner as the "average home" changes with the passage of time, and the homeowner profits from any difference between rental costs and the non-interest cost of carrying a home).

Source: • Report on Canadian Economic Statistics: 1924-1992 – Canadian Institute of Actuaries  
• The 1994 Canadian Global Almanac  
• Historical Statistics of Canada – Urquhart & Buckley

The benchmark tax system provides little incentive for Canadians to invest in bonds, stocks or GICs. Instead, it encourages them to buy larger principal residences, and to pay down their mortgages as quickly as possible. The economic consequences are troubling: more money invested in houses; less in factories; more foreign ownership of Canadian business.

In our opinion, removing Canada's retirement savings incentives will elicit a significant behavioral response. Without these incentives, Canadians would save less and invest differently.

## 5.5 – The Real Cost of the Retirement Savings System

A reasonable estimate of the cost of the retirement savings system must take into account

- future taxes generated by amounts contributed to, and accumulating in, the retirement savings system,
- a behavioral response, and
- the benchmark tax system's bias against savings.

One way to measure the cost of the system would be to look at the present value of future income taxes generated with and without the retirement savings system. The tax expenditure would be the amount by which the retirement savings system reduces the present value of future income tax. A simple example will illustrate the issues.

Suppose that

- a taxpayer contributes \$100 to an RRSP at age 45,
- withdraws the \$100, together with interest at the rate of 8% per annum, 30 years later at age 75, and
- has a total marginal income tax rate (federal and provincial combined) of 41% throughout the 30-year period.

Suppose further that the federal and provincial governments' cost of borrowing is 8% per annum throughout the period.

In an RRSP, the \$100 will accumulate, by age 75, to

$$\$100 \times (1.08)^{30} = \$1,006$$

Of this

Tax paid upon withdrawal (\$1,006 x 41%)	\$412
------------------------------------------	-------

Amount received by the taxpayer, after tax (\$1,006 - \$412)	\$594
-----------------------------------------------------------------	-------

The \$100 contributed at age 45 cost the taxpayer \$59.<sup>4</sup> This \$59 investment grows to \$594, after tax, 30 years later. Since

$$\$59 \times 1.08^{30} = \$594$$

the taxpayer earns an 8% rate of return, after tax.

The government has, to some extent, been the taxpayer's silent partner. Allowing the taxpayer to shelter the \$100 at age 45 cost the government \$41. Thirty years later, the government collects \$412 when the money is withdrawn. The government, like the taxpayer, earns an 8% return on its investment, because

$$\$41 \times 1.08^{30} = \$412$$

If the government, instead of reducing its spending by \$41 when the taxpayer contributes to the RRSP, borrows \$41 and borrows the interest on this money for 30 years, the accumulated debt would be

$$\$41 \times 1.08^{30} = \$412$$

This debt would be extinguished by the tax collected when money is withdrawn from the RRSP. Consequently, the \$41 of tax that the government does not collect when the taxpayer is 45 is tax deferred, not tax foregone. It is collected 30 years later, with interest. In a sense, allowing the taxpayer to shelter the income for 30 years doesn't cost the government anything.

Or does it? Suppose the taxpayer would have saved the \$59 anyway, i.e., suppose our taxpayer would, in the absence of a tax shelter, have taken the \$100, paid \$41 of income tax, and invested the remaining \$59 in a savings account. Suppose further that the taxpayer recovers the tax on interest<sup>5</sup> from the account itself. The account would then grow at the rate of 4.72% per annum because

$$8\% - (41\% \times 8\%) = 4.72\%.$$

At age 75, the taxpayer could withdraw

$$\$59 \times 1.0472^{30} = \$235$$

tax free.<sup>6</sup>

The government, for its part, collects taxes totalling

$$\$ (100 \times 1.08^{30}) - \$235 = \$771$$

<sup>4</sup> \$100 less a \$41 reduction in income tax

<sup>5</sup> 41% of the interest earned each year in the account

<sup>6</sup> Because income tax would already have been paid on the initial contribution and on the investment income

This consists of

- The \$41 of tax collected at age 45, together with 8% interest for 30 years \$412
- Tax on the unsheltered interest in each of the next 30 years, together with interest on these taxes at 8% to the end of the 30 years \$359
- \$771**

To summarize

	At Age 75, the Amounts Derived From the \$100 Earned at Age 45	
	Using an RRSP	Using an Unsheltered Savings Account
Amount available to the taxpayer, after tax	\$594	\$235
Taxes together with interest to age 75	<u>412</u>	<u>\$771</u>
Total	\$1,006	\$1,006
Tax as a Percent of Total	41%	77%

If the taxpayer saved outside the tax shelter, the government could have taken 77% of the wealth generated by the original \$100 over 30 years. With the tax shelter, the government is forced to settle for 41% of the original \$100. In a sense, the RRSP, therefore, cost the government

$$(77\% - 41\%) \times \$100 = \$36$$

at age 45, which accumulates with interest to \$359 at age 75.

The government's "tax expenditure" depends on what the taxpayer would have done with the \$100 in the absence of a tax shelter. If the taxpayer would have spent the money, the tax shelter costs the government nothing. But if the taxpayer would have saved the money in a non-tax-sheltered account, the tax expenditure is \$36 – 36% of the amount contributed.

In this report, we examine four responses to the removal of the tax assistance now offered to retirement savings.

*The Spender*

- When the tax incentives are removed, the spender spends the money that would otherwise have been saved.

*The Residual Saver*

- The residual saver saves whatever is left after paying taxes and personal expenses. Any increase in the tax on retirement savings is paid from the savings themselves. There is no change in the residual saver's spending on consumption.

*The Target Saver*

- The target saver increases the amount saved to whatever is required to maintain an appropriate standard of living after retirement. The target saver recognizes that, absent the tax shelter, it will cost more to save for retirement. At the same time, the additional tax and savings will lower the target saver's pre-retirement standard of living, and, therefore, lower the level of post-retirement income required to maintain this standard of living. In our example, we assume that the post-retirement income target is reduced by 70% of the reduction in spendable income at age 45, adjusted for 30 years of inflation at 4% per annum.

*The Compulsive Saver*

- The compulsive saver ignores the loss of the tax incentives. All new taxes (in our example, the \$41 of additional tax at age 45, and any tax on investment income between the ages of 45 and 75) reduce the compulsive saver's spending on consumption.

The Department of Finance, in assuming no behavioral response to the removal of the tax incentive, effectively assumes that all taxpayers behave like the Compulsive Saver.

We have already examined the first two responses. The third and fourth can be analyzed similarly. The results are presented in the following table:

**Table 5.5: Tax Expenditures and Behavioral Response**

	Saving in an RRSP (a)	Response to the Removal of Tax Incentives			
		The Spender (b)	The Residual Saver (c)	The Target Saver (d)	The Compulsive Saver (e)
1. After-tax saving at age 45	\$59	\$0	\$59	\$116	\$100*
2. After-tax withdrawal at age 75	\$594	\$0	\$235	\$463	\$1,006
3. Tax accumulated with interest to age 75	\$412	\$412	\$771	\$1,117	\$1,329
4. Tax expenditure relative to the indicated behavioral response (3 b, c, d, and e respectively minus 3 a)	N/A	\$0	\$359	\$705	\$917
5. Tax expenditure as a percentage of the original contribution with interest (4 / \$1,006)	N/A	0%	35.7%	70.1%	91.2%

\* The compulsive saver incurs additional costs after the first year, as all tax on the accumulating investment income is assumed to be paid from the taxpayer's disposable income, not from the amount accumulating in the savings account.

We are unaware of any work that establishes conclusively how taxpayers would react to the removal of such an important tax incentive. We believe that the average response would likely be somewhere between that of the residual saver and that of the target saver. Many might think that the compulsive saver reacts irrationally to the removal of tax incentives,<sup>7</sup> but we will continue to evaluate this irrational response so that we can compare our estimates to those of the Department of Finance using a common behavioral assumption.

This analysis ignores any impact that saving or spending have on economic activity and on other tax revenues (such as the GST). If savings increase real investment (the building of factories) and decrease spending on consumption, there should not be a net decrease in economic activity.

### *Improving the Estimates*

Marginal tax rates are typically lower after retirement than before. Money is saved gradually over a long period of time, and pensions are paid over a long period of time. The rate of return on retirement savings plans may be different from the government's cost of borrowing. To examine these factors, behavioral response and the impact of different benchmark tax systems on the estimated cost of the retirement savings system, we developed the model described in Appendix E.

The model looks at a taxpayer who saves a level percentage of earnings between the ages of 30 and 65, and then converts these savings into an indexed retirement income, 60% of which continues to a surviving spouse. The model compares the present value of the taxes generated by the taxpayer's retirement savings assuming first, that the savings are tax sheltered, and then that they are not. The model looks at the four savings responses discussed earlier (the spender, the residual saver, the target saver and the compulsive saver). It considers the impact of

- differences in the pre-retirement and post-retirement marginal tax rates,
- the diversion of retirement savings into activities, like mortgage repayment, that are favoured by the benchmark tax system, and
- adopting a benchmark tax system that taxes only real investment returns.

The model then looks at factors that proved to be relatively unimportant, such as income, retirement age and differences between the rate of return on retirement savings and the government's cost of borrowing.

Finally, the Appendix contains a comparison of our estimates to those made by the Department of Finance, and looks at the changing relationship between these estimates as the retirement savings system matures.

Readers who are interested in the specifics of the analysis should refer to Appendix E. Our conclusions will be presented, without further justification, in the remainder of this section.

We believe that the retirement savings system realistically costs the federal government \$4.0 billion to \$5.3 billion per annum. This estimate is based on the actuarial assumptions in Appendix B. If anything, for the reasons given later in this section, this estimate is too high.

The differences between our estimate and the Department of Finance's estimate can be attributed to three factors:

- methodology,
- behavioral response, and
- the choice of a benchmark system.

---

<sup>7</sup> Removing the tax incentives causes the compulsive saver saves more (after tax) without the incentives, and to accumulate a higher after-tax retirement income.

The contribution that each factor makes to the aggregate difference is set out in the following table:

**Table 5.6: Reconciling Differences in Cost Estimates**

	The Cost of the Retirement Savings System in 1991 (Federal Only) (\$ billion)
<b>1. As Estimated by the Department of Finance</b>	14.8
<b>2. Adjustment for Methodology</b>	
• Difference between our estimate of the 1991 cost (using the Department of Finance's benchmark system, and ignoring behavioral response) and Finance's estimates	2.7
• Our estimate of the cost, using Finance's benchmark system, ignoring behavioral response	17.5
<b>3. Adjustment for Behavioral Response</b>	
• Impact of adjusting for behavioral response	(8.0) to (14.1)
• Our estimate of the cost, using Finance's benchmark tax system, adjusted for behavioral response	3.4 to 9.5
<b>4. Adjustment Arising From the Use of a Neutral Benchmark System</b>	
• Impact of adjusting for the use of a neutral benchmark system	0.6 to (4.2)
• Our estimate of the cost of the retirement savings system allowing for behavioral response and the use of a neutral benchmark system	4.0 to 5.3

The cost to our provincial governments would be about 59% of the cost to the federal government.

Finally, the retirement savings system does more than generate future pensions and future tax revenue. By providing an income to future senior citizens, it reduces the cost of income-tested programs such as

- the Guaranteed Income Supplement,
- provincial social assistance,
- provincial drug plans (in some provinces),
- public housing, and
- refundable tax credits, such as the GST tax credit, and sales/property tax credits in Ontario.

Moreover, as the "clawback" features built into the income tax system "mature,"<sup>8</sup> the retirement savings system will also reduce the cost of Old Age Security and the Old Age tax credit.

<sup>8</sup> i.e., as inflation reduces the thresholds in real terms



## **5.6 – Conclusion**

We believe that the annual cost of the retirement savings system to the federal government, relative to a fair benchmark, is between \$4.0 billion and \$5.3 billion. This is the cost of deferring tax on the real investment gains that taxpayers earn on their retirement savings until these gains are received as retirement income. This estimate ignores the favourable impact that retirement savings plans have on the cost of income-tested government programs, and the contribution that retirement savings plans make to capital formation and the health of the Canadian economy.<sup>9</sup>

---

<sup>9</sup> See Section 3

## **6. THE LEVEL PLAYING FIELD**

---

### **6.1 – Equity versus Simplicity**

The rules governing the taxation of retirement savings were enacted in 1990. These rules are supposed to equalize the retirement savings opportunities of Canadians, eliminating the advantages traditionally enjoyed by members of defined benefit pension plans.

An equitable retirement savings system would let all Canadians accumulate sufficient savings to maintain their standards of living after retirement. Each of the following groups should have the same opportunity to save for retirement:

- those who participate in pension plans and those who participate only in RRSPs,
- the employed and the self-employed,
- members of defined benefit pension plans and members of defined contribution pension plans,
- members of contributory pension plans and members of noncontributory pension plans,
- members of pension plans with generous ancillary features and members of pension plans with poor ancillary features,
- employees who spend their entire career with a single employer and employees who change jobs frequently,
- employees in the private sector and employees in the public sector, and
- the current and future generations.

A perfectly level playing field can be only be achieved by forcing all Canadians into a common type of retirement savings plan – RRSPs for example. The 1990 changes to the *Income Tax Act* accommodated the variety of plans found in Canada, and did so within a framework that was a compromise between equity and simplicity.

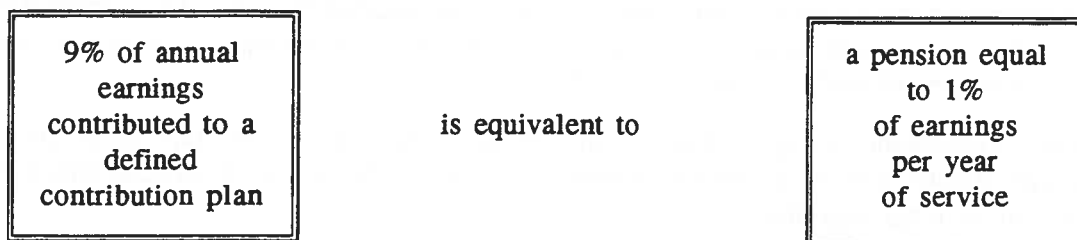
In this section, we assess the extent to which the 1990 reforms succeeded in establishing a level playing field, recognizing that a perfectly level playing field is not achievable, and that Canadians must accept a sensible compromise between equity and simplicity.

### **6.2 – The Factor of 9**

There are two types of retirement savings plans.

- **Defined Benefit Pension Plans** are employer-sponsored plans that pay benefits based on an employee's service, retirement age and possibly earnings. The benefit is independent of the performance of the pension fund. Sometimes employees contribute (in which case the plan is called contributory). Sometimes they do not (in which case the plan is called noncontributory).
- **Defined Contribution Plans (including RRSPs)** are plans to which employees, and/or their employers, contribute. At retirement, the accumulated contributions, together with any investment income on these contributions, are used to purchase an annuity. Alternatively, these funds can be transferred to a Registered Retirement Income Fund or Life Income Fund, where they can be drawn down in the prescribed manner to provide income after retirement.

Of those who rely on the retirement savings system (employed taxpayers over the age of 25 earning more than \$20,000 per annum), about 50% participate in defined benefit pension plans, and 50% do not. To ensure that all Canadians have equal access to retirement savings plans, the *Income Tax Act* postulates the following relationship.



The “factor of 9” rests on two sets of assumptions.

- Actuarial assumptions about the rates of return earned by retirement savings plans, rates of salary growth, rates of inflation, retirement ages, and life expectancies.
- Assumptions about the ancillary features attached to the 1% pension, i.e., the level of post-retirement indexing, survivor benefits, early retirement reductions, bridging supplements, and the definition of highest average earnings (three-year average, five-year average, etc.).

These assumptions, and the sensitivity of the factor to them, are examined in Appendix F.

#### *Actuarial Assumptions*

Using more contemporary assumptions (Appendix B) than were used when the factor of 9 was first developed, the equivalence factor is 6.5, not 9. However, the factor is very sensitive to changing economic circumstances, and no one factor will be appropriate for any length of time. To achieve equity within a generation of taxpayers, the system would need to regulate the amount that accumulates in defined contribution pension plans and RRSPs, not the amounts that are contributed to them. Such a system would set permissible contributions by reference to the difference between the amount of retirement savings an individual has accumulated, and a reasonable target based on the individual’s age and prevailing market conditions. This would greatly complicate the administration of retirement savings plans.

If no single factor can achieve equity within a generation of taxpayers, we believe that the government should choose a factor that errs on the side of providing more, not less, retirement savings room, for the following reasons:

- there would be no need to change the factor frequently;
- the cost of giving taxpayers additional room is relatively small;<sup>1</sup>
- this approach is consistent with the handling of limits for low and middle income Canadians;<sup>2</sup> and
- even if the factor is too high, defined benefit plans can be made tax effective by the addition of ancillary features.

<sup>1</sup> See Section 5

<sup>2</sup> The *Income Tax Act* deliberately provides more room than these taxpayers need, relying on their good sense and limited financial resources to keep contributions at reasonable levels (see Section 6.8)

### Ancillary Features

As demonstrated in Appendix F, the ancillary features of a defined benefit pension plan have a significant impact on the appropriate equivalence factor. For an employee earning \$40,000 per annum, the factor can easily range from 4 to 11.

<u>Ancillary Features</u>	<u>Equivalence Factor</u>
• Five-year final average earnings, no bridge benefits, actuarial reductions for retirement prior to 65, no indexing, no survivor pension	4.3
• Five-year final average earnings, full CPI indexing, basic CPP bridge benefit, 60% survivor pension and unreduced pensions payable from age 60	9.7
• Indexed three-year average earnings, full CPI indexing, maximum bridge benefit, 66 2/3% survivor pension and unreduced benefits at age 60	11.4

The failure of the tax system to take ancillary benefits into account creates significant inequities between members of plans with rich ancillary benefits and members of plans with poor ancillary benefits. In particular, members of private sector pension plans are often prevented from contributing as much to tax shelters as they should.<sup>3</sup>

### 6.3 – Defined Benefit and Defined Contribution

The factor of 9 determines whether members of defined benefit pension plans are treated fairly relative to members of defined contribution pension plans. In Section 6.2 and Appendix F, we demonstrate that no single factor can successfully level the playing field in any *ex post* sense, i.e., at the end of the day, for a particular cohort of taxpayers, it will be clear that one or the other of these two systems has conferred a significant advantage on participants. This conclusion is never absolute: some defined benefit plans will usually be more tax effective than defined contribution plans, others will be less tax effective.

Using the assumptions in Appendix B

- defined benefit pension plans with generous ancillary benefits (such as those found in the public sector and some parts of the private sector) are more tax effective than defined contribution plans
- the typical private sector defined benefit pension plan is less tax effective than a defined contribution plan

We see no evidence that a lower or higher factor would do a better job in the long run, and we see no advantage to changing the factor every few years.

---

<sup>3</sup> See Section 6.6

Starting in 1996, the limit on contributions to defined contribution pension plans (\$15,500) and the limit on the pensions paid from defined benefit pension plans (\$1,722 per annum per year of service) are to be indexed to changes in the Industrial Aggregate Wage. Some groups have suggested that these limits be frozen. A prolonged freeze affects defined benefit and defined contribution plans quite differently. The maximum contribution to a defined contribution pension plan (\$15,500) is equivalent to a pension of \$1,722 per annum, if the \$1,722 is indexed between now and the time the pension commences. If the limits are frozen at current levels, defined contribution pension plans will provide better pensions than defined benefit pension plans.

If the government decides to reduce the limits in real terms, the reduction must be abrupt (and apply only to future contributions and future benefit accruals), and the reduced limit must be indexed. Otherwise, members of defined benefit pension plans will be at a distinct disadvantage.

#### **6.4 – RRSPs and Pension Plans**

RRSPs and pension plans compete for the retirement savings of Canadians. Prior to 1990, defined benefit pension plans enjoyed advantages that were not available to taxpayers who relied on RRSPs. Since 1990, the reverse may be true.

RRSPs are similar to defined contribution pension plans in many respects. The factor of 9 attempts to establish a level playing field between RRSPs and defined benefit pension plans. For the reasons mentioned in Section 6.2, we believe that this factor is as good as any other.

There are other differences between RRSPs and pension plans, most of which favour RRSPs.

##### *Advantages of RRSPs*

- Spousal RRSPs allow taxpayers to split post-retirement income with their spouses. No comparable option is available to members of pension plans.
- Pension plans are subject to pension standards legislation. Participants in RRSPs have more liberal withdrawal and settlement options than do members of pension plans (e.g., Registered Retirement Income Funds, the ability to withdraw balances at any time, etc.).
- Employer contributions to group RRSPs count as employee income (with an offsetting deduction); this increases the available RRSP room by 18% of the employer contribution, unless the employee is constrained by the \$15,500 maximum. Employer contributions to pension plans do not increase RRSP contribution room.

##### *Disadvantages of RRSPs*

- RRSP contribution limits are lagged one year, i.e., this year's contribution is based on last year's earnings.
- If employment income is disrupted due to disability, periods of temporary absence or reduced pay, pension contributions can continue at their pre-disruption levels – RRSP contributions cannot.
- Employer contributions to group RRSPs are subject to payroll taxes, while employer contributions to pension plans are not.

There are other differences as well. For example, RRSP participants can make use of the Home Buyer's Plan, which is not available to pension plan participants.

With the possible exception of spousal RRSPs, none of these differences is very significant.

Taxpayers can withdraw their accumulated RRSP savings at any time, as long as they are prepared to pay income tax. In particular, they can withdraw funds during a temporary earnings disruption when their marginal tax rates are low. Some would prohibit this practice by limiting withdrawals to those who have attained a reasonable retirement age (say, 55). Others would discourage early withdrawals by applying a surtax to amounts withdrawn before a certain age. Any move in this direction would discourage savings by people who cannot safely assume that their employment will continue uninterrupted until retirement. Allowing early withdrawals without penalty in specific circumstances, such as job loss or disability, is a more compassionate option.

### 6.5 – Ancillary Benefits

There are many kinds of defined benefit pension plans. Some are tax effective. Some are not. Members of defined benefit plans with rich ancillary features fare better than members of plans with modest ancillary features.

There is no easy way to remedy this inequity. As a rule, members of public sector pension plans and some private sector pension plans are well treated, while members of private sector plans with modest ancillary benefits are denied the room they need to accumulate adequate pensions. It is not clear who should be blamed for this – employers for not modifying their plans to make them tax effective, or the federal government for adopting a tax regime that discriminates against these plans.

### 6.6 – Sectoral Differences

Public sector employees make better use of the retirement savings system than other taxpayers. The following statistics have been extracted from Appendix D.

**Table 6.1: Retirement Savings by Sector**

	For the 1992 Taxation Year			
	Public Sector Employees	Employees of Business	Self-Employed and Other	Tax Filers*
<b>All Tax Filers*</b>				
• Percentage participating in a pension plan	74%	31%	10%	39%
• Percentage contributing to an RRSP	42%	36%	32%	37%
• Percentage participating in a pension plan or contributing to an RRSP	82%	52%	38%	58%
• Pension contributions as a percent of pay	12.4%	2.5%	0.7%	5.3%
• Contributions to RRSPs as a percent of pay	2.6%	3.5%	5.0%	3.4%
• Total contributions to pension plans and RRSPs as a percent of pay	15.0%	6.0%	5.7%	8.7%
<b>Tax Filers* Over Age 25 and Earning Between \$20,000 and \$80,000</b>				
• Percentage participating in a pension plan	84%	46%	19%	56%
• Percentage contributing to an RRSP	47%	49%	48%	48%
• Percentage who either participate in a pension plan or contribute to an RRSP	92%	71%	59%	77%
• Pension contributions as a percent of pay	13.0%	3.0%	1.1%	6.5%
• Contributions to RRSPs as a percent of pay	2.7%	3.8%	5.7%	3.6%
• Total contributions to pension plans and RRSPs as a percent of pay	15.7%	6.8%	6.8%	10.1%

\* Tax filers under age 65 who contributed to the Canada or Québec Pension Plans, and whose principal source of income was income from employment or self-employment.

Either public sector employees are saving too much, or private sector employees are saving too little. We believe the latter to be true.

### ***PAs vs. Pension Plan Contributions***

A pension adjustment ("PA") is the amount by which a taxpayer's RRSP contribution limit is reduced because the taxpayer participates in a registered pension plan. PAs are supposed to measure the value taxpayers derive from pension plan participation. In a fair tax system, the PAs should equal the contributions made to pension plans in aggregate.

The following table compares PAs to pension contributions in 1992, in both the public and private sectors:

**Table 6.2: PAs vs. Pension Contributions, by Sector**

	1992		
	Public Sector (\$ billion)	Private Sector (\$ billion)	Total (\$ billion)
A. Total contributions to pension plans*	14.1	5.6	19.7
B. Total PAs (i.e., the total reduction in RRSP limits)	<u>9.4</u>	<u>7.1</u>	<u>16.5</u>
C. Advantage conferred on pension plan members by the tax system (A - B)	4.7	(1.5)	3.2

\* includes both employee and employer contributions to pension plans, and estimated employer contribution to DPSPs

In 1992, contributions to public sector pension plans exceeded the RRSP room given up by public sector employees by \$4.7 billion. Members of private sector pension plans gave up \$1.5 billion more RRSP room than was contributed to pension plans on their behalf. These numbers may exaggerate the benefit the system confers on public sector employees, as some public sector pension plans have been poorly funded in the past, and 1992 contributions to remedy this situation distort the comparison. Nonetheless, it is hard to imagine any adjustment that would lead one to conclude that the current system treats private sector employees as well as public sector employees.

Public sector employees are treated well by the retirement savings system because their pension plans have the ancillary features that make pension plans tax effective (see Sections 6.2 and 6.5). The plans covering private sector employees typically do not have these features.

### ***Sectoral Differences in the Treatment of High Income Employees***

By regulating the funding of retirement benefits, not the provision of retirement benefits, the *Income Tax Act* discriminates against high income employees in the private sector.<sup>4</sup> Nothing in the *Income Tax Act* prevents an employer from promising to pay pensions in excess of those permitted within a registered pension plan. Instead, the Act makes it expensive to fund such benefits.

<sup>4</sup> The *Income Tax Act* permits employers to promise to pay any reasonable pension, without limit. However, only pensions up to the limits in the *Income Tax Act* can be secured tax effectively through funding.

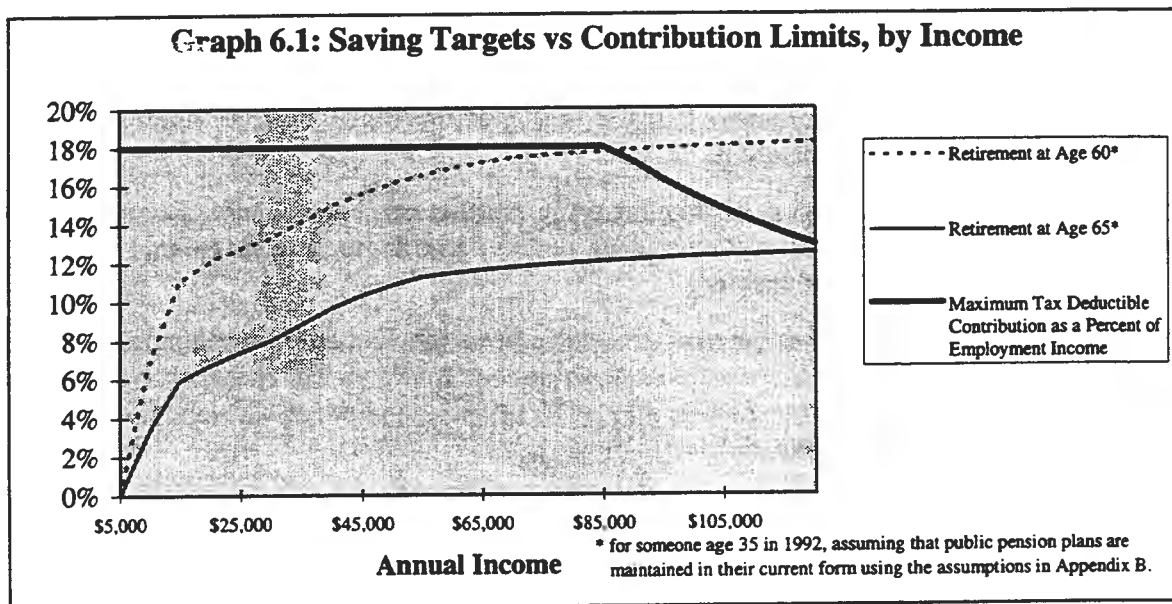
This appears fair, as both private sector and public sector employers will find it expensive to fund benefits that cannot be delivered through a registered pension plan. However, if the federal government promises to pay a pension, the pension is secure whether it is funded or not. If a private sector employer, such as a steel company or a paper company or a small manufacturer, makes the same promise, the pension may be considerably less secure unless it is funded.

Funding secures the pension promise, so that all employees can rely on receiving their pensions regardless of the plan sponsor's credit rating. Using the Income Tax Act to limit funding, or to increase the cost of funding, hurts the private sector more than the public sector.

## 6.7 – Income Differences

As discussed in Section 4, those who spend most of their lives earning less than \$20,000 per annum will have at least 50% of their earnings (and a higher percentage of their take home pay) replaced by the public pension system. There is little reason or incentive for low income employees to save 18% of pay, even though it is permitted by the *Income Tax Act*.

The retirement savings system deliberately provides unneeded contribution opportunities to low income employees. The following table compares the savings targets in Section 4.2 to the maximum contribution permitted by the *Income Tax Act*.



On earnings below \$20,000, the limits are higher than they need to be. On earnings between \$20,000 and \$80,000, they are reasonable. On earnings above \$80,000 the limits do not permit taxpayers to maintain their standard of living within the retirement savings system.

There is little to be gained by cutting back the limits for low income Canadians, who neither need nor use the retirement savings system. However, the deliberate over-provision of contribution room is a harmless expedient that simplifies the system.

From time to time, the fact that low income Canadians do not contribute to the extent permitted by the *Income Tax Act* is cited as evidence that the system favours the rich. This conclusion is erroneous. The retirement savings system has been, and remains, a system designed to meet the needs of middle income Canadians. Low income Canadians don't need the retirement savings system to the full extent of the room it provides them. High income Canadians are prevented, by the contribution and benefit limits, from fully maintaining their standard of living within the retirement savings system.



## 6.8 – Mobile Employees

Employees who leave defined benefit pension plans prior to the age at which they first qualify for an unreduced pension often receive much less value (for the same period of service) than those who stay. These employees typically vest in the basic retirement pension payable at age 65, but upon termination of employment they forfeit

- rights to retire early on favourable terms,
- increases in the accrued pension that would normally accompany salary increases, or negotiated plan improvements, between the termination date and the retirement date, and
- eligibility for the *ad hoc* cost-of-living adjustments frequently provided to pensioners.

The retirement savings system offers no tax effective way to set aside money to replace what has been lost. The benefit payable upon termination of employment is a small fraction, often less than 20%, of the RRSP room foregone by participating in the pension plan. This loss is permanent and irretrievable.

The retirement savings system, as originally conceived in the late 1980s, provided for Pension Adjustment Reversals (PARs). When an employee left a pension plan and transferred the commuted value of the accrued benefit to an RRSP, any difference between the total of the lost RRSP room and the commuted value of the benefit was restored as RRSP room. The employee still forfeited benefits in the pension plan, but could, by increasing future savings, catch up. The adjustment mechanism was not perfect as there was no opportunity to make up lost interest. Still, the employee could do something. PARs were removed, at the urging of the House Finance Committee, just prior to the implementation of the legislation.

PARs would have increased the cost of administering pension plans, but not by very much. Without PARs, the tax system treats employees who leave defined benefit plans quite harshly. The administrative savings do not justify this inequity.

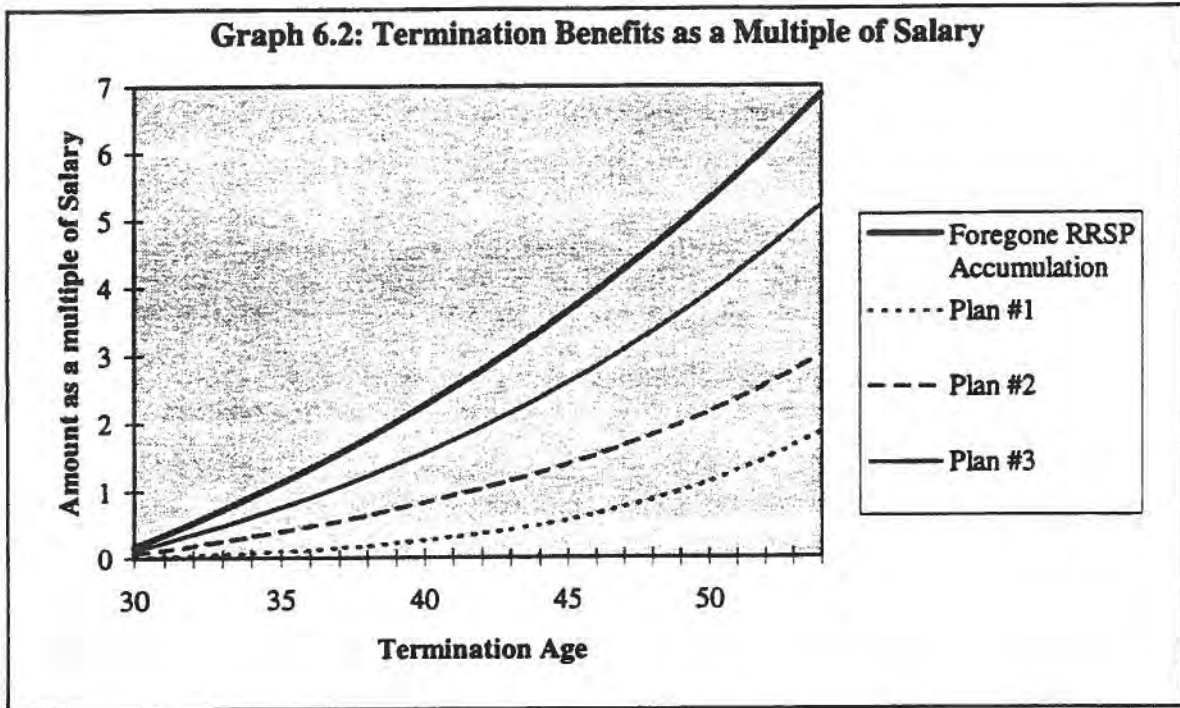
Graph 6.2 compares the benefit that employees receive from defined benefit pension plans versus their accumulated PAs with interest (i.e., the additional amount that they could have accumulated in an RRSP had they not belonged to the pension plan). To illustrate the point, we've taken three versions of a 2% final average pension plan.

- Plan #1 – a noncontributory, unindexed pension plan
- Plan #2 – an unindexed pension plan, where members contribute 5% of pay
- Plan #3 – an indexed pension plan, where members contribute 8% of pay

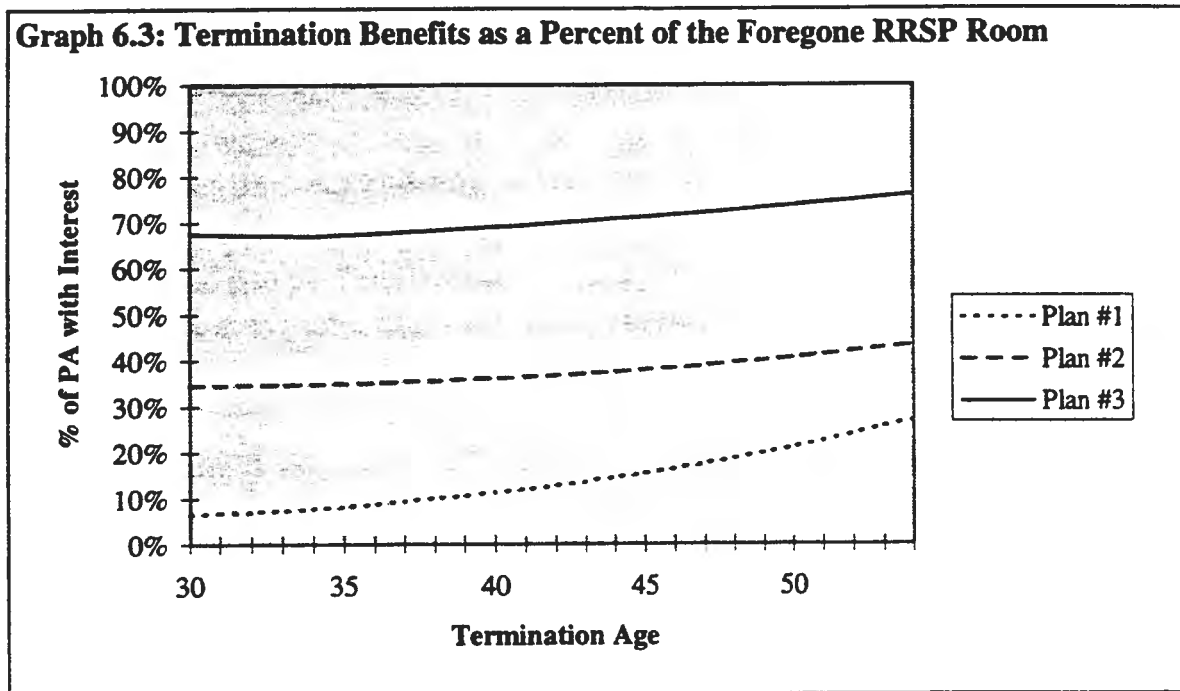
We assume that

- upon termination of employment, the employee is entitled to a deferred pension payable from age 65, subject to the standard 50% cost-sharing rule,
- the employee earns \$50,000 per annum, joins the pension plan at age 30 and leaves before age 55.

The actuarial assumptions are as summarized in Appendix B (other than the merit salary scale, which has been ignored). The graph shows the benefit payable upon termination of employment (i.e., the commuted value of the accrued pension) as a multiple of the employee's salary at the time employment ceases.



Graph 6.3 shows the termination benefit as a percent of the foregone RRSP room (i.e., the accumulated PAs, with interest).



The loss is particularly severe if the employee is forced to leave after many years of participation, as there is much to be made up, little time to do it, and no tax effective option for replacing the forfeited savings.

This is a serious problem in the private sector.<sup>5</sup>

### **6.9 – Intergenerational Equity**

Retired Canadians receive social security benefits that are quite generous relative to their past contributions. They have been able to save for their own retirement through tax sheltered retirement savings plans, and have enjoyed an unusually favourable savings environment since the mid-1970s.<sup>6</sup>

Future generations may not be so lucky. The combination of our pay-as-you-go social security system and public debt will be a serious problem. They will pay more for social security benefits than earlier generations, and/or collect less.

If future generations are to rely less on social security, they will need to save more for retirement. Proposals to freeze or reduce current limits and/or impose new taxes on retirement savings fail the test of intergenerational equity.

### **6.10 – Employee Contributions to Pension Plans**

Prior to 1990, the amount that a member of a pension plan could contribute to an RRSP was reduced by any amount the member contributed to a pension plan. As a consequence, noncontributory pension plans were more tax effective than contributory plans.

Since 1990, the treatment of contributory and noncontributory pension plans has been reasonably equitable, with contributory plans enjoying a slight advantage.

Some groups advocate converting tax deductions to tax credits. If this were done without changing the taxation of employers, the system would, once again, favour noncontributory plans. Employer contributions would be more tax effective than employee contributions. The self-employed and those without pension plans would be at a disadvantage.

To implement such a proposal equitably, the entire system would need to be completely redesigned.

### **6.11 – Conclusion**

The retirement savings system is, in most respects, a reasonable compromise between equity and simplicity. The factor of 9, while high given today's long-term economic expectations, should be retained.

In some respects the system fails to provide a level playing field. In particular

- Public sector employees have greater access to tax-sheltered retirement savings than do private sector employees. This is particularly true at the middle and upper income levels.
- Members who voluntarily or involuntarily leave defined benefit plans prior to retirement frequently receive benefits that are a small fraction of the RRSP room that they have given up.

---

<sup>5</sup> Private sector plans are typically like Plan #1 or Plan #2 of the pension plan depicted in Graphs 6.2 and 6.3. They are seldom indexed and often noncontributory. Finally, turnover is higher in the private sector.

<sup>6</sup> High interest rates, high rates of return, declining inflation rates, gains on housing . . .

At a minimum, future changes to the retirement savings system should lessen, not aggravate, these inequities.

Many proposals to limit the retirement savings system are technically deficient, and are made without due consideration of the extent to which they would destabilize a system that was, at great expense, balanced only five years ago. Future changes must be implemented in an even-handed way, with a full understanding of the short-term and long-term consequences.

The retirement savings system should redress, not exacerbate, the intergenerational inequities associated with our social security programs. Changes that subject future generations to harsh treatment, such as freezing or rolling back the contribution limits, should be avoided.

## 7. LESSONS FROM OTHER COUNTRIES

---

The concerns expressed in this report about the taxation of savings for retirement in Canada focus on the ability of Canadians to adequately provide for their retirement with the incentives now provided. A secondary focus is the need for the government to come to grips with its own fiscal responsibilities without revoking the present retirement savings incentives.

These concerns are not unique to Canada. As such, it is important to have a broad understanding of the systems for providing income security in old age in other industrialized countries and the similarities and differences to the system in Canada.

While some countries have retirement systems which are less mature than ours, there are several European countries which have far more mature systems which provide us with a glimpse of the future of our own system. These same countries also have populations that are much older than ours so that the funding ratios that they are experiencing today are similar to those that we will face in the next century.

Recently the Ontario Municipal Employees Retirement System (OMERS) drafted a report summarizing the taxation of private pension systems in 15 countries around the world (*A Survey of the Taxation of Private Pension Plans in 15 Selected Countries*). The report includes summary descriptions of Australia, Japan, New Zealand, the United Kingdom, the United States, plus 10 other developed nations. This is an excellent reference which can be obtained by contacting the Canadian Institute of Actuaries' Secretariat in Ottawa.

The major findings of the OMERS study are as follows:

- There is an international trend towards reduction of basic government sponsored social security benefits (e.g., by raising the age of eligibility or by extending the service requirements for full benefits). This has most often been the result of the financing pressures created by the aging population.
- While defined benefit plans predominate in these countries' private sectors, there is a definite shift toward defined contribution plans, often as the result of legislation.
- Private pension assets are an important source of capital in many countries. For example, total pension fund assets in Switzerland represent over 60% of GDP. On the other hand, in some countries with significant pay-as-you-go social security systems, such as France, pension assets represent only a tiny fraction of GDP.
- While some countries have a tax environment very similar to Canada's, some countries now tax investment income of pension funds to varying degrees, and a few countries tax plan assets.
- In New Zealand, all tax incentives for retirement savings were abolished – along with a reduction in income tax rates. Gross savings rates declined from 20.3% in 1987 to 16.1% in 1990. The government has formed a working group to find ways to “encourage a greater degree of self-provision in retirement income.”

A brief summary of the highlights of these plans is also available in Appendix G. This summary is taken from the 1994 Report of the Auditor General of Canada.

One might argue that Canada's level of tax incentives for retirement income security (or disincentives) should not differ significantly from that of our major trading partners. However, a quick review of these systems, as summarized in the OMERS report, shows that there are so many differences in the tax legislation of these countries, and in the mix of private and public plans, that the desire to be within some defined range of commonality would create little in the way of restrictions for Canada's public policy makers.

International comparisons must be done with great care. Comparing one element of the tax system in one country to the same element in another country often leads to a false conclusion unless other differences between the tax and social security systems are considered. The Canadian Institute of Actuaries is available to provide further information in this regard, should the reader so desire.

## APPENDIX A – PRINCIPAL ASSUMPTIONS ADOPTED FOR THE ACTUARIAL REPORTS OF THE CANADA PENSION PLAN AND THE OLD AGE SECURITY PROGRAM AS AT DECEMBER 31, 1991

### Assumptions Used in Population Projections

The Office of the Superintendent of Financial Institutions (OSFI) based its population projections on the 1986 census, and the following assumptions:

#### *Fertility*

Fertility rates measure the probability that a female of a certain age will have a child in a particular year.

The total fertility rate (the sum of the age specific fertility rates) was 1,826 (per 1,000 females) in 1990. The actuarial reports assume that this rate will increase linearly until it reaches 1,850 in the year 2000, and that it will remain level thereafter.

The age-specific fertility rates can be found on page 19 of the actuarial report for the Old Age Security Program.

#### *Mortality*

In 1986, mortality was assumed to follow the pattern of the 1985-87 Canada Life Tables. Thereafter, the mortality was adjusted downward to allow for continuing improvement (i.e., increasing longevity), and further adjusted to take into account AIDS-related deaths.

The rate of mortality improvement in 1987 was assumed to equal the average rate of improvement between 1976 and 1986. Improvements after the year 2010 were taken from projections by the United States Social Security Administration. Between 1987 and 2010, the trend factors were developed by interpolating between these two standards.

Sample mortality rates from the 1985-87 Canada Life Table and the projected mortality table used for the year 2100 are shown below.

Age	1985-87 Canada Life Table		Projected Mortality in 2100	
	Male (per 1,000)	Female (per 1,000)	Male (per 1,000)	Female (per 1,000)
20	1.30	0.42	0.64	0.20
40	1.97	1.12	0.95	0.53
60	14.68	7.51	7.75	4.23
80	86.65	51.73	52.59	27.19

The male and female mortality rates between the ages of 25 and 60 were increased to allow for the impact of AIDS. These adjustments were phased out by the year 2018.

#### *Migration*

OSFI assumed there were 155,000 immigrants and 50,000 emigrants in 1986, producing net immigration of 105,000. In subsequent years, net immigration was assumed to equal 0.4% of the Canadian population.

## Economic Assumptions

The Office of the Superintendent of Financial Institutions assumed the following rates of increase in prices and earnings, and the following rates of return on the fund maintained for the Canada Pension Plan:

	Rate of Increase in the Consumer Price Index	Rate of Increase in Wages	Rate of Return on the Canada Pension Plan
1992	1.5%	3.4%	9.4%
1993	2.2%	2.8%	9.3%
1994	2.1%	2.9%	7.9%
1995	2.0%	2.8%	7.6%
1996	1.9%	2.9%	7.3%
1997	1.8%	2.8%	6.9%
1998	2.5%	3.5%	6.0%
1999	3.0%	4.0%	6.0%
2000	3.5%	4.5%	6.0%

## Other Assumptions

Several additional assumptions were required, including

- labour force participation rates
- age-related salary adjustments
- incidence of early and late retirement in the Canada Pension Plan
- incidence of disability benefits under the Canada Pension Plan
- marital status of CPP contributors
- age and number of children for CPP contributors
- etc.

These additional assumptions are described in the reports.



## APPENDIX B – ACTUARIAL ASSUMPTIONS USED IN THIS REPORT

Unless otherwise indicated, the following actuarial assumptions have been used throughout this report.

Rate of Increase in the Consumer Price Index	–	4.0%	
Rate of Increase in Wages and Salaries	–	5.0% + an age-related scale as follows:	
		Age	Age-Related Salary Adjustment
		Less than 36	2%
		36 – 45	1%
		Over 45	0%
Rate of Return on Investment	–	Equities	9.5%
	–	Bonds and GICs	8.0%
	–	50/50 Equity/Fixed Income Portfolio	8.75%
Mortality projection	–	The 1983 Group Annuity Mortality Table, without	
Marital Status (where required)	–	Taxpayers are assumed to be married to a spouse the same age.	

## APPENDIX C – THE ACCRUED LIABILITIES OF SOCIAL SECURITY PROGRAMS

Pension standards legislation forces employers to set aside funds to make sure that employees receive their pensions. This ensures not only that workers are protected, but that plan sponsors consider the long-term consequences of their actions.

Social security benefits are not funded this way. Benefits are secured by a moral lien on future generations of taxpayers/contributors. To measure the size of this lien, one can estimate the present value of the benefits today's workers and retired workers believe they have earned in exchange for contributions made to date and/or taxes paid to date.

For the Canada Pension Plan this is easily done. Contributions are collected from those who work and their employers, and benefits are paid to those who have retired. The actuarial report of the Canada Pension Plan includes an estimate of the unfunded liability, \$420 billion as at December 31, 1991. Taking into account the Canada Pension Plan's \$42 billion of assets, the accrued liabilities at December 31, 1991 were \$462 billion.

The Québec Pension Plan does not provide a similar estimate of its unfunded liability. Given the similarity between the Canada and Québec Pension Plans (identical benefits, contributions and inception dates), we assumed that the ratio of accrued liabilities to benefit payments was the same for the Québec Pension Plan as for the Canada Pension Plan, and on this basis, we estimated that the Québec Pension Plan's liabilities were about \$140 billion as at December 31, 1991.

Old Age Security presents more of a problem. Since benefits are funded from general tax revenues, one might argue that the benefits are, in part, paid for by the beneficiaries themselves, and hence not fully accrued at any age. Nonetheless, it is clear that senior citizens draw benefits (including medicare, etc.) that are much larger than the taxes they pay, so in some sense the benefits must be earned and paid for prior to age 65. Assuming, for the time being, that benefits are accrued according to the statutory regime establishing the entitlements of residents, we determined the accrued liability using the following rules:

- Those under the age of 28 have not earned benefits because they have not yet satisfied the 10-year residency requirement.
- Those between the ages of 28 and 58 have earned the following portion of the benefits ultimately paid to them:

$$\frac{(\text{Attained age} - 18)}{40}$$

- Those over age 58 have fully earned their benefits.

Using these methods, the demographic assumptions described in the actuarial report for the Old Age Security Program and the economic assumptions described in the actuarial report for the Canada Pension Plan, we estimate that the accrued liabilities for the Old Age Security Program were about \$442 billion on December 31, 1991.

Medicare is the most difficult program to value. The demographic models maintained by the Office of the Superintendent of Financial Institutions were used to project the cost of post-65 medical benefits for Canadians who had attained age 18 on December 31, 1991. Benefits for those who were over age 65 on December 31, 1991 were treated as fully accrued. Benefits for those between the ages of 18 and 65 on that date were treated as partially accrued, with the portion of the benefit earned to date equal to

$$\frac{(\text{Age} - 18)}{(65 - 18)}$$

Benefits were projected using the demographic assumptions in the actuarial report for the Old Age Security Program, the economic assumptions in the actuarial report for the Canada Pension Plan, and the following additional assumptions:

- The impact of aging on medical expenses was estimated from studies of the experience in the Province of Saskatchewan.
- Per capita medical costs, excluding the impact of aging, were assumed to increase at a rate 1% faster than the rate of growth in the Consumer Price Index (i.e., at the assumed rate of wage growth).

Using these methods and assumptions, the accrued liability for Medicare as at December 31, 1991 was estimated to be \$1,200 billion.

Combining these results produced a total preliminary accrued liability of \$2,252 billion, which was then adjusted for two reasons, consisting of

- Official estimates of the Canada Pension Plan's liabilities are based on a real interest rate of 2.5%. While this may be reasonable for a country with strong finances, it is unrealistic for Canada in today's environment. We believe that a 4% real interest rate would be more appropriate, and accordingly, we have reduced the accrued liabilities by 30%.
- Senior citizens pay taxes that can be used to pay part of the cost of Medicare and Old Age Security. In 1992, the federal and provincial income taxes collected from senior citizens covered about 25% of the cost of their Old Age Security and Medicare benefits. If we assume that other taxes paid by senior citizens (provincial sales taxes, GST, property taxes, etc.) cover the cost of other benefits they receive (Guaranteed Income Supplement, provincial drug plans, refundable tax credits, and the seniors' share of other programs), we can reduce the estimated accrued liabilities for Old Age Security and Medicare by about 25% to more accurately reflect the portion of these costs borne by future generations.

The accrued liabilities of Canada's social security programs on December 31, 1991, before and after these adjustments, were (rounded to the nearest \$5 billion)

	Accrued Liability as at December 31, 1991	
	Before Adjustment (\$ billion)	After Adjustment (\$ billion)
Canada Pension Plan	462	325
Québec Pension Plan	140	100
Old Age Security	450	235
Medicare	<u>1,200</u>	<u>630</u>
Total	2,252	1,290

## APPENDIX D – COVERAGE AND SAVINGS PATTERNS

The Task Force obtained taxation data from Statistics Canada for the purpose of assessing the extent to which Canadians are currently saving for retirement. Much of this data and analysis is summarized in the following pages of this Appendix.

- Section D.1 Savings by Source
- Section D.2 Level of Savings and Assessment of Adequacy
- Section D.3 Savings Rates by RRSP/RPP Participation Status
- Section D.4 Participation Rates
- Section D.5 Supporting Details (available on request)

### General

The information presented in this Appendix is based on 1992 tax data. As such, this information is a “point-in-time” assessment of retirement income coverage and savings levels. Despite its “point-in-time” nature, the Task Force believes that the 1992 results are indicative of the retirement savings patterns in other years. Indeed, a preliminary analysis of 1991 data suggested similar savings patterns. The overall level of retirement savings does, however, differ significantly between 1991 and 1992 as contributions to Registered Pension Plans were \$2.3 billion higher in 1992 than in 1991. The Task Force chose to study the most current data available, that being for 1992.

Some elements of the Statistics Canada data are based on a sampling of tax filer information. The resulting sample file was used by Statistics Canada to prepare Taxation Statistics, its report analyzing individuals' 1992 tax returns.

The data file provided to the Task Force related to individuals under age 65 and was in a grouped format. From this file, we extracted information on those taxfilers:

- who contributed to the Canada or Québec Pension Plan. This criterion is intended to focus the resulting analysis on active members of the Canadian labour force; and
- whose primary income source was neither pension nor investment income. This criterion is intended to eliminate from the analysis those who have already retired. The investment-related criterion should exclude from the analysis those whose primary income source does not require replacement in retirement as it is expected to continue throughout the retirement years.

The information presented in this Appendix pertains to this narrowed group – C/QPP contributors under age 65 whose primary income source is neither pension income nor investment related.

### Participation in the Retirement Savings System

Data was obtained in such a way that information on contributors to registered retirement savings plans could be analyzed separately from noncontributors. Similarly, information on participants in RPPs and deferred profit sharing plans could be analyzed separately from nonparticipants. For this purpose, the existence of a non-zero pension adjustment was used to identify RPP/DPSP participants. The Task Force recognizes that some (but relatively few) active members of registered pension plans may have a zero PA reported; nevertheless, this should not skew the analysis and is not considered to have a material impact on the results.

## Measurement of Retirement Savings

Based on Statistics Canada's sample file, the 1992 pension adjustments reported for tax filers under age 65 total \$16.5 billion; this is a measure of the benefits earned during 1992 under registered pension plans and deferred profit sharing plans.

The Task Force used the reported pension adjustments to gauge the level of savings for retirement, as follows (\$ billions):

	RPP/DPSP Contributions*	Pension Adjustments**	Retirement Savings From RPP/RRSP Relative to PA
Public Sector	14.144	9.352	151%
Private Sector	5.634	7.131	79%
Total	19.778	16.483	

\* RPP contribution data was obtained from the Statistics Canada publication, *Pension Plans in Canada*. For DPSPs, contributions have been estimated at \$100,000 annually, all of which has been attributed to the private sector. As no data is available on DPSP contribution levels, this amount is a rough estimate consistent with the \$1.4 billion in DPSP assets as reported in *Benefits Canada* (December 1994 issue).

\*\* These pension adjustment figures differ from those shown elsewhere in the Appendix as tax filers who did not contribute to the Canada/Québec Pension Plan have been included, as have tax filers whose primary income source is either pension income or investment related.

The public sector's high ratio of contributions (i.e. savings) to pension adjustment stems from two factors; the financing of relatively large unfunded liabilities in these plans and the indexed nature of plan benefits.

Based on the above, each \$1 of pension adjustment was considered to represent \$1.51 of retirement savings if it related to a public sector tax filer, or \$0.79 if it related to a private sector tax filer.

## Retirement Savings Relative to Target Level

In the Appendix, actual retirement savings levels are compared to "target" rates. Where actual retirement savings exceeds the target rate, a "+" is indicated; where the rate is less than the target, a "-" is displayed. The number of "+" or "-" characters shown indicates the degree to which the actual rate differs from the target. No "+" or "-" characters are shown if the actual savings rate differs from the target by less than 1%.

The retirement savings target rates were developed assuming that individuals would save a level percentage of their income from age 30 until retirement. The retirement income objective and assumptions used to develop these savings targets are as outlined in Section 4 of the report (subject to one adjustment as described in the footnote below). For example, the target retirement savings rates for retirement at age 65 in 2030, are as follows:

Income Level	Computed Retirement Savings Targets*		Income Band (000's)	Computed Retirement Savings Targets (Current Age 25-44)*	
	Full CPP at Age 65	Full CPP at Age 70		Full CPP at Age 65	Full CPP at Age 70
\$ 2,500	0.0%	0.0%			
7,500	0.0%	0.0%			
15,000	5.9%	6.9%	< 20	4.1%	4.7%
30,000	8.0%	9.0%	20 - 39	6.0%	6.7%
60,000	11.5%	12.0%	40 - 79	10.2%	10.6%
120,000	12.5%	12.8%	80+	12.0%	12.3%

\* The computed rates are premised on retirement savings starting at age 30 for an individual currently age 35. As some members of the age 25-44 group are under age 30, the utilized rates for this age group have been adjusted downward (on an income-weighted basis) to be an appropriate rate for the whole of the age 25-44 group. Additionally, an income-weighted averaging of rates is reflected for those with an annual income of under \$20,000.

For the total and subtotal lines displayed in this Appendix, the retirement savings targets have been determined as the income-weighted averages of their respective component retirement savings target rates.

### Data Anomalies

Statistics Canada collects pension-related data for several surveys. These data were collected by different means, and some anomalies emerge in the results. For example, *Pension Plans in Canada* reports that at January 1, 1993, there were about 5.25 million active members of registered pension plans, of which 2.55 million were in the public sector. The tax-based data used by the Task Force for its analysis indicates a total of about 4.65 million active pension plan members, of which 2.25 million were in the public sector. Factors that might contribute to these anomalies include:

- individuals who hold two jobs both of which qualify for pension coverage;
- sampling error caused by the nature of the data collection process for *Pension Plans in Canada*; and
- the \$1,000 deduction in computing the pension adjustment (PA) for members of defined benefit pension plans.

Statistics Canada is aware of these anomalies.

(excluding taxpayers who did not contribute to C/PPP and those whose main income source was pension or investment)

Taxfiler Attributes

Classification	Age	Income Level (\$ 000s)	Total Income
----------------	-----	---------------------------	--------------

Retirement savings rate by source (all taxpayers in group)

Classification	Age	Income Level (\$ 000s)	Total Income	Retirement savings rate by source (all taxpayers in group)				
				Member RPP Conts	Employer RPP/DPSP Conts	RPP/DPSP Subtotal	RRSP	All Sources
All	<25	<20	12,387.4	0.14%	0.26%	0.41%	0.76%	1.17%
		20-39	8,035.7	0.94%	1.68%	2.62%	1.76%	4.38%
		40-79	1,145.4	1.47%	3.52%	4.99%	3.32%	8.30%
		80+	59.8	0.03%	3.14%	3.17%	2.75%	5.92%
		All	21,628.3	0.51%	0.97%	1.48%	1.27%	2.75%
	25-44	<20	26,122.1	0.29%	0.46%	0.75%	1.54%	2.29%
		20-39	87,888.1	1.50%	2.64%	4.14%	2.47%	6.61%
		40-79	85,944.1	2.53%	5.59%	8.12%	3.63%	11.75%
		80+	19,663.5	0.80%	2.00%	2.80%	5.17%	7.98%
		All	219,617.8	1.70%	3.48%	5.17%	3.06%	8.23%
	45-64	20+	193,495.7	1.89%	3.88%	5.77%	3.26%	9.03%
		20-79	173,832.2	2.01%	4.10%	6.11%	3.05%	9.15%
		<20	10,235.7	0.36%	0.76%	1.12%	3.29%	4.41%
		20-39	36,065.7	1.69%	2.76%	4.45%	4.30%	8.75%
		40-79	55,257.2	2.96%	6.07%	9.03%	4.83%	13.86%
	<65	80+	26,541.4	1.36%	2.80%	4.17%	4.42%	8.59%
		All	128,100.0	2.06%	4.04%	6.10%	4.47%	10.57%
		20+	117,864.3	2.21%	4.32%	6.53%	4.57%	11.11%
		20-79	91,322.9	2.45%	4.77%	7.22%	4.62%	11.84%
		<20	48,745.2	0.27%	0.47%	0.74%	1.71%	2.45%
	25-64	20-39	131,989.4	1.52%	2.61%	4.13%	2.93%	7.06%
		40-79	142,346.7	2.69%	5.76%	8.45%	4.09%	12.54%
		80+	46,264.7	1.12%	2.46%	3.59%	4.74%	8.32%
		All	369,346.1	1.75%	3.53%	5.28%	3.44%	8.72%
		<20	36,357.8	0.31%	0.54%	0.85%	2.03%	2.88%
	20-39	20-39	123,953.8	1.55%	2.67%	4.23%	3.00%	7.23%
		40-79	141,201.3	2.70%	5.78%	8.48%	4.10%	12.58%
		80+	46,204.9	1.12%	2.46%	3.59%	4.74%	8.33%
		All	347,717.8	1.83%	3.68%	5.52%	3.58%	9.09%
		20+	311,360.0	2.01%	4.05%	6.06%	3.76%	9.82%
	20-79	20-79	265,155.1	2.16%	4.33%	6.49%	3.59%	10.08%

1992 tax data — \$ millions  
(excluding taxpayers who did not contribute to C/PPP and those  
whose main income source was pension or investment)

Appendix D.1

Taxfiler Attributes		Income Level (\$ 000s)		Total Income	Retirement savings rate by source (all taxpayers in group)				
Classification	Age				Member RPP Confs	Employer RPP/DPSP Confs	RRSP Subtotal	RRSP Subtotal	All Sources
Public Sector	<25	<20		1,603.2	0.64%	1.04%	1.68%	0.97%	2.65%
		20-39		1,950.5	2.84%	4.58%	7.42%	1.72%	9.14%
		40-79		328.5	3.21%	6.95%	10.16%	3.59%	13.75%
		80+		7.8	0.00%	18.37%	18.37%	0.00%	18.37%
			All	3,890.0	1.96%	3.35%	5.31%	1.57%	6.87%
	25-44	<20		3,451.9	1.19%	2.17%	3.36%	1.59%	4.95%
		20-39		26,555.4	3.52%	6.24%	9.76%	1.97%	11.73%
		40-79		34,096.8	4.91%	9.98%	14.89%	2.56%	17.45%
		80+		2,334.6	3.96%	7.73%	11.69%	3.34%	15.03%
			All	66,438.7	4.13%	8.00%	12.13%	2.30%	14.43%
	45-64	20+		62,986.8	4.29%	8.32%	12.61%	2.34%	14.95%
		20-79		60,652.1	4.31%	8.34%	12.64%	2.30%	14.94%
<20			1,415.3	1.43%	3.83%	5.26%	3.31%	8.57%	
20-39			11,512.0	3.81%	6.43%	10.25%	3.17%	13.42%	
<65	40-79		24,870.2	5.20%	10.21%	15.41%	3.39%	18.79%	
	80+		5,404.5	4.62%	8.51%	13.13%	2.96%	16.09%	
	All		43,202.0	4.63%	8.78%	13.41%	3.28%	16.69%	
	20+		41,786.7	4.74%	8.95%	13.69%	3.27%	16.96%	
		20-79	36,382.2	4.76%	9.01%	13.77%	3.32%	17.09%	
25-64	<20		6,470.5	1.11%	2.25%	3.36%	1.81%	5.17%	
	20-39		40,017.9	3.57%	6.21%	9.79%	2.30%	12.09%	
	40-79		59,295.4	5.02%	10.06%	15.08%	2.91%	17.99%	
	80+		7,747.0	4.41%	8.29%	12.70%	3.07%	15.77%	
		All	113,530.8	4.25%	8.14%	12.38%	2.64%	15.03%	
20-79	<20		4,867.3	1.26%	2.65%	3.91%	2.09%	6.00%	
	20-39		38,067.4	3.61%	6.30%	9.91%	2.33%	12.24%	
	40-79		58,966.9	5.03%	10.07%	15.11%	2.91%	18.02%	
	80+		7,739.2	4.42%	8.28%	12.69%	3.08%	15.77%	
		All	109,640.8	4.33%	8.31%	12.63%	2.68%	15.32%	
		20+	104,773.5	4.47%	8.57%	13.04%	2.71%	15.75%	
		20-79	97,034.3	4.48%	8.59%	13.07%	2.68%	15.75%	



1992 tax data - \$ millions  
(excluding taxfilers who did not contribute to C/QPP and those  
whose main income source was pension or investment)

Appendix D.1

Taxfiler Attributes		Total Income	Retirement savings rate by source (all taxfilers in group)					
Classification	Age		Income Level (\$ 000s)	Member RPP Confs	Employer RPP/DPS Confs	RPP/DPS Subtotal	RRSP	All Sources
Employees of Business	<25		<20	0.07%	0.15%	0.22%	0.73%	0.95%
			20-39	0.34%	0.81%	1.15%	1.78%	2.92%
			40-79	0.79%	2.24%	3.03%	3.14%	6.18%
			80+	0.04%	1.02%	1.06%	2.77%	3.83%
	All	15,491.7	0.20%	0.49%	0.69%	1.22%	1.91%	
	25-44		<20	0.17%	0.23%	0.40%	1.29%	1.69%
			20-39	0.66%	1.21%	1.88%	2.50%	4.38%
			40-79	1.00%	2.91%	3.92%	4.03%	7.95%
			80+	0.51%	1.78%	2.28%	4.70%	6.98%
	All	124,518.9	0.72%	1.78%	2.49%	3.12%	5.61%	
	20+	109,182.0	0.79%	1.99%	2.79%	3.38%	6.17%	
	20-79	97,867.5	0.82%	2.02%	2.84%	3.23%	6.07%	
	45-64		<20	0.25%	0.32%	0.58%	3.21%	3.79%
			20-39	0.77%	1.21%	1.98%	4.49%	6.47%
			40-79	1.19%	2.96%	4.14%	5.67%	9.81%
			80+	0.65%	1.88%	2.53%	4.05%	6.58%
	All	14,249.0	0.87%	1.99%	2.86%	4.76%	7.62%	
	20+	65,786.2	0.92%	2.14%	3.06%	4.90%	7.96%	
	20-79	60,350.4	1.01%	2.22%	3.22%	5.17%	8.39%	
	<65		<20	0.15%	0.22%	0.38%	1.47%	1.84%
			20-39	0.67%	1.18%	1.85%	2.96%	4.81%
			40-79	1.07%	2.92%	3.99%	4.61%	8.60%
			80+	0.59%	1.83%	2.42%	4.34%	6.75%
	All	25,606.4	0.73%	1.75%	2.47%	3.50%	5.98%	
	20+	205,796.8						
	25-64		<20	0.19%	0.25%	0.45%	1.80%	2.24%
			20-39	0.69%	1.21%	1.90%	3.05%	4.95%
			40-79	1.07%	2.93%	4.00%	4.63%	8.62%
			80+	0.59%	1.83%	2.42%	4.34%	6.76%
	All	190,305.1	0.77%	1.85%	2.62%	3.69%	6.31%	
	20+	169,532.4	0.84%	2.04%	2.88%	3.92%	6.81%	
	20-79	143,968.9	0.88%	2.08%	2.97%	3.85%	6.81%	

1992 tax data -- \$ millions  
(excluding taxfilers who did not contribute to C/QPP and those  
whose main income source was pension or investment)

Appendix D.1

Taxfiler Attributes		Total Income	Retirement savings rate by source (all taxfilers in group)					
Classification	Age	Income Level (\$ 000s)	Member RPP Confs	Employer RPP/DPSP Confs	RPP/DPSP Subtotal	RRSP	All Sources	
Self-employed and other	<25	<20	1,515.0	0.06%	0.11%	0.17%	0.75%	0.92%
		20-39	675.0	0.22%	0.31%	0.53%	1.74%	2.28%
		40-79	47.6	0.46%	0.39%	0.85%	4.26%	5.11%
		80+	9.0	0.00%	0.00%		5.03%	5.03%
		All	2,246.6	0.11%	0.18%	0.29%	1.14%	1.43%
	25-44	<20	7,333.3	0.10%	0.15%	0.25%	2.03%	2.27%
		20-39	9,841.8	0.40%	0.38%	0.79%	3.66%	4.45%
		40-79	5,470.7	0.69%	0.89%	1.58%	6.97%	8.54%
		80+	6,014.4	0.13%	0.20%	0.34%	6.77%	7.11%
		All	28,660.2	0.32%	0.38%	0.71%	4.53%	5.23%
	45-64	20+	21,326.9	0.40%	0.46%	0.86%	5.39%	6.25%
		20-79	15,312.5	0.51%	0.56%	1.07%	4.84%	5.91%
		<20	3,384.5	0.10%	0.16%	0.26%	3.41%	3.67%
		20-39	5,008.8	0.37%	0.40%	0.77%	6.14%	6.91%
		40-79	3,830.5	0.69%	0.83%	1.51%	8.38%	9.89%
	<65	80+	6,887.8	0.28%	0.24%	0.52%	6.33%	6.85%
		All	19,111.7	0.35%	0.39%	0.74%	6.17%	6.91%
		20+	15,727.2	0.41%	0.43%	0.84%	6.77%	7.61%
		20-79	8,839.3	0.51%	0.59%	1.10%	7.11%	8.21%
		<20	12,232.8	0.09%	0.15%	0.24%	2.25%	2.49%
	25-64	20-39	15,525.6	0.39%	0.39%	0.77%	4.36%	5.15%
		40-79	9,348.8	0.69%	0.86%	1.55%	7.53%	9.08%
		80+	12,911.2	0.21%	0.22%	0.43%	6.53%	6.97%
		All	50,018.4	0.33%	0.37%	0.70%	5.00%	5.70%
		<20	10,717.8	0.10%	0.15%	0.25%	2.46%	2.71%
	20-79	20-39	14,850.7	0.39%	0.39%	0.78%	4.50%	5.28%
		40-79	9,301.2	0.69%	0.86%	1.55%	7.55%	9.10%
		80+	12,902.2	0.21%	0.22%	0.43%	6.54%	6.97%
		All	47,771.9	0.34%	0.38%	0.72%	5.19%	5.90%
		20+	37,054.1	0.40%	0.45%	0.85%	5.97%	6.83%
		20-79	24,151.8	0.51%	0.57%	1.08%	5.67%	6.75%

1992 tax data -- \$ millions  
(excluding taxpayers who did not contribute to C/QPP and those  
whose main income source was pension or investment)

Appendix D.2

Taxfiler Attributes		Required retirement savings (starting at age 30, results pertain to all taxpayers in group)											
Classification	Age	Income Level (\$ 000s)	Retirement Savings Rate	Retire at 60		Retire at 65		Retire at 60		Retire at 65		Retire at 65	
				Target & Status	Target & Status	Target & Status	Target & Status	Target & Status	Target & Status	Target & Status	Target & Status		
All	<25	<20	1.2%	7.9%	4.1%	8.5%	4.7%	7.9%	4.1%	8.5%	4.7%	7.9%	4.7%
		20-39	4.4%	9.9%	6.0%	10.6%	6.7%	9.9%	6.0%	10.6%	6.7%	9.9%	6.7%
		40-79	8.3%	15.0%	10.2%	15.4%	10.6%	15.0%	10.2%	15.4%	10.6%	15.0%	10.6%
		80+	5.9%	17.5%	12.0%	17.7%	12.3%	17.5%	12.0%	17.7%	12.3%	17.5%	12.3%
		All	2.8%	12.3%	7.9%	12.9%	8.5%	12.3%	7.9%	12.9%	8.5%	12.3%	8.5%
	25-44	<20	2.3%	12.9%	8.5%	13.4%	9.0%	12.9%	8.5%	13.4%	9.0%	12.9%	9.0%
		20-39	6.6%	12.4%	8.0%	13.0%	8.6%	12.4%	8.0%	13.0%	8.6%	12.4%	8.6%
		40-79	11.8%	7.1%	3.8%	7.2%	3.9%	7.1%	3.8%	7.2%	3.9%	7.1%	3.9%
		80+	8.0%	12.8%	7.1%	13.0%	7.3%	12.8%	7.1%	13.0%	7.3%	12.8%	7.3%
		All	8.2%	16.0%	10.6%	16.1%	10.7%	16.0%	10.6%	16.1%	10.7%	16.0%	10.7%
	45-64	<20	4.4%	18.2%	12.5%	18.2%	12.6%	18.2%	12.5%	18.2%	12.6%	18.2%	12.6%
		20-39	8.7%	14.8%	9.5%	14.9%	9.6%	14.8%	9.5%	14.9%	9.6%	14.8%	9.6%
		40-79	13.9%	15.5%	10.0%	15.6%	10.1%	15.5%	10.0%	15.6%	10.1%	15.5%	10.1%
		80+	8.6%	14.8%	9.5%	14.9%	9.6%	14.8%	9.5%	14.9%	9.6%	14.8%	9.6%
		All	10.6%	15.5%	10.0%	15.6%	10.1%	15.5%	10.0%	15.6%	10.1%	15.5%	10.1%
		20+	11.1%	14.8%	9.2%	14.9%	9.4%	14.8%	9.2%	14.9%	9.4%	14.8%	9.4%
		20-79	11.8%	7.1%	3.8%	7.2%	3.9%	7.1%	3.8%	7.2%	3.9%	7.1%	3.9%
	<65	<20	2.4%	7.6%	4.0%	8.1%	4.5%	7.6%	4.0%	8.1%	4.5%	7.6%	4.5%
		20-39	7.1%	10.8%	6.3%	11.3%	6.9%	10.8%	6.3%	11.3%	6.9%	10.8%	6.9%
		40-79	12.5%	15.4%	10.3%	15.7%	10.7%	15.4%	10.3%	15.7%	10.7%	15.4%	10.7%
		80+	8.3%	17.9%	12.3%	18.0%	12.4%	17.9%	12.3%	18.0%	12.4%	17.9%	12.4%
		All	9.1%	13.3%	8.5%	13.6%	8.9%	13.3%	8.5%	13.6%	8.9%	13.3%	8.9%
	25-64	<20	2.9%	13.9%	9.0%	14.3%	9.4%	13.9%	9.0%	14.3%	9.4%	13.9%	9.4%
		20-39	7.2%	13.2%	8.5%	13.6%	8.9%	13.2%	8.5%	13.6%	8.9%	13.2%	8.9%
		40-79	12.6%	13.9%	9.0%	14.3%	9.4%	13.9%	9.0%	14.3%	9.4%	13.9%	9.4%
		80+	8.3%	13.3%	8.5%	13.6%	8.9%	13.3%	8.5%	13.6%	8.9%	13.3%	8.9%
		All	9.1%	13.9%	9.0%	14.3%	9.4%	13.9%	9.0%	14.3%	9.4%	13.9%	9.4%
		20+	9.8%	13.2%	8.5%	13.6%	8.9%	13.2%	8.5%	13.6%	8.9%	13.2%	8.9%
		20-79	10.1%	13.2%	8.5%	13.6%	8.9%	13.2%	8.5%	13.6%	8.9%	13.2%	8.9%

1992 tax data -- \$ millions  
(excluding taxfilers who did not contribute to C/QPP and those  
whose main income source was pension or investment)

Taxfiler Attributes		Income Level (\$ 000s)	Retirement Savings Rate	Required retirement savings (starting at age 30, results pertain to all taxfilers in group)			
Classification	Age			Retire at 60	Retire at 65	Retire at 60	Retire at 65
			Target & Status	Target & Status	Target & Status	Target & Status	
Public Sector	<25	<20	2.7%				
		20-39	9.1%	7.9%	4.1%	8.5%	4.7%
		40-79	13.8%	9.9%	6.0%	10.6%	6.7%
		80+	18.4%	15.0%	10.2%	15.4%	10.6%
		All	6.9%	17.5%	12.0%	17.7%	12.3%
	25-44	<20	4.9%	12.7%	8.2%	13.2%	8.8%
		20-39	11.7%	12.9%	8.5%	13.4%	9.0%
		40-79	17.4%	12.8%	8.3%	13.3%	8.9%
		80+	15.0%				
		All	14.4%				
	45-64	<20	8.6%	7.1%	3.8%	7.2%	3.9%
		20-39	13.4%	12.8%	7.1%	13.0%	7.3%
40-79		18.8%	16.0%	10.6%	16.1%	10.7%	
80+		16.1%	18.2%	12.5%	18.2%	12.6%	
	All	16.7%	15.1%	9.7%	15.2%	9.8%	
<65	<20	17.0%	15.4%	9.9%	15.5%	10.0%	
	20-39	17.1%	15.0%	9.5%	15.1%	9.6%	
	40-79	5.2%					
	80+	12.1%					
	All	18.0%					
25-64	<20	15.0%					
	20-39	6.0%	7.6%	4.0%	8.1%	4.5%	
	40-79	12.2%	10.8%	6.3%	11.3%	6.9%	
	80+	18.0%	15.4%	10.4%	15.7%	10.7%	
	All	15.8%	18.0%	12.4%	18.1%	12.5%	
20-79	<20	15.3%	13.6%	8.8%	14.0%	9.2%	
	20-39	15.8%	13.9%	9.0%	14.3%	9.4%	
	40-79	15.7%	13.6%	8.8%	14.0%	9.2%	
	80+	15.8%	13.9%	9.0%	14.3%	9.4%	
	All	15.7%	13.6%	8.8%	14.0%	9.2%	

1992 tax data -- \$ millions  
(excluding taxfilers who did not contribute to C/QPP and those whose main income source was pension or investment)

Taxfiler Attributes		Required retirement savings (starting at age 30, results pertain to all taxfilers in group)					
Classification	Age	Income Level (\$ 000s)	Retirement Savings Rate	Full C/QPP Benefits Payable From Age 65	Full C/QPP Benefits Payable From 70		
				Retire at 65	Retire at 60		
				Target & Status	Target & Status		
				Target & Status	Target & Status		
Employees of Business	<25	<20	0.9%				
		20-39	2.9%				
		40-79	6.2%				
		80+	3.8%				
		All	1.9%				
	25-44	<20	1.7%	7.9%	4.1%	8.5%	4.7%
		20-39	4.4%	9.9%	6.0%	10.6%	6.7%
		40-79	7.9%	15.0%	10.2%	15.4%	10.6%
		80+	7.0%	17.5%	12.0%	17.7%	12.3%
		All	5.6%	12.2%	7.9%	12.8%	8.4%
45-64	20+	6.2%	12.9%	8.4%	13.4%	9.0%	
	20-79	6.1%	12.3%	8.0%	12.9%	8.6%	
	<20	3.8%	7.1%	3.8%	7.2%	3.9%	
	20-39	6.5%	12.8%	7.1%	13.0%	7.3%	
	40-79	9.8%	16.0%	10.6%	16.1%	10.7%	
<65	80+	6.6%	18.2%	12.5%	18.2%	12.6%	
	All	7.6%	14.8%	9.4%	14.9%	9.5%	
	20+	8.0%	15.5%	9.9%	15.6%	10.0%	
	20-79	8.4%	14.7%	9.1%	14.8%	9.3%	
	<20	1.8%					
25-64	<65	20-39	4.8%				
		40-79	8.6%				
		80+	6.8%				
		All	6.0%				
		<20	2.2%	7.6%	4.0%	8.2%	4.5%
	20-39	20-39	5.0%	10.7%	6.3%	11.2%	6.9%
		40-79	8.6%	15.3%	10.3%	15.6%	10.7%
		80+	6.8%	17.9%	12.3%	18.0%	12.4%
		All	6.3%	13.1%	8.4%	13.5%	8.8%
		20+	6.8%	13.8%	8.9%	14.2%	9.3%
20-79	20-79	6.8%	13.1%	8.3%	13.5%	8.8%	

1992 tax data -- \$ millions

(excluding taxpayers who did not contribute to C/QPP and those whose main income source was pension or investment)

Appendix D.2

Taxfiler Attributes		Required retirement savings (starting at age 30, results pertain to all taxfilers in group)			
Classification	Age	Income Level (\$ 000s)	Retirement Savings Rate	Full C/QPP Benefits Payable From Age 65	Full C/QPP Benefits Payable From 70
				Retire at 65	Retire at 60
				Target & Status	Target & Status
				Target & Status	Target & Status
<b>Self-employed and other &lt;25</b>					
	<20	<20	0.9%		
	20-39	20-39	2.3%		
	40-79	40-79	5.1%		
	80+	80+	5.0%		
	All	All	1.4%		
	25-44	<20	2.3%	4.1%	8.5%
		20-39	4.5%	6.0%	10.6%
		40-79	8.5%	10.2%	15.4%
		80+	7.1%	12.0%	17.7%
		All	5.2%	7.6%	12.5%
		20+	6.3%	8.8%	13.8%
		20-79	5.9%	7.5%	12.3%
	45-64	<20	3.7%	3.8%	7.2%
		20-39	6.9%	7.1%	13.0%
		40-79	9.9%	10.6%	16.1%
		80+	6.8%	12.5%	18.2%
		All	6.9%	9.2%	14.5%
		20+	7.6%	10.3%	16.0%
		20-79	8.2%	8.6%	14.3%
	<65	<20	2.5%		
		20-39	5.2%		
		40-79	9.1%		
		80+	7.0%		
		All	5.7%		
	25-64	<20	2.7%	4.0%	8.1%
		20-39	5.3%	6.4%	11.4%
		40-79	9.1%	10.3%	15.7%
		80+	7.0%	12.3%	18.0%
		All	5.9%	8.2%	13.3%
		20+	6.8%	9.4%	14.8%
		20-79	6.8%	7.9%	13.0%
					4.5%
					6.9%
					10.7%
					12.4%
					8.6%
					9.8%
					8.3%

1992 tax data — \$ millions  
(excluding taxfilers who did not contribute to C/QPP and those  
whose main income source was pension or investment)

Taxfiler Attributes		Retirement savings rate					All Taxfilers In Group
Classification	Age	Income Level (\$ 000s)	RRSP Participants	RRSP Non-Participants	RPP/DPS Participants	RPP/DPS Non-Participants	
All	<25	<20	7.9%	0.4%	5.7%	0.8%	1.2%
		20-39	8.4%	2.5%	8.9%	1.9%	4.4%
		40-79	11.4%	4.5%	11.3%	3.5%	8.3%
		80+	5.4%	6.7%	7.9%	3.5%	5.9%
		All	8.6%	1.2%	8.6%	1.2%	2.8%
	25-44	<20	10.0%	0.7%	8.0%	1.5%	2.3%
		20-39	10.3%	4.3%	10.6%	3.0%	6.6%
		40-79	13.8%	8.9%	14.2%	5.8%	11.8%
		80+	8.7%	4.6%	10.9%	6.3%	8.0%
		All	11.7%	5.0%	12.5%	3.7%	8.2%
45-64	20-79	20+	11.8%	6.0%	12.6%	4.3%	9.0%
		20-79	12.4%	6.1%	12.7%	4.0%	9.2%
		<20	12.5%	1.2%	11.6%	3.3%	4.4%
		20-39	12.9%	4.7%	12.1%	5.3%	8.7%
		40-79	15.8%	9.9%	15.9%	8.0%	13.9%
	All	80+	9.1%	6.4%	11.4%	5.9%	8.6%
		All	13.2%	6.3%	14.1%	5.9%	10.6%
		20+	13.2%	7.2%	14.1%	6.3%	11.1%
		20-79	14.8%	7.3%	14.7%	6.5%	11.8%
		<65	10.5%	0.7%	8.5%	1.7%	2.4%
25-64	<65	<20	11.1%	4.2%	11.0%	3.5%	7.1%
		20-39	14.6%	9.2%	14.8%	6.6%	12.5%
		40-79	8.9%	5.7%	11.2%	6.1%	8.3%
		80+	12.3%	5.0%	13.0%	4.1%	8.7%
		All	10.9%	0.8%	9.1%	2.0%	2.9%
	25-64	<20	11.2%	4.4%	11.1%	3.6%	7.2%
		20-39	14.7%	9.2%	14.9%	6.6%	12.6%
		40-79	8.9%	5.7%	11.2%	6.1%	8.3%
		80+	12.4%	5.4%	13.1%	4.4%	9.1%
		All	12.4%	6.4%	13.2%	5.0%	9.8%
All	20+	13.4%	6.4%	13.5%	4.8%	10.1%	
	20-79						
	<65						
	25-64						
	<20						

1992 tax data - \$ millions  
(excluding taxfilers who did not contribute to C/QPP and those  
whose main income source was pension or investment)

Appendix D.3

Taxfiler Attributes

Classification	Age	Income Level (\$ 000s)	Retirement savings rate				All Taxfilers in Group
			RRSP Participants	RRSP Non- Participants	RPP/DPSP Participants	RPP/DPSP Non- Participants	
Public Sector	<25	<20	9.9%	1.7%	9.0%	1.0%	2.7%
		20-39	12.3%	7.5%	12.4%	2.4%	9.1%
		40-79	16.0%	9.7%	16.3%	3.7%	13.8%
		80+	0.0%	18.4%	18.4%	0.0%	18.4%
		All	12.6%	4.7%	12.4%	1.6%	6.9%
	25-44	<20	12.2%	3.3%	11.9%	1.6%	4.9%
		20-39	15.1%	9.9%	14.2%	2.8%	11.7%
		40-79	19.4%	15.2%	18.5%	5.3%	17.4%
		80+	15.3%	14.3%	16.8%	6.8%	15.0%
		All	17.6%	11.7%	16.7%	3.3%	14.4%
	45-64	20+	17.7%	12.5%	16.8%	3.8%	14.9%
		20-79	17.9%	12.4%	16.8%	3.6%	14.9%
<20		13.7%	6.1%	17.3%	3.6%	8.6%	
20-39		16.9%	10.4%	15.3%	4.5%	13.4%	
40-79		20.5%	15.8%	19.7%	6.9%	18.8%	
<65	80+	16.9%	14.4%	16.9%	8.3%	16.1%	
	All	19.1%	13.3%	18.3%	5.5%	16.7%	
	20+	19.2%	13.7%	18.3%	6.0%	17.0%	
	20-79	19.6%	13.6%	18.5%	5.6%	17.1%	
	<20	12.4%	3.4%	12.8%	1.8%	5.2%	
25-64	20-39	15.6%	9.9%	14.5%	3.2%	12.1%	
	40-79	19.9%	15.4%	19.0%	5.9%	18.0%	
	80+	16.4%	14.4%	16.9%	7.7%	15.8%	
	All	18.3%	12.3%	17.3%	4.0%	15.3%	
	20+	18.4%	12.9%	17.4%	4.5%	15.8%	
	20-79	18.6%	12.8%	17.5%	4.2%	15.7%	
	<20	12.8%	4.0%	13.6%	2.2%	6.0%	
	20-39	15.7%	10.0%	14.6%	3.2%	12.2%	
	40-79	19.9%	15.4%	19.0%	5.9%	18.0%	
	80+	16.4%	14.4%	16.9%	7.7%	15.8%	



1992 tax data - \$ millions  
(excluding taxfilers who did not contribute to C/QPP and those  
whose main income source was pension or investment)

Taxfiler Attributes		Retirement savings rate					All Taxfilers In Group	
Classification	Age	Income Level (\$ 000s)	RRSP Participants	RRSP Non-Participants	RPP/DPSP Participants	RPP/DPSP Non-Participants		
Employees of Business	<25	<20	7.4%	0.2%	4.2%	0.7%	0.9%	
		20-39	7.0%	1.1%	6.0%	1.8%	2.9%	
		40-79	9.2%	3.0%	8.4%	3.3%	6.2%	
		80+	5.3%	0.6%	4.6%	2.7%	3.8%	
			All	7.4%	0.6%	5.9%	1.1%	1.9%
	25-44	<20	8.7%	0.4%	5.8%	1.2%	1.7%	
		20-39	8.2%	1.9%	7.1%	2.7%	4.4%	
		40-79	10.5%	4.1%	9.5%	5.4%	7.9%	
		80+	7.9%	2.9%	8.7%	5.7%	7.0%	
			All	9.2%	2.2%	8.5%	3.4%	5.6%
			20+	9.3%	2.7%	8.6%	3.9%	6.2%
			20-79	9.5%	2.7%	8.6%	3.7%	6.1%
45-64	<20	11.6%	0.6%	8.1%	3.2%	3.8%		
	20-39	10.8%	1.9%	8.7%	5.0%	6.5%		
	40-79	12.1%	4.4%	10.9%	7.8%	9.8%		
	80+	7.3%	3.3%	7.8%	5.4%	6.6%		
		All	10.5%	2.7%	9.6%	5.6%	7.6%	
		20+	10.4%	3.1%	9.7%	6.1%	8.0%	
		20-79	11.7%	3.1%	10.2%	6.3%	8.4%	
<65	<20	9.4%	0.4%	5.9%	1.4%	1.8%		
	20-39	9.0%	1.8%	7.5%	3.2%	4.8%		
	40-79	11.1%	4.2%	10.0%	6.2%	8.6%		
	80+	7.6%	3.1%	8.2%	5.6%	6.8%		
		All	9.7%	2.1%	8.8%	3.8%	6.0%	
25-64	<20	9.9%	0.4%	6.5%	1.8%	2.2%		
	20-39	9.1%	1.9%	7.6%	3.3%	5.0%		
	40-79	11.1%	4.2%	10.1%	6.3%	8.6%		
	80+	7.6%	3.1%	8.2%	5.6%	6.8%		
		All	9.7%	2.3%	8.9%	4.1%	6.3%	
		20+	9.7%	2.8%	9.0%	4.6%	6.8%	
		20-79	10.3%	2.8%	9.1%	4.5%	6.8%	

1992 tax data - \$ millions  
(excluding taxfilers who did not contribute to C/QPP and those  
whose main income source was pension or investment)

Appendix D.3

Taxfiler Attributes

Classification	Age	Income Level (\$ 000s)	Retirement savings rate				All Taxfilers in Group
			RRSP Participants	RRSP Non- Participants	RPP/DPSP Participants	RPP/DPSP Non- Participants	
Self-employed and other	<25	<20	7.8%	0.2%	4.2%	0.8%	0.9%
		20-39	7.0%	0.6%	5.1%	1.9%	2.3%
		40-79	6.9%	1.9%	7.2%	4.7%	5.1%
		80+	5.8%	0.0%	0.0%	5.0%	5.0%
		All	7.3%	0.3%	4.8%	1.2%	1.4%
	25-44	<20	11.1%	0.2%	5.9%	2.0%	2.3%
		20-39	9.9%	0.9%	6.1%	4.1%	4.5%
		40-79	11.7%	2.0%	10.2%	8.0%	8.5%
		80+	7.8%	0.8%	9.1%	6.9%	7.1%
		All	9.7%	0.8%	7.9%	4.8%	5.2%
	45-64	20+	9.5%	1.1%	8.1%	5.9%	6.3%
		20-79	10.8%	1.2%	7.9%	5.4%	5.9%
		<20	13.3%	0.3%	7.5%	3.5%	3.7%
		20-39	12.6%	0.9%	7.9%	6.7%	6.9%
		40-79	13.1%	2.1%	11.5%	9.3%	9.9%
	<65	80+	7.8%	1.0%	10.0%	6.3%	6.8%
		All	10.4%	0.9%	9.7%	6.4%	6.9%
		20+	10.2%	1.2%	9.9%	7.1%	7.6%
		20-79	12.9%	1.3%	9.8%	7.8%	8.2%
		<20	11.7%	0.2%	6.1%	2.3%	2.5%
	25-64	20-39	10.9%	0.9%	6.7%	4.8%	5.2%
		40-79	12.3%	2.0%	10.8%	8.5%	9.1%
		80+	7.8%	0.9%	9.7%	6.6%	7.0%
		All	10.0%	0.8%	8.6%	5.2%	5.7%
		<20	12.0%	0.3%	6.3%	2.5%	2.7%
	20-79	20-39	11.0%	0.9%	6.7%	5.0%	5.3%
		40-79	12.3%	2.0%	10.8%	8.6%	9.1%
		80+	7.8%	0.9%	9.7%	6.6%	7.0%
		All	10.0%	0.8%	8.7%	5.4%	5.9%
		20+	9.8%	1.2%	8.9%	6.4%	6.8%
		20-79	11.6%	1.2%	8.6%	6.3%	6.8%

1992 tax data - \$ millions  
(excluding taxfilers who did not contribute to C/OPP and those  
whose main income source was pension or investment)

Taxfiler Attributes			Number of Taxfilers	Participation Rates			
Classification	Age	Income Level (\$ 000s)		RPP/DPSP	RIRSP	less, dual participants	RPP/ DPSP/ RIRSP
All	<25	<20	1,220,796	7%	8%	-1%	14%
		20-39	305,418	33%	30%	-11%	53%
		40-79	24,498	62%	55%	-37%	80%
		80+	450	58%	52%	-25%	85%
		All	1,551,162	13%	13%	-3%	23%
	25-44	<20	2,044,061	10%	15%	-2%	23%
		20-39	2,994,498	45%	37%	-16%	66%
		40-79	1,654,739	71%	57%	-39%	89%
		80+	152,701	44%	81%	-33%	92%
		All	6,845,999	41%	36%	-18%	59%
	45-64	20+	4,801,938	54%	45%	-25%	75%
		20-79	4,649,237	54%	44%	-24%	74%
		<20	804,709	11%	25%	-3%	33%
		20-39	1,215,020	48%	49%	-23%	74%
		40-79	1,019,434	74%	66%	-48%	92%
	<65	80+	188,552	58%	79%	-42%	94%
		All	3,227,715	47%	50%	-27%	71%
		20+	2,423,006	60%	58%	-35%	83%
		20-79	2,234,454	60%	57%	-34%	82%
		<20	4,069,566	9%	15%	-2%	22%
	25-64	20-39	4,514,936	45%	40%	-18%	67%
		40-79	2,698,671	72%	61%	-42%	90%
		80+	341,703	51%	80%	-38%	93%
		All	11,624,876	39%	37%	-18%	58%
		<20	2,848,770	10%	18%	-2%	26%
	20-39	20-39	4,209,518	46%	40%	-18%	68%
		40-79	2,674,173	72%	61%	-42%	90%
		80+	341,253	51%	80%	-38%	93%
		All	10,073,714	43%	41%	-21%	63%
		20+	7,224,944	56%	50%	-28%	78%
	20-79	20-79	6,883,691	56%	48%	-28%	77%

1992 tax data - \$ millions  
 (excluding taxfilers who did not contribute to C/QPP and those  
 whose main income source was pension or investment)

Taxfiler Attributes		Number of Taxfilers	Participation Rates			
Classification	Age		Income Level (\$ 000s)	RRSP	less, dual participants	RRP/ DPSP/ RRSP
Public Sector	<25	<20	163,509	16%	9%	23%
		20-39	71,444	66%	33%	78%
		40-79	7,173	80%	64%	91%
		80+	87	100%	0%	100%
	All	242,213	32%	17%	41%	
	25-44	<20	260,268	29%	16%	39%
		20-39	868,366	76%	35%	85%
		40-79	657,702	92%	53%	97%
		80+	23,113	86%	73%	99%
	All	1,809,449	75%	39%	83%	
	45-64	20+	1,549,181	83%	43%	90%
		20-79	1,526,068	83%	43%	90%
<20		104,053	34%	30%	54%	
20-39		376,073	81%	46%	90%	
<65	40-79	453,144	92%	63%	97%	
	80+	53,483	92%	69%	99%	
	All	986,753	82%	53%	90%	
	20+	882,700	87%	56%	94%	
25-64	20-79	829,217	87%	55%	94%	
	<20	527,830	26%	17%	37%	
	20-39	1,315,883	77%	38%	86%	
	40-79	1,118,019	92%	57%	97%	
20-79	80+	76,683	90%	70%	99%	
	All	3,038,415	74%	42%	82%	
	<20	364,321	30%	20%	43%	
	20-39	1,244,439	78%	38%	87%	
20-79	40-79	1,110,846	92%	57%	97%	
	80+	76,596	90%	70%	99%	
	All	2,796,202	77%	44%	86%	
	20+	2,431,881	85%	48%	92%	
20-79	20-79	2,355,285	84%	47%	92%	
	<20	364,321	30%	20%	43%	
	20-39	1,244,439	78%	38%	87%	
	40-79	1,110,846	92%	57%	97%	
20-79	80+	76,596	90%	70%	99%	
	All	2,796,202	77%	44%	86%	
	20+	2,431,881	85%	48%	92%	
	20-79	2,355,285	84%	47%	92%	

1992 tax data -- \$ millions  
(excluding taxfilers who did not contribute to C/QPP and those whose main income source was pension or investment)

Taxfiler Attributes		Age	Income Level (\$ 000s)	Number of Taxfilers	Participation Rates			
Classification	RRSP				RRSP/DPSP	RRSP/less dual participants	RRSP/DPSP/RRSP	
<b>Employees of Business</b>								
	<25			913,882	6%	8%	-1%	13%
				206,855	25%	30%	-8%	47%
				16,320	56%	51%	-32%	75%
				281	63%	58%	-40%	81%
				1,137,338	10%	12%	-3%	20%
	25-44			1,172,701	8%	14%	-2%	20%
				1,765,871	36%	38%	-14%	60%
				894,189	61%	59%	-35%	85%
				88,540	48%	80%	-37%	91%
				3,921,301	34%	37%	-16%	55%
				2,748,600	44%	46%	-22%	69%
				2,660,060	44%	45%	-21%	68%
	45-64			410,036	10%	26%	-4%	33%
				658,259	38%	50%	-20%	68%
				496,148	63%	69%	-42%	89%
				94,319	56%	82%	-44%	94%
				1,658,762	40%	51%	-24%	67%
				1,248,726	49%	60%	-31%	79%
				1,154,407	49%	58%	-29%	77%
	<65			2,496,619	8%	14%	-2%	20%
				2,630,985	36%	40%	-15%	61%
				1,406,657	62%	62%	-38%	87%
				183,140	52%	81%	-41%	92%
				6,717,401	31%	36%	-15%	52%
	25-64			1,582,737	9%	17%	-2%	24%
				2,424,130	36%	41%	-15%	62%
				1,390,337	62%	63%	-38%	87%
				182,859	52%	81%	-41%	92%
				5,580,063	35%	41%	-18%	58%
				3,997,326	46%	51%	-24%	72%
				3,814,467	46%	49%	-24%	71%

1992 tax data - \$ millions  
(excluding taxpayers who did not contribute to C/QPP and those whose main income source was pension or investment)

Taxpayer Attributes		Income Level (\$ 000s)	Age	Number of Taxfilers	Participation Rates			
Classification	RPP/DSP				RRSP	less, dual participants	RPP/DSP/RRSP	
Self-employed and other <25				143,405	4%	8%	-0%	11%
		<20		27,119	12%	25%	-2%	36%
		20-39		1,005	16%	61%	-2%	75%
		40-79		82	0%	85%	0%	85%
		80+		171,611	5%	11%	-0%	15%
		All						
25-44				611,092	5%	16%	-1%	20%
		<20		360,261	17%	37%	-5%	49%
		20-39		102,848	25%	66%	-14%	77%
		40-79		41,048	11%	89%	-9%	91%
		80+		1,115,249	11%	30%	-4%	37%
		All		504,157	18%	47%	-7%	58%
45-64				463,109	19%	44%	-7%	55%
		<20		290,620	4%	23%	-1%	26%
		20-39		180,688	17%	49%	-7%	59%
		40-79		70,142	25%	70%	-16%	79%
		80+		40,750	16%	86%	-13%	89%
		All		582,200	11%	41%	-5%	47%
<65				291,580	19%	59%	-10%	68%
		20+		250,830	19%	55%	-9%	65%
		20-79		1,045,117	4%	17%	-1%	21%
		<20		568,068	17%	41%	-5%	52%
		20-39		173,995	25%	68%	-15%	78%
		40-79		81,880	14%	87%	-11%	90%
		80+		1,869,060	10%	32%	-4%	38%
		All						
25-64				901,712	4%	18%	-1%	22%
		<20		540,949	17%	41%	-6%	53%
		20-39		172,990	25%	68%	-15%	78%
		40-79		81,798	14%	87%	-11%	90%
		80+		1,697,449	11%	34%	-4%	41%
		All		795,737	18%	52%	-8%	62%
		20+		713,939	19%	48%	-8%	59%
		20-79						

1992 tax data - \$ millions  
(excluding taxpayers who did not contribute to C/QPP and those whose main income source was pension or investment)

Taxpayer Attributes		Non-participants		Participants in RRSPP only			
Classification	Age	Number	Income	Number	Income	RRSP Deduction	Ret Savings Rate
			(\$ 000s)				
All	<25	1,052,567	10,225.9	86,256	1,134.5	85.8	7.6%
		142,925	3,596.7	60,285	1,597.0	98.1	6.1%
		4,933	229.0	4,491	212.2	15.5	7.3%
		66	8.3	121	18.5	0.9	5.0%
		1,200,491	14,059.9	151,153	2,962.1	200.3	6.8%
	25-44	1,577,238	19,266.5	264,244	3,794.2	351.7	9.3%
		1,016,737	27,697.3	622,460	18,354.1	1,369.5	7.5%
		175,983	8,723.6	304,963	16,036.6	1,440.6	9.0%
		12,274	1,514.1	73,453	10,880.2	777.3	7.1%
		2,782,232	57,201.4	1,265,120	49,065.0	3,939.0	8.0%
		1,204,994	37,934.9	1,000,876	45,270.9	3,587.3	7.9%
		1,192,720	36,420.8	927,423	34,390.7	2,810.1	8.2%
	45-64	541,284	6,437.4	175,689	2,481.5	298.3	12.0%
		320,841	8,790.2	308,778	9,100.0	953.9	10.5%
		78,139	3,988.3	191,457	10,357.8	1,150.9	11.1%
		10,668	1,719.0	69,175	11,849.2	798.3	6.7%
		950,932	20,935.0	745,099	33,788.5	3,201.4	9.5%
		409,648	14,497.6	569,410	31,307.0	2,903.0	9.3%
		398,980	12,778.6	500,235	19,457.8	2,104.7	10.8%
		3,171,089	35,929.8	526,189	7,410.2	735.8	9.9%
		1,480,503	40,084.2	991,523	29,051.1	2,421.5	8.3%
		259,055	12,940.9	500,911	26,606.5	2,606.9	9.8%
		23,008	3,241.4	142,749	22,747.9	1,576.5	6.9%
		4,933,655	92,196.3	2,161,372	85,815.7	7,340.8	8.6%
	25-64	2,118,522	25,703.8	439,933	6,275.7	650.1	10.4%
		1,337,578	36,487.5	931,238	27,454.1	2,323.3	8.5%
		254,122	12,711.9	496,420	26,394.3	2,591.5	9.8%
		22,942	3,233.1	142,628	22,729.4	1,575.6	6.9%
		3,733,164	78,136.4	2,010,219	82,853.5	7,140.4	8.6%
		1,614,642	52,432.5	1,570,286	76,577.9	6,490.4	8.5%
		1,591,700	49,199.4	1,427,658	53,848.4	4,914.8	9.1%
		3,171,089	35,929.8	526,189	7,410.2	735.8	9.9%
		1,480,503	40,084.2	991,523	29,051.1	2,421.5	8.3%
		259,055	12,940.9	500,911	26,606.5	2,606.9	9.8%
		23,008	3,241.4	142,749	22,747.9	1,576.5	6.9%
		4,933,655	92,196.3	2,161,372	85,815.7	7,340.8	8.6%

1992 tax data -- \$ millions  
(excluding taxpayers who did not contribute to C/QPP and those whose main income source was pension or investment)

Taxfiler Attributes

Classification	Age	Income Level (\$ 000s)	Participants in RPP/DPSP only					Member RPP Confs
			Number	Income	Total PA	Adjusted PA	Ret Savings Rate	
All	<25	<20	72,520	884.3	41.6	44.1	5.0%	15.4
		20-39	69,811	1,904.8	118.0	139.1	7.3%	51.4
		40-79	6,058	284.1	22.6	23.3	8.2%	8.4
		80+	150	14.4	1.1	1.5	10.6%	0.0
	All	148,539	3,087.6	183.2	208.0	6.7%	75.2	
	25-44	<20	162,273	2,427.9	141.4	156.8	6.5%	61.4
		20-39	869,395	26,415.3	1,912.1	2,312.5	8.8%	865.2
		40-79	531,145	27,014.5	2,565.7	3,164.3	11.7%	1,036.8
		80+	16,277	1,775.6	139.3	150.9	8.5%	51.2
		All	1,579,090	57,633.4	4,758.5	5,784.5	10.0%	2,014.7
20+		1,416,817	55,205.4	4,617.1	5,627.7	10.2%	1,953.3	
45-64	20-79	1,400,540	53,429.8	4,477.8	5,476.8	10.3%	1,902.0	
	<20	60,702	884.7	76.7	88.4	10.0%	27.1	
	20-39	304,528	9,306.5	682.0	842.9	9.1%	325.4	
	40-79	265,475	14,160.4	1,421.2	1,800.7	12.7%	620.8	
	80+	28,788	3,563.6	281.4	338.7	9.5%	123.3	
	All	659,493	27,915.2	2,461.3	3,070.7	11.0%	1,096.6	
	20+	598,791	27,030.5	2,384.6	2,982.3	11.0%	1,069.4	
	20-79	570,003	23,466.9	2,103.2	2,643.6	11.3%	946.1	
	<20	295,495	4,197.0	259.7	289.3	6.9%	104.0	
	20-39	1,243,734	37,626.5	2,712.1	3,294.5	8.8%	1,241.9	
65+	40-79	802,678	41,459.1	4,009.5	4,988.4	12.0%	1,666.0	
	80+	45,215	5,353.6	421.8	491.0	9.2%	174.5	
	All	2,387,122	88,636.2	7,403.0	9,063.1	10.2%	3,186.5	
	<20	222,975	3,312.7	218.0	245.2	7.4%	88.6	
	20-39	1,173,923	35,721.8	2,594.1	3,155.4	8.8%	1,190.6	
	40-79	796,620	41,175.0	3,986.9	4,965.1	12.1%	1,657.6	
	80+	45,065	5,339.2	420.7	489.5	9.2%	174.5	
	All	2,238,583	85,548.6	7,219.8	8,855.1	10.4%	3,111.3	
	20+	2,015,608	82,235.9	7,001.7	8,610.0	10.5%	3,022.7	
	20-79	1,970,543	76,896.7	6,581.0	8,120.5	10.6%	2,848.2	



1992 tax data - \$ millions  
(excluding taxpayers who did not contribute to C/QPP and those whose main income source was pension or investment)

Taxfiler Attributes		Participants in both RRSP and RPP/DPSP									
Classification	Age	Income Level (\$ 000s)	Number	Income	Total PA	Adjusted PA	RRSP Deduction	Ret Savings Rate	Member RPP Confs		
All	<25	<20	9,453	142.6	5.7	6.1	8.4	10.2%	2.1		
		20-39	32,397	937.3	61.1	71.4	43.2	12.2%	23.9		
		40-79	9,016	420.2	29.6	33.8	22.5	13.4%	8.4		
		80+ All	113	18.6	0.5	0.4	0.7	5.8%	0.0		
		All	50,979	1,518.6	96.9	111.7	74.8	12.3%	34.4		
	25-44	<20	40,306	633.5	35.9	38.6	50.3	14.0%	13.4		
		20-39	485,906	15,421.4	1,125.8	1,323.3	802.8	13.8%	451.8		
		40-79	642,648	34,169.4	3,205.7	3,816.1	1,680.7	16.1%	1,141.8		
		80+ All	50,697	5,493.7	393.8	400.4	240.0	11.7%	106.3		
		All	1,219,557	55,718.0	4,761.2	5,578.4	2,773.7	15.0%	1,713.2		
	45-64	<20	27,034	432.1	23.4	26.2	38.6	15.0%	10.0		
		20-39	280,873	8,869.0	637.3	761.8	596.3	15.3%	282.4		
		40-79	484,363	26,750.7	2,582.5	3,189.1	1,517.7	17.6%	1,013.2		
		80+ All	79,921	9,409.5	689.9	767.0	375.1	12.1%	238.0		
		All	872,191	45,461.3	3,933.1	4,744.0	2,527.7	16.0%	1,543.7		
	<65	<20	845,157	45,029.2	3,909.7	4,717.9	2,489.1	16.0%	1,533.7		
		20-39	765,236	35,619.7	3,219.8	3,950.9	2,114.0	17.0%	1,295.6		
		40-79	76,793	1,208.2	65.0	70.8	97.3	13.9%	25.5		
		80+ All	799,176	25,227.7	1,824.2	2,156.5	1,442.3	14.3%	758.0		
		All	1,336,027	61,340.3	5,817.8	7,039.0	3,220.8	16.7%	2,163.4		
	25-64	<20	130,731	14,921.8	1,084.2	1,167.8	615.8	12.0%	344.3		
		20-39	2,142,727	102,697.9	8,791.2	10,434.1	5,376.2	15.4%	3,291.2		
		40-79	67,340	1,065.6	59.3	64.7	88.9	14.4%	23.4		
		80+ All	766,779	24,290.4	1,763.1	2,085.1	1,399.1	14.3%	734.2		
		All	1,127,011	60,920.1	5,788.2	7,005.2	3,198.3	16.7%	2,155.0		
	20-79	<20	130,618	14,903.2	1,083.7	1,167.4	615.1	12.0%	344.3		
		20-39	2,091,748	101,179.3	8,694.3	10,322.4	5,301.4	15.4%	3,256.9		
		40-79	2,024,408	100,113.7	8,635.0	10,257.7	5,212.5	15.5%	3,233.5		
		80+ All	1,893,790	85,210.5	7,551.3	9,090.3	4,597.4	16.1%	2,889.2		

1992 tax data - \$ millions  
(excluding taxfilers who did not contribute to C/QPP and those whose main income source was pension or investment)

Taxfiler Attributes		Non-participants		Participants in RRSP only			
Classification	Age	Number	Income	Number	Income	RRSP Deduction	Ret Savings Rate
Public Sector	<25	<20	1,126.7	11,642	148.9	13.0	8.7%
		20-39	405.0	8,880	234.6	15.3	6.5%
		40-79	31.0	760	34.5	2.4	6.9%
		80+	0.0	0	0.0	0.0	0.0%
	All	1,562.7	21,282	418.0	30.7	7.4%	
	25-44	<20	1,917.8	28,370	416.5	38.1	9.2%
		20-39	3,506.7	78,127	2,337.5	163.4	7.0%
		40-79	1,007.3	35,243	1,776.9	147.3	8.3%
		80+	30.2	2,921	384.6	28.4	7.4%
	All	6,462.0	144,661	4,915.6	377.3	7.7%	
	45-64	20+	4,544.2	116,291	4,499.1	339.1	7.5%
		20-79	4,514.0	113,370	4,114.5	310.7	7.6%
<20		600.5	20,825	299.8	32.0	10.7%	
20-39		1,058.2	33,760	993.1	92.8	9.3%	
<65	40-79	601.1	22,853	1,236.8	126.5	10.2%	
	80+	62.5	3,923	457.2	43.3	9.5%	
	All	2,322.3	81,361	2,986.9	294.6	9.9%	
	20+	1,721.8	60,536	2,687.2	262.6	9.8%	
25-64	20-79	1,659.2	49,719	2,229.9	219.3	9.8%	
	<20	3,645.1	60,837	865.2	83.1	9.6%	
	20-39	4,969.9	120,767	3,565.3	271.6	7.6%	
	40-79	1,639.3	58,856	3,048.2	276.2	9.1%	
20-79	80+	92.8	6,844	841.9	71.7	8.5%	
	All	10,347.0	247,304	8,320.5	702.6	8.4%	
	<20	2,518.4	49,195	716.3	70.1	9.8%	
	20-39	4,564.9	111,887	3,330.7	256.3	7.7%	
All	40-79	1,608.3	58,096	3,013.7	273.8	9.1%	
	80+	92.8	6,844	841.9	71.7	8.5%	
	All	8,784.4	226,022	7,902.5	671.8	8.5%	
	20+	6,266.0	176,827	7,186.2	601.7	8.4%	
All	20-79	6,173.2	197,221	6,344.4	530.0	8.4%	

1992 tax data -- \$ millions  
(excluding taxpayers who did not contribute to C/QPP and those  
whose main income source was pension or investment)

Taxfiler Attributes

Classification	Age	Income Level (\$ 000s)	Participants in RPP/DPSP only					
			Number	Income	Total PA	Adjusted PA	Ret Savings Rate	Member RPP Confs
Public Sector	<25	<20	23,040	285.2	15.6	23.5	8.2%	8.9
		20-39	32,284	876.4	63.7	96.2	11.0%	37.2
		40-79	1,942	87.8	7.6	11.5	13.1%	4.2
		80+	87	7.8	1.0	1.4	18.4%	0.0
	All	57,353	1,257.2	87.8	132.7	10.6%	50.3	
	25-44	<20	61,008	910.1	62.6	94.5	10.4%	33.8
		20-39	440,539	13,540.2	1,113.9	1,681.9	12.4%	613.5
		40-79	286,908	14,677.7	1,579.7	2,385.4	16.3%	794.9
		80+	5,942	568.3	56.7	85.6	15.1%	30.2
	All	794,397	29,696.3	2,812.8	4,247.4	14.3%	1,472.5	
	20+	20+	733,389	28,786.2	2,750.2	4,152.8	14.4%	1,438.6
		20-79	727,447	28,217.9	2,693.6	4,067.3	14.4%	1,408.4
45-64	<20	24,388	353.8	38.7	58.4	16.5%	14.2	
	20-39	165,765	5,073.8	422.4	637.8	12.6%	238.3	
	40-79	155,535	8,403.5	941.7	1,421.9	16.9%	494.3	
	80+	16,037	1,629.1	161.6	244.0	15.0%	91.2	
	All	361,725	15,460.2	1,564.3	2,362.1	15.3%	838.0	
	20+	337,337	15,106.4	1,525.6	2,303.7	15.2%	823.8	
	20-79	321,300	13,477.3	1,364.0	2,059.7	15.3%	732.6	
	All	108,436	1,549.1	116.8	176.4	11.4%	56.9	
<65	20-39	638,588	19,490.4	1,599.9	2,415.9	12.4%	889.0	
	40-79	444,385	23,169.1	2,529.0	3,818.8	16.5%	1,293.5	
	80+	22,066	2,205.2	219.2	331.0	15.0%	121.3	
	All	1,213,475	46,413.7	4,465.0	6,742.1	14.5%	2,360.7	
25-64	<20	85,396	1,263.9	101.3	152.9	12.1%	48.1	
	20-39	606,304	18,614.0	1,536.2	2,319.7	12.5%	851.8	
	40-79	442,443	23,081.3	2,521.4	3,807.3	16.5%	1,289.2	
	80+	21,979	2,197.3	218.2	329.5	15.0%	121.3	
	All	1,156,122	45,156.5	4,377.1	6,609.4	14.6%	2,310.4	
20+	20+	1,070,726	43,892.6	4,275.8	6,456.5	14.7%	2,262.4	
	20-79	1,048,747	41,695.3	4,057.6	6,127.0	14.7%	2,141.0	

1992 tax data - \$ millions  
(excluding taxfilers who did not contribute to C/QPP and those whose main income source was pension or investment)

Taxfiler Attributes		Participants in both RRSP and RPP/DFSP							
Classification	Age	Income Level (\$ 000s)	Number	Income	Total PA	Adjusted PA	RRSP Deduction	Ret Savings Rate	Member RPP Conis
Public Sector	<25	<20	2,629	42.4	2.3	3.4	2.6	14.1%	1.4
		20-39	14,629	434.6	32.1	48.5	18.2	15.3%	18.2
		40-79	3,796	175.1	14.5	21.8	9.4	17.8%	6.3
		80+	0	0.0	0.0	0.0	0.0	0.0%	0.0
		All	21,054	652.1	48.8	73.7	30.1	15.9%	25.9
	25-44	<20	13,353	207.5	14.2	21.4	16.8	18.4%	7.2
		20-39	222,706	7,170.9	602.6	910.0	358.6	17.7%	322.2
		40-79	315,043	16,634.8	1,782.8	2,692.1	724.3	20.5%	880.7
		80+	13,953	1,351.5	124.0	187.3	49.7	17.5%	62.2
		All	565,055	25,364.8	2,523.7	3,810.7	1,149.3	19.6%	1,272.3
20+		551,702	25,157.3	2,509.5	3,789.4	1,132.6	19.6%	1,265.0	
	20-79	537,749	23,805.8	2,385.5	3,602.0	1,082.9	19.7%	1,202.9	
	45-64	<20	10,519	161.2	10.6	16.0	14.9	19.2%	6.0
		20-39	138,250	4,386.8	358.8	541.8	272.5	18.6%	200.8
		40-79	263,335	14,628.8	1,595.7	2,409.5	716.3	21.4%	798.6
		80+	32,954	3,255.7	308.4	465.6	116.8	17.9%	158.3
	All	445,058	22,432.6	2,273.4	3,432.9	1,120.6	20.3%	1,163.6	
	20+	434,539	22,271.4	2,262.8	3,416.9	1,105.7	20.3%	1,157.6	
		20-79	401,585	19,015.7	1,954.5	2,951.2	988.9	20.7%	999.3
	<65	<20	26,501	411.1	27.0	40.8	34.2	18.3%	14.6
		20-39	375,585	11,992.3	993.5	1,500.2	649.3	17.9%	541.1
		40-79	582,174	31,438.8	3,393.0	5,123.4	1,450.0	20.9%	1,685.5
80+		46,907	4,607.2	432.4	652.9	166.5	17.8%	220.4	
All	1,031,167	48,449.5	4,845.9	7,317.4	2,300.0	19.9%	2,461.7		
25-64	<20	23,872	368.8	24.8	37.4	31.6	18.7%	13.2	
	20-39	360,956	11,557.8	961.4	1,451.7	631.1	18.0%	523.0	
	40-79	578,378	31,263.7	3,378.5	5,101.6	1,440.6	20.9%	1,679.2	
	80+	46,907	4,607.2	432.4	652.9	166.5	17.8%	220.4	
	All	1,010,113	47,797.4	4,797.1	7,243.6	2,269.9	19.9%	2,435.9	
20+	986,241	47,428.7	4,772.3	7,206.2	2,238.3	19.9%	2,422.6		
	20-79	939,334	42,821.4	4,339.9	6,553.3	2,071.7	20.1%	2,202.2	

1992 tax data -- \$ millions  
(excluding taxfilers who did not contribute to C/OPP and those  
whose main income source was pension or investment)

Taxfiler Attributes		Non-participants		Participants in RRSF only			
Classification	Age	Number	Income	Number	Income	RRSP Deduction	Ret Savings Rate
	Income Level		(\$ 000s)				
Employees of Business	<25	798,724	7,795.4	64,128	843.9	61.8	7.3%
		109,787	2,763.9	44,938	1,199.0	71.7	6.0%
		4,007	187.2	3,135	148.2	11.2	7.6%
		54	7.1	51	10.7	0.5	4.5%
		912,572	10,753.6	112,252	2,201.8	145.2	6.6%
		932,834	11,719.0	140,861	2,100.1	172.2	8.2%
		707,159	19,445.8	427,315	12,656.8	874.1	6.9%
		131,416	6,481.4	216,368	11,352.6	961.8	8.5%
		8,284	1,008.1	37,887	5,595.8	379.5	6.8%
		1,779,693	38,654.3	822,431	31,705.1	2,387.6	7.5%
	846,859	26,935.4	681,570	29,605.1	2,215.4	7.5%	
	838,575	25,927.2	643,683	24,009.3	1,835.9	7.6%	
	<20	276,686	3,452.5	91,574	1,335.0	153.5	11.5%
	20-39	208,859	5,806.6	198,846	5,912.1	584.6	9.9%
	40-79	52,218	2,624.8	130,452	7,011.4	756.1	10.8%
	80+	5,639	908.5	35,569	6,303.5	388.8	6.2%
	All	543,402	12,792.4	456,441	20,562.0	1,883.0	9.2%
	20+	266,716	9,339.9	364,867	19,227.0	1,729.5	9.0%
	20-79	261,077	8,431.4	329,298	12,923.5	1,340.7	10.4%
		2,008,244	22,966.8	296,563	4,279.0	387.5	9.1%
		1,025,805	28,016.3	671,099	19,767.8	1,530.4	7.7%
		187,641	9,293.5	349,955	18,512.2	1,729.1	9.3%
	13,977	1,923.8	73,507	11,909.9	768.7	6.5%	
	3,235,667	62,200.3	1,391,124	54,468.9	4,415.7	8.1%	
	<20	1,209,520	15,171.4	232,435	3,435.0	325.7	9.5%
	20-39	916,018	25,252.4	626,161	18,568.9	1,458.7	7.9%
	40-79	183,634	9,106.3	346,820	18,364.0	1,717.9	9.4%
	80+	13,923	1,916.6	73,456	11,899.2	768.2	6.5%
	All	2,323,095	51,446.7	1,278,872	52,267.2	4,270.5	8.2%
	20+	1,113,575	36,275.3	1,046,437	48,832.1	3,944.8	8.1%
	20-79	1,099,652	34,358.6	972,981	36,932.9	3,176.6	8.6%
		2,008,244	22,966.8	296,563	4,279.0	387.5	9.1%
		1,025,805	28,016.3	671,099	19,767.8	1,530.4	7.7%
		187,641	9,293.5	349,955	18,512.2	1,729.1	9.3%
	13,977	1,923.8	73,507	11,909.9	768.7	6.5%	
	3,235,667	62,200.3	1,391,124	54,468.9	4,415.7	8.1%	
	<20	1,209,520	15,171.4	232,435	3,435.0	325.7	9.5%
	20-39	916,018	25,252.4	626,161	18,568.9	1,458.7	7.9%
	40-79	183,634	9,106.3	346,820	18,364.0	1,717.9	9.4%
	80+	13,923	1,916.6	73,456	11,899.2	768.2	6.5%
	All	2,323,095	51,446.7	1,278,872	52,267.2	4,270.5	8.2%
	20+	1,113,575	36,275.3	1,046,437	48,832.1	3,944.8	8.1%
	20-79	1,099,652	34,358.6	972,981	36,932.9	3,176.6	8.6%
		2,008,244	22,966.8	296,563	4,279.0	387.5	9.1%
		1,025,805	28,016.3	671,099	19,767.8	1,530.4	7.7%
		187,641	9,293.5	349,955	18,512.2	1,729.1	9.3%
	13,977	1,923.8	73,507	11,909.9	768.7	6.5%	
	3,235,667	62,200.3	1,391,124	54,468.9	4,415.7	8.1%	

1992 tax data -- \$ millions  
(excluding taxfilers who did not contribute to C/QPP and those whose main income source was pension or investment)

Taxfiler Attributes		Participants in RPP/DPSP only						
Classification	Age	Income Level (\$ 000s)	Number	Income	Total PA	Adjusted PA	Savings Rate	Member RPP Conts
<b>Employees of Business</b>								
	<25	<20	44,530	534.7	23.1	18.2	3.4%	5.7
		20-39	34,778	956.0	50.3	39.8	4.2%	12.9
		40-79	3,980	190.2	14.5	11.5	6.0%	4.0
		80+	63	6.6	0.1	0.1	1.3%	0.0
		All	83,351	1,687.4	88.0	69.5	4.1%	22.7
	25-44	<20	77,839	1,176.2	60.0	47.4	4.0%	21.3
		20-39	385,776	11,658.0	729.5	576.3	4.9%	222.0
		40-79	233,520	11,796.2	940.9	743.3	6.3%	224.3
		80+	9,346	1,077.5	76.6	60.5	5.6%	19.0
		All	706,481	25,707.8	1,807.0	1,427.6	5.6%	486.6
		20+	628,642	24,531.7	1,747.1	1,380.2	5.6%	465.3
		20-79	619,296	23,454.2	1,670.4	1,319.6	5.6%	446.3
	45-64	<20	27,402	411.2	28.9	22.9	5.6%	10.0
		20-39	120,580	3,724.1	232.0	183.3	4.9%	76.4
		40-79	103,358	5,403.0	450.1	355.6	6.6%	115.2
		80+	11,361	1,701.0	107.8	85.2	5.0%	27.0
		All	262,701	11,239.3	818.9	646.9	5.8%	228.6
		20+	235,299	10,828.2	790.0	624.1	5.8%	218.6
		20-79	223,938	9,127.1	682.2	538.9	5.9%	191.6
	<65	<20	149,771	2,122.0	112.0	88.5	4.2%	37.1
		20-39	541,134	16,338.1	1,011.8	799.4	4.9%	311.3
		40-79	340,858	17,389.4	1,405.6	1,110.4	6.4%	343.6
		80+	20,770	2,785.1	184.5	145.8	5.2%	46.1
		All	1,052,533	38,634.6	2,714.0	2,144.0	5.5%	738.0
	25-64	<20	105,241	1,587.3	88.9	70.3	4.4%	31.3
		20-39	506,356	15,382.1	961.5	759.6	4.9%	298.3
		40-79	336,878	17,199.2	1,391.1	1,099.0	6.4%	339.5
		80+	20,707	2,778.5	184.4	145.7	5.2%	46.0
		All	969,182	36,947.2	2,626.0	2,074.5	5.6%	715.3
		20+	863,941	35,359.8	2,537.0	2,004.3	5.7%	683.9
		20-79	843,234	32,581.3	2,352.6	1,858.6	5.7%	637.9

1992 tax data - \$ millions  
(excluding taxpayers who did not contribute to C/QPP and those  
whose main income source was pension or investment)

Taxfiler Attributes

Classification	Age	Income Level (\$ 000s)	Participants in both RRSPP and RPP/DPSP					Ret Savings Rate	Member RPP Confs
			Number	Income	Total PA	Adjusted PA	RRSP Deduction		
Employees of Business	<25	<20	6,500	95.3	3.2	2.5	5.5	8.4%	0.7
		20-39	17,352	491.3	28.4	22.4	24.3	9.5%	5.4
		40-79	5,198	243.7	15.1	11.9	13.0	10.2%	2.1
		80+	113	18.6	0.5	0.4	0.7	5.8%	0.0
		All	29,163	848.8	47.1	37.2	43.5	9.5%	8.2
	25-44	<20	21,167	341.7	17.6	13.9	26.4	11.8%	5.0
		20-39	245,621	7,730.4	493.7	390.0	415.7	10.4%	119.6
		40-79	312,885	16,746.4	1,358.6	1,073.3	906.8	11.8%	241.0
		80+	33,023	3,633.1	250.2	197.6	152.3	9.6%	38.2
		All	612,696	28,451.6	2,120.1	1,674.9	1,501.1	11.2%	403.7
	45-64	20+	591,529	28,109.9	2,102.5	1,661.0	1,474.7	11.2%	398.7
		20-79	558,506	24,476.8	1,852.3	1,463.4	1,322.4	11.4%	360.6
		<20	14,374	237.2	10.7	8.5	21.1	12.5%	3.6
		20-39	129,974	4,102.0	257.0	203.0	292.7	12.1%	73.6
		40-79	210,120	11,517.3	942.7	744.7	748.7	13.0%	199.6
	<65	80+	41,750	5,336.0	348.3	275.2	188.8	8.7%	65.6
		All	396,218	21,192.5	1,558.8	1,231.4	1,251.3	11.7%	342.5
		20+	381,844	20,955.3	1,548.0	1,223.0	1,230.2	11.7%	338.9
		20-79	340,094	15,619.3	1,199.7	947.8	1,041.4	12.7%	273.3
		<20	42,041	674.2	31.5	24.9	52.9	11.5%	9.3
	25-64	20-39	392,947	12,323.7	779.1	615.5	732.7	10.9%	198.7
		40-79	528,203	28,507.4	2,316.4	1,829.9	1,668.4	12.3%	442.6
		80+	74,886	8,987.7	599.0	473.2	341.8	9.1%	103.8
		All	1,038,077	50,493.0	3,726.0	2,943.5	2,795.8	11.4%	754.5
		<20	35,541	578.9	28.3	22.4	47.5	12.1%	8.6
	20-39	20-39	375,595	11,832.4	750.7	593.1	708.4	11.0%	193.2
		40-79	523,005	28,263.7	2,301.3	1,818.0	1,655.4	12.3%	440.6
		80+	74,773	8,969.1	598.5	472.8	341.1	9.1%	103.8
		All	1,008,914	49,644.1	3,678.9	2,906.3	2,752.3	11.4%	746.3
		20+	973,373	49,065.2	3,650.6	2,884.0	2,704.8	11.4%	737.6
	20-79	20-79	898,600	40,096.1	3,052.1	2,411.1	2,363.8	11.9%	633.8

1992 tax data -- \$ millions  
(excluding taxpayers who did not contribute to C/PPP and those  
whose main income source was pension or investment)

Taxpayer Attributes		Non-participants		Participants in RRSPP only			
Classification	Age	Number	Income	Number	Income	RRSP Deduction	Ret Savings Rate
			(\$ '000s)				
<b>Self-employed and other &lt;25</b>							
	<20	127,645	1,303.9	10,486	141.7	11.0	7.7%
	20-39	17,487	427.8	6,467	163.4	11.1	6.8%
	40-79	251	10.8	596	29.4	1.9	6.5%
	80+	12	1.2	70	7.8	0.5	5.8%
	All	145,395	1,743.7	17,619	342.3	24.4	7.1%
<b>25-44</b>							
	<20	486,867	5,629.7	95,013	1,277.6	141.4	11.1%
	20-39	182,584	4,744.8	117,018	3,359.8	332.0	9.9%
	40-79	24,059	1,234.9	53,352	2,907.1	331.5	11.4%
	80+	3,693	475.7	32,645	4,899.8	369.4	7.5%
	All	697,203	12,085.0	298,028	12,444.3	1,174.2	9.4%
	20+	210,336	6,455.4	203,015	11,166.7	1,032.8	9.2%
	20-79	206,643	5,979.7	170,370	6,266.9	663.4	10.6%
<b>45-64</b>							
	<20	216,277	2,384.4	63,290	846.8	112.8	13.3%
	20-39	73,684	1,925.5	76,172	2,194.7	276.4	12.6%
	40-79	14,500	762.4	38,152	2,109.6	268.3	12.7%
	80+	4,460	748.0	29,683	5,088.5	366.3	7.2%
	All	308,921	5,820.3	207,297	10,239.6	1,023.8	10.0%
	20+	92,644	3,435.9	144,007	9,392.8	911.0	9.7%
	20-79	88,184	2,687.9	114,324	4,304.3	544.7	12.7%
<b>&lt;65</b>							
	<20	830,789	9,317.9	168,789	2,266.1	265.2	11.7%
	20-39	273,755	7,098.0	199,657	5,717.9	619.5	10.8%
	40-79	38,810	2,008.1	92,100	5,046.1	601.7	11.9%
	80+	8,165	1,224.9	62,398	9,996.1	736.1	7.4%
	All	1,151,519	19,649.0	522,944	23,026.2	2,222.4	9.7%
<b>25-64</b>							
	<20	703,144	8,014.0	158,303	2,124.4	254.2	12.0%
	20-39	256,268	6,670.2	193,190	5,554.5	608.4	11.0%
	40-79	38,559	1,997.3	91,504	5,016.7	599.8	12.0%
	80+	8,153	1,223.7	62,328	9,988.3	735.6	7.4%
	All	1,006,124	17,905.3	505,325	22,683.9	2,198.0	9.7%
	20+	302,980	9,891.3	347,022	20,559.5	1,943.8	9.5%
	20-79	294,827	8,667.6	284,694	10,571.2	1,208.2	11.4%



1992 tax data -- \$ millions  
(excluding taxfilers who did not contribute to C/QPP and those  
whose main income source was pension or investment)

Taxfiler Attributes		Participants in RPP/DFSP only						
Classification	Age	Income Level (\$ 000s)	Number	Income	Total PA	Adjusted PA	Ret Savings Rate	Member RPP Confs
Self-employed and other	<25	<20	4,950	64.4	3.0	2.4	3.7%	0.8
		20-39	2,749	72.4	4.0	3.1	4.3%	1.2
		40-79	136	6.1	0.4	0.3	5.2%	0.2
		80+	0	0.0	0.0	0.0	0.0%	0.0
		All	7,835	142.9	7.4	5.8	4.1%	2.2
	25-44	<20	23,426	341.7	18.8	14.8	4.3%	6.3
		20-39	43,080	1,217.1	68.7	54.3	4.5%	29.7
		40-79	10,717	540.6	45.1	35.6	6.6%	17.6
		80+	989	129.8	6.0	4.8	3.7%	2.0
		All	78,212	2,229.2	138.6	109.5	4.9%	55.6
	45-64	20+	54,786	1,887.5	119.9	94.7	5.0%	49.3
		20-79	53,797	1,757.7	113.8	89.9	5.1%	47.3
		<20	8,912	119.7	9.1	7.2	6.0%	2.9
		20-39	18,183	508.5	27.6	21.8	4.3%	10.7
		40-79	6,582	353.9	29.3	23.2	6.6%	11.3
	<65	80+	1,390	233.5	12.0	9.5	4.1%	5.1
		All	35,067	1,215.7	78.1	61.7	5.1%	29.9
		20+	26,155	1,095.9	69.0	54.5	5.0%	27.1
		20-79	24,765	862.4	57.0	45.0	5.2%	22.0
		<20	37,288	525.8	30.8	24.4	4.6%	10.0
	25-64	20-39	64,012	1,798.0	100.3	79.2	4.4%	41.7
		40-79	17,435	900.6	74.8	59.1	6.6%	29.0
		80+	2,379	363.3	18.1	14.3	3.9%	7.1
		All	121,114	3,587.8	224.1	177.0	4.9%	87.8
		<20	32,338	461.4	27.8	22.0	4.8%	9.2
	20-39	20-39	61,263	1,725.7	96.4	76.1	4.4%	40.4
		40-79	17,299	894.5	74.4	58.8	6.6%	28.8
		80+	2,379	363.3	18.1	14.3	3.9%	7.1
		All	113,279	3,444.9	216.7	171.2	5.0%	85.5
		20+	80,941	2,983.5	188.9	149.2	5.0%	76.4
20-79	78,562	2,620.2	170.8	134.9	5.1%	69.3		

1992 tax data - \$ millions  
(excluding taxfilers who did not contribute to C/QPP and those  
whose main income source was pension or investment)

Taxfiler Attributes		Participants in both RRSP and RPP/DPSP									
Classification	Age	Income Level (\$ 000s)	Number	Income	Total PA	Adjusted PA	RRSP Deduction	Savings Rate	Ret RPP	Member RPP	Conis
<b>Self-employed and other &lt;25</b>											
		<20	324	5.0	0.2	0.2	0.4	10.9%	0.0	0.0	
		20-39	416	11.4	0.6	0.5	0.7	10.3%	0.3	0.3	
		40-79	22	1.3	0.1	0.1	0.1	16.3%	0.0	0.0	
		80+	0	0.0	0.0	0.0	0.0	0.0%	0.0	0.0	
		All	762	17.7	0.9	0.7	1.2	10.9%	0.3	0.3	
<b>25-44</b>											
		<20	5,786	84.3	4.1	3.3	7.1	12.3%	1.1	1.1	
		20-39	17,579	520.1	29.5	23.3	28.5	10.0%	10.0	10.0	
		40-79	14,720	788.1	64.2	50.7	49.6	12.7%	20.1	20.1	
		80+	3,721	509.1	19.6	15.5	38.1	10.5%	5.9	5.9	
		All	41,806	1,901.6	117.4	92.8	123.3	11.4%	37.2	37.2	
		20+	36,020	1,817.3	113.3	89.5	116.2	11.3%	36.0	36.0	
		20-79	32,299	1,308.2	93.7	74.0	78.1	11.6%	30.1	30.1	
<b>45-64</b>											
		<20	2,141	33.7	2.1	1.7	2.6	12.7%	0.4	0.4	
		20-39	12,649	380.2	21.5	17.0	31.1	12.6%	8.0	8.0	
		40-79	10,908	604.5	44.1	34.8	52.7	14.5%	15.1	15.1	
		80+	5,217	817.8	33.2	26.2	69.5	11.7%	14.1	14.1	
		All	30,915	1,836.2	100.9	79.7	155.9	12.8%	37.5	37.5	
		20+	28,774	1,802.5	98.8	78.1	153.2	12.8%	37.2	37.2	
		20-79	23,557	984.7	65.6	51.8	83.7	13.8%	23.0	23.0	
<b>&lt;65</b>											
		<20	8,251	123.0	6.4	5.1	10.1	12.4%	1.5	1.5	
		20-39	30,644	911.6	51.6	40.7	60.3	11.1%	18.3	18.3	
		40-79	25,650	1,394.0	108.4	85.7	102.4	13.5%	35.2	35.2	
		80+	8,938	1,326.9	52.8	41.7	107.6	11.2%	20.0	20.0	
		All	73,483	3,755.4	219.2	173.2	280.4	12.1%	75.0	75.0	
<b>25-64</b>											
		<20	7,927	118.0	6.2	4.9	9.8	12.5%	1.5	1.5	
		20-39	30,228	900.2	51.0	40.3	59.6	11.1%	18.0	18.0	
		40-79	25,628	1,392.7	108.3	85.6	102.3	13.5%	35.2	35.2	
		80+	8,938	1,326.9	52.8	41.7	107.6	11.2%	20.0	20.0	
		All	72,721	3,737.7	218.3	172.5	279.2	12.1%	74.7	74.7	
		20+	64,794	3,619.8	212.1	167.5	269.4	12.1%	73.2	73.2	
		20-79	55,856	2,292.9	159.3	125.8	161.9	12.5%	53.2	53.2	

## APPENDIX E – ESTIMATING THE COST OF THE RETIREMENT SAVINGS SYSTEM

### Part 1 – Behavioral Response

Suppose a taxpayer

- saves \$100 per annum starting at age 30, and increases this amount at the same rate as his or her salary increases until age 65,
- retires at age 65 and collects a pension until death at age 84 (the life expectancy of a 65 year old using a 50/50 unisex version of the 1983 Group Annuity Mortality Table),
- leaves a survivor who collects 60% of the pension for another five years (the life expectancy of a survivor the same age, according to the 1983 Group Annuity Mortality Table),
- uses the accumulated retirement savings to purchase a fully indexed pension with a 60% survivor benefit, and
- has a 41% marginal tax rate prior to retirement and a 35% marginal tax rate after retirement.

Suppose further that

- the retirement savings are invested in five-year GICs earning 8% per annum,
- the government's cost of borrowing is 8% per annum,
- the taxpayer's salary grows at the rate of 5% per annum, and
- the Consumer Price Index increases at the rate of 4% per annum.

Finally, suppose that the benchmark tax system is identical to the current tax system except for the provisions relating to retirement savings.

#### *Savings Response*

Four types of savings response are described in Section 5.5 (the Spender, the Residual Saver, the Target Saver and the Compulsive Saver). The target saver is now assumed to cut back his or her after-tax retirement income target by 70% of any increase in the after-tax cost of pre-retirement savings.

The model looks at the present value (at 8%) at age 30 of

- gross savings (amounts contributed to the retirement savings account),
- after-tax savings (amounts contributed to the retirement savings account less, if the contributions are directed to an RRSP, the tax refunds arising from the contributions),
- the pension received by the taxpayer and the surviving spouse, after tax (the gross pension received by the taxpayer or survivor, less any taxes paid in that year), and
- income taxes paid on the \$100 of employment earnings (growing at the rate of 5% per annum), any taxable investment income and any taxable withdrawals from the RRSP.

The results are as summarized in the following table:

	Present Value at Age 30			
	Gross Savings (Before Tax)	After-Tax Savings	After-Tax Pensions	Income Tax
Using RRSPs in the current tax system	\$2,090	\$1,233	\$1,358	\$731
Using a non-tax-sheltered account in the benchmark tax system, assuming the taxpayer behaves like				
• The Spender	\$ 0	\$ 0	\$ 0	\$857
• The Residual Saver	1,233	1,233	531	1,559
• The Target Saver	2,597	2,597	1,119	2,335
• The Compulsive Saver	3,348	3,348	1,545	2,660

The reduction in the present value of income tax is a measure of the amount that the retirement savings incentives cost the government. This cost can be expressed in many ways, for example

- as a percent of the amounts contributed,
- as a percent of the fund balances,
- as a percent of the benefits paid.

The retirement savings system decreases tax revenues prior to retirement, and increases them after. Any loss of tax revenue occurs prior to retirement, hence, it makes sense to express the cost as a percentage of contributions.

From the earlier table, the cost, when expressed as a percent of the amount contributed to the retirement savings plan, is as follows:

Savings Response	Cost as a Percentage of Contributions to the Retirement Savings Plan
The Spender	$6\% = \left( \frac{857 - 731}{2,090} \right)$
The Residual Saver	$40\% = \left( \frac{1,559 - 731}{2,090} \right)$
The Target Saver	$77\% = \left( \frac{2,335 - 731}{2,090} \right)$
The Compulsive Saver	$92\% = \left( \frac{2,660 - 731}{2,090} \right)$

These results are similar to those produced by the simple model in Section 5.5 (see Table 5.5).

Relative to 1991 contributions of \$30.2 billion, this means that the cost of the retirement savings system, assuming no behavioral response (the Compulsive Saver) would be

$$\$30.2 \text{ billion} \times 92\% = \$27.8 \text{ billion.}$$

The federal share of this cost would be

$$63\%^1 \times \$27.8 \text{ billion} = \$17.5 \text{ billion}$$

### *Investment Response*

In the benchmark tax system, the highest after-tax returns are reserved for those who invest in their principal residences and pay down their mortgages quickly (see Section 5.4). Taxpayers are likely to change not only the amount they save for retirement, but how they invest their savings. Mortgages will be repaid before stocks, bonds or GICs are purchased. Principal residences will account for a higher percentage of personal savings than they do now. Financial assets will accumulate later in life and be drawn down more quickly after retirement, so that the taxpayer's home equity can appreciate, tax free, for the longest possible time.

To measure the sensitivity of the tax expenditure to investment decisions we assumed that the taxpayer directed either one-third or two-thirds of his retirement savings to a principal residence, and that this investment earned a 6% rate of return, 2% more than the assumed rate of increase in the Consumer Price Index (between 1968 and 1992, Canadian house prices increased at the rate of 8.7% per annum while the CPI increased at the rate of 6.3% per annum). If we assume that the "residual saver" and the "target saver" represent the extremes in rational savings response, the cost of the retirement savings system, expressed as a percent of the amounts contributed to retirement savings plans, would then be bounded by the numbers in the following table:

**Impact of Behavioural Response on the  
Cost of the Retirement Savings System,  
Expressed as a % of Contributions**

Savings Response	Investment Response	
	One-Third Invested in Principal Residence	Two-Thirds Invested in Principal Residence
Residual Saver	30%	18%
Target Saver	50%	28%

Relative to 1991 contributions of \$30.2 billion, this suggests that the cost of the retirement savings system, adjusted for behavioral response, would be between

$$18\% \times \$30.2 \text{ billion} = \$ 5.4 \text{ billion}$$

and

$$50\% \times \$30.2 \text{ billion} = \$15.1 \text{ billion}$$

The federal government's share of this cost would be between

$$63\% \times \$5.4 \text{ billion} = \$3.4 \text{ billion}$$

and

$$63\% \times \$15.1 \text{ billion} = \$9.5 \text{ billion}$$

<sup>1</sup> 63% = 1/1.59 . . . see Section 5.2

**Part 2 – Moving to a Neutral Benchmark**

As mentioned in Section 5.3, the benchmark tax system discourages savings by taxing gains that do no more than preserve the value of savings, after adjusting for inflation. The benchmark tax system also taxes retirement savings at the high marginal rates in effect at the time the money is earned, not the lower marginal tax rates in effect when the savings are received as pensions.

As an alternative to the benchmark tax system chosen by the Department of Finance, let’s define a “neutral” benchmark system with the following features:

- Only real investment income is taxed.
- Retirement savings are taxed at the lower marginal rates in effect after retirement.
- Capital gains and dividends are fully taxable, after an allowance for inflation.

In the neutral benchmark system, the assumed after-tax rate of return on five-year GICs is

$$4\% + 4\% (1 - 41\%) = 6.36\%$$

As this is higher than the 6% rate of return available on principal residences, we assume that the taxpayer’s retirement savings would be fully invested in GICs in the neutral benchmark tax system.

Relative to the neutral benchmark system, the cost of the retirement savings system, when expressed as a percentage of contributions, is as follows:

Cost as a Percent of Contributions Relative to Different Benchmark Systems			
Savings Response	Benchmark System Used by the Department of Finance		
	One-Third of Savings Diverted to Principal Residence	Two-Thirds of Savings Diverted to Principal Residence	Neutral Benchmark System
The Residual Saver	30%	18%	21%
The Target Saver	50%	28%	28%

Based on 1991 contributions of \$30.2 billion, this means that the cost of the retirement savings system, relative to a neutral benchmark is between

$$21\% \times \$30.2 \text{ billion} = \$6.3 \text{ billion}$$

and

$$28\% \times \$30.2 \text{ billion} = \$8.5 \text{ billion}$$

The federal share of this cost would be between

$$63\% \times \$6.3 \text{ billion} = \$4.0 \text{ billion}$$

and

$$63\% \times \$8.5 \text{ billion} = \$5.3 \text{ billion}$$

Finally, we looked at the impact of the following factors, none of which proved to be very important.

- the age at which the taxpayer retires (age 60 instead of age 65),
- the income of the taxpayer (by using a 53% pre-retirement marginal tax rate versus the 41% used earlier and a 47% post-retirement marginal tax rate versus the 35% used earlier), and
- the manner in which the retirement savings are invested, and the rate of return earned on these investments.

In the neutral benchmark system, these factors had the following impact on the estimated tax expenditure:

Cost as a Percent of Contributions, Relative to the Neutral Benchmark System			
Savings Response	Retirement at 60	High Income (53% Pre-Retirement Marginal Rate; 47% Post-Retirement)	One-Third/Two-Thirds Stock/Bond Asset Mix, Earning 8.5% per Annum
The Residual Saver	20%	21%	19%
The Target Saver	26%	32%	30%

**Part 3 – As the System Matures**

The retirement savings system is not mature. Between 1983 and 1993, the assets in retirement savings plans grew by 13% per annum, and the contributions to retirement savings plans grew by 9% per annum. The economy grew by only 6% per annum.

Using the assumptions underlying the model described earlier, and in particular

- an 8% rate of return on retirement savings,
- savers who contribute a level percent of pay between the ages of 30 and 65,
- indexed pensions and survivor pensions paid for 19 and 5 years respectively,

a mature system (where for this purpose maturity means a stationary population as opposed to a population growing at a stable rate) has the following features

- Ratio of year beginning assets to annual contributions – 42
- Ratio of benefits to contributions – 2.3

If we assume that contributions had reached a mature level of \$30 billion per annum in 1991, the contrast between our system and a mature system is striking.

	Retirement Savings System in 1991 (\$ billion)	Mature Retirement Savings System Based on 1991 Contributions (\$ billion)
Contributions	30	30
Assets at start of year	486	1,260
Benefits	22	69

Using the "current cash flow" method, the annual cost of the retirement savings system would be

	Cost of the Retirement Savings System Using the Current Cash Flow Method	
	Retirement Savings System in 1991 (\$ billion)	Mature Retirement Savings System Based on 1991 Contributions (\$ billion)
25.8% x contribution	7.7	7.7
25.8% x investment income*	10.1	25.6
22.1% x benefits	(4.9)	(15.2)
Total	12.9**	18.1

\*  $8\% \times (\text{Year Beginning Asset Value} + 1/2 \times (\text{Contributions} - \text{Benefits}))$

\*\* Differs from the \$14.8 billion in Section 4.1 due to the use of an 8% rate of return assumption versus the 9.76% used by the Department of Finance

The cost of the retirement savings system, as measured by the current cash flow method, is likely to increase as the system matures. At maturity, the \$18 billion cost is close to the \$17.5 billion cost estimate derived in Part 1 of this Appendix for the Compulsive Saver.



## APPENDIX F – THE FACTOR OF 9

The original factor of 9 was calculated from the following assumptions.

### *Assumptions About Ancillary Features*

- unreduced pensions at age 63,
- benefits indexed monthly at the rate of increase in the Consumer Price Index, less 1%,
- a 60% survivor pension,
- no bridge benefits,
- pensions based on final average earnings calculated over five years.

### *Actuarial Assumptions*

- a 7% rate of return,
- a 5% rate of increase in wages,
- a 4% rate of increase in the Consumer Price Index,
- 35 years of plan participation/saving, starting at age 28 and ending at age 63,
- the 1971 Group Annuity Mortality Table,
- a married male employee with a spouse the same age,
- contributions made at the end of each year.

Using these assumptions, the calculated factor is 9.0, i.e., 9.0% of pay, contributed to an RRSP from age 28 to age 63 (35 years) will produce enough money to purchase a pension equal to 35% of final average earnings with a 60% survivor benefit and 3% indexing.

### **1. The Sensitivity of the Factor of 9 to Changing Actuarial Assumptions**

If we align the actuarial assumptions used to calculate the factor of 9 with those summarized in Appendix B, the factor drops from 9.0 to 6.5.

- |                                                                                                                                                                            |       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| • Factor calculated using the actuarial assumptions described on page F-1                                                                                                  | 9.0   |
| • Impact of assuming pensions are indexed annually in arrears and that contributions are made at mid-year, and adding promotion/seniority salary increases prior to age 45 | 0.1   |
| • Impact of changing from the male 1971 Group Annuity Mortality Table to a 50/50 unisex 1983 Group Annuity Mortality Table                                                 | 0.7   |
| • Impact of increasing the assumed rate of return from 7% to 8.5%, to reflect a one-third equity/two-thirds fixed income asset mix                                         | (3.3) |
| • Revised factor based on the assumptions in Appendix B                                                                                                                    | 6.5   |

The factor of 9 is quite sensitive to changes in the assumed real rate of return on investment. Real rates of return are higher now than in the 1970s and early 1980s; so the factor of 9 looks high, at least relative to today's expectations. The following table demonstrates the factor's sensitivity to changes in the assumed real rate of return on investment and the assumed real rate of growth in wages:

#### Factor Derived from Different Sets of Economic Assumptions

Real Rate of Return on Investment	Rate of Increase in Real Wages		
	0%	1%	2%
2%	10.8	12.7	14.7
3%	8.1	9.5	11.1
4%	6.0	7.2	8.5
5%	4.5	5.4	6.4
6%	3.3	4.0	4.9

Looking at the experience of Canadian retirement savings plans over the last three decades, one finds

Decade	Average Annual Increase in Real Wages	Average Real Rate of Return Earned by the Median Canadian Pension Fund	Factor Appropriate to the Experience of the Decade*
1960s	2.2%	3.1%	11.2
1970s	1.9%	0.0%	25.1
1980s	0.1%	7.0%	2.5
1990s (4 years)	0.0%	7.2%	2.3

\* i.e., the factor that one would use if one thought that each decade's experience was a reasonable predictor of future experience

## 2. Sensitivity of the Factor of 9 to Ancillary Features

The two most important ancillary features are

- early retirement provisions, and in particular, the age at which an employee first qualifies for an unreduced pension, and
- indexing, i.e., the rate at which benefits are improved after retirement to take into account all or part of the increase in the cost of living.

Using the actuarial assumptions summarized in Appendix B, the importance of these plan provisions can be seen from the following table:

**Factor for Establishing the Equivalence of  
Defined Contribution and Defined Benefit Plans**

Age at Which an Employee Can Retire with an Unreduced Pension	Level of Post-Retirement Indexing		
	50% None	100% of CPI	of CPI
55	6.5	7.9	9.7
60	5.6	6.6	8.0
65	4.7	5.5	6.5

Bridge benefits, the provision of a temporary additional pension between retirement and the attainment of age 65, can significantly increase the value of defined benefit pension plans for those who retire early. The maximum bridge benefit payable from a registered pension plan is equal to the sum of

- an estimate of the unreduced pension the employee can expect to receive from the Canada/Québec Pension Plans, and
- the Old Age Security benefit payable to Canadians over the age of 65 in the year of retirement.

The benefit is reduced by 3% for each year that retirement precedes age 60, and is further reduced for those who retire with fewer than 10 years of service.

For those earning more than the Canada/Québec Pension Plan earnings ceiling (\$34,400 in 1994) bridge benefits diminish in importance as income increases. The value of bridge benefits, as a function of retirement age, income and the level of the bridge benefit is summarized in the following table:

**Impact of Bridge Benefits on the Equivalence Factor**

Type of Bridge Benefit	Retirement Age	Annual Income			
		\$20,000	\$40,000	\$60,000	\$80,000
C/QPP Only, Accruing Over 35 Years	55	3.6	3.1	2.1	1.6
	60	1.8	1.6	1.1	0.8
	65	0.0	0.0	0.0	0.0
Full C/QPP and OAS Bridge Benefit	55	6.9	4.9	3.3	2.5
	60	3.4	2.5	1.6	1.2
	65	0.0	0.0	0.0	0.0

These factors are added to the factor for the basic lifetime pension. For example, a plan with unreduced pensions at age 60, 50% CPI indexing and a "C/QPP only" bridge would, for an employee who retires at age 60 earning \$60,000 per annum, have a factor equal to

$$6.6 + 1.1 = 7.7$$

Other ancillary benefits have a smaller impact. The following table shows how different levels of survivor benefit, and different approaches to calculating final average earnings, can affect the factor:

**Impact of Survivor Pensions and the Definition of  
Final Average Earnings on Equivalency Factors**

Definition of Final Average Earnings	Survivor Pension		
	0%	60%	66.67%
Indexed 3-Year Final Average Earnings	6.5	7.1	7.2
3-Year Final Average Earnings	6.2	6.8	6.9
5-Year Final Average Earnings	5.9	6.5	6.5

## APPENDIX G

**Department of Finance and Revenue Canada – Tax Assistance for Retirement Savings**

Exhibit 33.4 International Comparison of Tax Treatment of Retirement Benefit Programs			
COUNTRY	CONTRIBUTIONS	INVESTMENT EARNINGS	BENEFITS
<b>COUNTRIES PROVIDING FULL OR PARTIAL TAX ASSISTANCE</b>			
<b>Australia</b>			
I. Social Security Programs	N/A	N/A	Not Taxable*
II. Employer-sponsored Arrangements	Partially Exempt Employee - Not Exempt	Partially Exempt	Partially Taxable
III. Individual Retirement Savings Arrangements	Partially Exempt	Partially Exempt	Partially Taxable <small>*provided social security is only source of income</small>
<b>Canada</b>			
I. Social Security Programs	Exempt	N/A	Taxable*
II. Employer-sponsored Arrangements	Exempt	Exempt	Taxable
III. Individual Retirement Savings Arrangements	Exempt	Exempt	Taxable <small>* Exempt for income-based GRS benefits. GRS also subject to tax credits.</small>
<b>France</b>			
I. Social Security Programs	Exempt	N/A	Taxable
II. Employer-sponsored Arrangements	Exempt	Exempt	Taxable
III. Individual Retirement Savings Arrangements	Partially Exempt	Exempt	Partially Exempt
<b>Germany</b>			
I. Social Security Programs	Partially Exempt	N/A	Taxable
II. Employer-sponsored Arrangements	Partially Exempt (including both reserves)	Exempt	Partially Taxable
III. Individual Retirement Savings Arrangements	Minimal Exemption	Exempt	Partially Taxable
<b>Italy</b>			
I. Social Security Programs	Exempt	N/A	Taxable
II. Employer-sponsored Arrangements	Partially Exempt	Exempt	Partially Taxable
III. Individual Retirement Savings Arrangements	Partially Exempt	Exempt	Partially Taxable
<b>Japan</b>			
I. Social Security Programs	Exempt	N/A	Partially Taxable
II. Employer-sponsored Arrangements	Exempt	Partially Exempt	Partially Taxable
III. Individual Retirement Savings Arrangements	Exempt	Exempt	Not Taxable
<b>Sweden</b>			
I. Social Security Programs	Exempt	N/A	Taxable
II. Employer-sponsored Arrangements	Partially Exempt	Partially Exempt	Taxable
III. Individual Retirement Savings Arrangements	Partially Exempt	Partially Exempt	Taxable
<b>United Kingdom</b>			
I. Social Security Programs	Employer - Exempt Employee - Not Exempt	N/A	Taxable
II. Employer-sponsored Arrangements	Exempt	Exempt	Partially Taxable
III. Individual Retirement Savings Arrangements	Exempt	Exempt	Partially Taxable
<b>United States</b>			
I. Social Security Programs	Employer - Exempt Employee - Not Exempt	N/A	Taxable
II. Employer-sponsored Arrangements	Employer - Exempt Employee - Exempt under certain programs	Exempt	Taxable*
III. Individual Retirement Savings Arrangements	Minimal Exemption	Exempt	Taxable <small>* Exempt for portion attributable to tax-deferred employer contributions</small>
<b>COUNTRIES PROVIDING NO TAX ASSISTANCE</b>			
<b>New Zealand</b>			
I. Social Security Programs	N/A	N/A	Taxable*
II. Employer-sponsored Arrangements	Not Exempt	Not Exempt	Not Taxable
III. Individual Retirement Savings Arrangements	N/A	N/A	N/A <small>*also subject to taxes</small>

*Caution: The levels of contributions and benefits that receive tax assistance vary from country to country. Appropriate comparison would require that maximum and average benefits from all sources be compared to the average wage in each country.*

## Exhibit I

**Graph 1.1: Distribution of the Canadian Population by Age**

Year	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64
1995	7.2%	7.0%	6.6%	6.5%	6.8%	7.5%	9.1%	8.7%	7.8%	6.9%
2010	5.9%	6.0%	6.4%	6.8%	6.7%	6.5%	6.5%	6.6%	7.0%	8.2%
2025	5.8%	5.9%	5.8%	5.8%	5.9%	6.3%	6.8%	6.6%	6.3%	6.0%
2040	5.5%	5.6%	5.7%	5.9%	6.1%	6.1%	6.1%	6.2%	6.4%	6.6%

Year	65-69	70-74	75-79	80-84	85-89	90-94	95-99	100+	
1995	5.4%	4.4%	4.1%	3.8%	3.2%	2.3%	1.5%	0.8%	0.4%
2010	7.6%	6.8%	5.8%	4.3%	3.2%	2.5%	1.9%	0.6%	0.7%
2025	6.0%	6.2%	7.0%	6.2%	5.0%	3.8%	2.3%	1.3%	0.9%
2040	6.3%	5.8%	5.5%	5.1%	4.9%	4.8%	3.6%	2.2%	1.5%

**Graph 1.3: Projected Percentage of the Electorate Over the Ages of 50 and 65**

Year	1995	2000	2010	2015	2020	2025	2030
% Over 50	34.4%	38.9%	43.1%	46.8%	48.2%	48.9%	49.3%
% Over 65	16.0%	17.3%	17.0%	19.8%	22.1%	24.7%	27.2%

**Graph 1.4: Projected Percentage of Voters Over the Ages of 50 and 65**

Year	1995	2000	2010	2015	2020	2025	2030
% over 50	37.0%	41.7%	46.0%	50.2%	51.2%	51.8%	52.2%
% over 65	17.1%	18.5%	18.2%	21.2%	23.5%	26.2%	28.8%

**Graph 2.1: Percentage of Elderly Living Below the Low Income/Poverty Level**

Calendar Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
LICO	33.5%	33.1%	29.4%	31.2%	29.3%	27.8%	26.5%	25.2%	25.6%	23.2%	21.1%	21.7%	20.6%
LIM	31.7%	29.9%	23.5%	21.7%	19.8%	17.8%	18.9%	17.3%	20.4%	20.8%	18.0%	13.8%	12.6%

**Graph 2.3: Social Security Cost Projections**

<i>Projected Cost as a Percentage of Gross Domestic Product</i>				
<i>Calendar Year</i>	<i>OAS*</i>	<i>C/QP*</i>	<i>Medicare**</i>	<i>Total</i>
1995	2.1%	2.5%	3.9%	8.5%
2000	2.0%	2.5%	4.0%	8.5%
2005	2.0%	2.7%	4.3%	9.0%
2010	2.0%	3.0%	4.7%	9.7%
2015	2.2%	3.3%	5.2%	10.7%
2020	2.4%	3.7%	5.8%	11.9%
2025	2.6%	4.1%	6.6%	13.3%
2030	2.8%	4.4%	7.6%	14.8%

\* ignoring the impact of the claw-back.

\*\* excluding medicare benefits for Canadians under age 65.

**Graph 3.1: Contributions as a Percentage of Income from Employment and Self-Employment, 1983-1991**

<i>Year</i>	<i>Pension Plans</i>	<i>RRSP</i>	<i>Total</i>
1983	4.6%	2.1%	6.7%
1985	4.4%	2.4%	6.8%
1987	4.1%	2.7%	6.8%
1989	3.7%	3.1%	6.8%
1991	4.1%	3.2%	7.3%

**Graph 3.2: Elements of Net Private Savings, 1983-1993**

Year	Contractual Savings (a)	Other Personal Savings (b)	Total Personal Savings (c) = (a) + (b)	Corporate and Government Business Savings (d)	Net Domestic Savings (e) = (c) + (d)
1983	5.5%	4.5%	9.9%	3.0%	12.9%
1984	5.4%	4.7%	10.0%	4.0%	14.0%
1985	5.6%	3.3%	8.9%	4.5%	13.4%
1986	5.4%	1.7%	7.1%	3.3%	10.4%
1987	5.3%	0.6%	5.8%	4.3%	10.1%
1988	5.5%	0.6%	6.1%	4.7%	10.8%
1989	5.6%	1.1%	6.7%	3.4%	10.1%
1990	6.3%	0.1%	6.4%	1.0%	7.4%
1991	6.4%	0.2%	6.6%	0.6%	7.2%
1992	6.3%	0.3%	6.6%	0.0%	6.6%
1993	5.6%	0.5%	6.1%	1.0%	7.1%

**Graph 3.3: Savings as a Percentage of GDP, 1982-1993**

Year	Net Private Savings (a)	Government Borrowing (b)	Net Domestic Savings (c) = (a) - (b)	Government Borrowing as a Percent of Net Private Savings (d) = (b)/(a)
1982	12.1%	4.7%	7.4%	39%
1983	12.9%	5.9%	7.0%	46%
1984	14.0%	5.4%	8.6%	39%
1985	13.4%	5.6%	7.8%	42%
1986	10.4%	4.4%	6.0%	42%
1987	10.1%	2.9%	7.2%	29%
1988	10.8%	1.6%	9.2%	15%
1989	10.1%	1.9%	8.2%	19%
1990	7.4%	3.0%	4.4%	41%
1991	7.2%	5.6%	1.6%	78%
1992	6.6%	6.2%	0.4%	94%
1993	7.1%	6.2%	0.9%	87%



**Graph 3.4: Total Capital Finance Account, 1982-1993**

Year	Net Domestic Savings	Capital Provided by Non-Residents	Total Capital Finance Account	% of Capital Finance Account Provided by Non- Resident Savings
	(% of GDP) (a)	(% of GDP) (b)	(% of GDP) (c) = (a) + (b)	(d) = (b)/(c)
1982	4.4%	(0.3%)	4.1%	(6%)
1983	7.0%	(0.5%)	6.5%	(8%)
1984	8.6%	(0.3%)	8.3%	(14%)
1985	7.8%	0.7%	8.5%	8%
1986	6.0%	2.3%	8.3%	28%
1987	7.2%	2.3%	9.5%	24%
1988	9.3%	2.7%	11.0%	25%
1989	8.2%	3.8%	12.0%	32%
1990	4.3%	2.1%	6.4%	38%
1991	1.6%	4.7%	6.3%	75%
1992	1.4%	4.6%	6.0%	77%
1993	0.9%	4.1%	5.0%	82%

\* excluding capital consumption allowances

**Graph 3.5: Spread between Interest Rates and Rates of Growth in Prices & Wages, 1954-1993**

Period	Year							
	1954-55	1959-63	1964-68	1969-73	1974-78	1979-83	1984-88	1989-93
Spread Between Interest Rates & Inflation	2.0%	3.9%	2.4%	2.4%	0.1%	3.5%	6.6%	5.9%
Spread Between Interest Rates and Rate of Growth in Wages	(0.6%)	2.0%	(0.3%)	(0.5%)	(1.3%)	3.1%	7.0%	5.9%

---

**Canadian Institute of Actuaries**  
360 Albert Street, Suite 820  
Ottawa, Ontario K1R 7X7  
(613) 236-8196 • Fax: (613) 233-4552

**Institut Canadien des Actuaires**  
360, rue Albert, bureau 820  
Ottawa (Ontario) K1R 7X7  
(613) 236-8196 • Télécopieur : (613) 233-4552

---