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**A Tale of Two Pension Plans:
The Differing Fortunes of the
Canada and Quebec Pension Plans**

by

Edward Tamagno

January 2008

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Introduction

The Canada Pension Plan (CPP) and the Quebec Pension Plan (QPP) are headed towards an historical crossroads. The most recent actuarial valuation of the CPP shows that the federal scheme is sound in its financing and should remain financially sound for the foreseeable future, without the need for any increase in its contribution rate over the next 75 years [OCA 2007]. Not entirely so, however, the QPP. Although the Quebec plan is in no imminent financial difficulty, its most recent actuarial valuation indicates that changes to the QPP's financing or benefits must be made well before 2050 or the scheme will be unable to meet its commitments fully after that year [RRQ 2007a].

The year 2050 may seem like a long time in the future. However, for pension plans like the CPP and the QPP, which base their benefits on a contributor's lifetime earnings and which pay those benefits from the time a contributor retires to the contributor's death (and, in many instances, benefits to a surviving spouse or partner after the contributor's death), 2050 is not too far off. Adjustments to the financing of public pension plans must be made well in advance to avoid sudden, and possibly sharp, increases in contributions or decreases in benefits.

A major decrease in QPP benefits is inconceivable. Quebeckers would never accept such a move, any more than Canadians in the rest of the country would accept a sharp decrease in CPP benefits. The alternative, therefore, is for the government of Quebec either to implement a set of relatively modest reductions to QPP benefits or to increase the QPP's contribution rate or the plan's earnings ceiling (the maximum earnings on which QPP contributions are levied), or some combination of these measures.

It is unlikely that a set of modest reductions to benefits could be found that would fully offset the QPP's long-term financial shortfall. Modest benefit reductions will need to form part of a package of measures to offset the shortfall, but they will not be sufficient by themselves to offset the entire shortfall. Action will be required on the funding side of the equation – for example, by increasing the QPP's contribution rate or contributory earnings, or both.

Changes to the QPP's contribution rate or contributory earnings without similar changes to the CPP would present new and unprecedented challenges from the perspective of both social and economic policy.

Although the Canada Pension Plan and the Quebec Pension Plan are separate schemes, each with its own legislation and administration, the federal and provincial governments, since the start of the plans in 1966, have always sought to maintain parallelism in the key aspects of the schemes' design. In particular, the CPP and the QPP have always had precisely the same contribution rate and levied contributions on the same band of earnings.¹

From the perspective of economic policy, maintaining the same contribution rate and earnings ceiling ensures that the cost to employers and employees, in terms of the

payroll tax (contributions) for public pensions, is the same no matter where in Canada jobs are created and work is performed. If the CPP and the QPP were to have different contribution rates or different contributory earnings, employers might be induced to locate in the jurisdiction (Quebec or elsewhere in Canada) with the lower cost. In terms of social policy, higher contributions in one jurisdiction than in the other for essentially the same level of benefits would implicitly disadvantage contributors subject to one plan (the one with the higher contributions) over contributors subject to the other plan.

The most recent actuarial valuations of the Canada and the Quebec Pension Plans indicate that it will not be a straightforward matter to keep the contribution rates of the two plans the same, as has been the case for the last 42 years. While this issue may seem to be a highly technical one – and it *is* technical – it is nonetheless a very important question that can have far reaching implications for Canada’s economic and social development.

The purpose of this paper is to examine the reasons for the divergence in the financial projections of the Canada and the Quebec Pension Plans and to propose ways in which the parallelism of the two schemes, which has been a mainstay of federal and provincial policy for over four decades, can be maintained.

Financing the CPP and the QPP: Inception of the plans to the 1997 financing reform

Unique in its structure, Canada’s pension system includes two contributory, earnings-related public schemes – the Canada Pension Plan, which covers workers throughout Canada except in the province of Quebec, and the Quebec Pension Plan, which covers workers in Quebec. The fact that there are dual public pension schemes is the result of two factors: Canada’s complex constitutional structure as a federal state, and the political evolution of Canada, and in particular of the province of Quebec, over the past 50 years.

Section 94a of the Canadian Constitution deals with responsibility for ‘old age pensions’. It reads:

The Parliament of Canada may make laws in relation to old age pensions and supplementary benefits, including survivors’ and disability benefits irrespective of age, but no such law shall affect the operation of any law present or future of a provincial legislature in relation to any such matter [Canada 1982].

In effect, section 94a gives each province the primary responsibility for establishing a public pension program in that province. In the absence of a provincial program, the federal government can legislate a pension scheme which will operate in a province.²

Beginning in the late 1950s and continuing into the mid-1960s, there was a wide-ranging debate in Canada about the establishment of a contributory, earnings-related pension plan that would complement the non-contributory, flat-rate Old Age Security pension that had been paid since 1952. Eventually, two different visions of such a contributory scheme emerged – a very modest plan proposed by the federal government and a somewhat more ambitious (but, in comparison to most European pension programs of the day, still modest) scheme proposed by Quebec.

It was clear from the start of the debate that Quebec would exercise its constitutional prerogative and legislate its own scheme. It was equally clear that most other provinces would opt for a federal plan. However, the position of one province, Ontario, was unclear, and it is Canada's largest province. The government of Ontario was initially opposed to a public plan, preferring instead occupational (private) schemes.³

A complex process of federal-provincial discussions ensued, from which a consensus eventually emerged which resulted in the Canada and Quebec Pension Plans. The process is well documented in several sources [Babich and Béland 2007; Bryden 1974; Simeon 1972].

From the perspective of the financing of the CPP and the QPP, there were several key aspects of the consensus that have been central to the design and the operation of the two plans. These aspects concern the scale of the two plans, their financing method, and the use of the funds not immediately required for the payment of benefits.

Already in the 1960s, occupational pension plans played a major role in providing retirement income to Canadians, especially to workers in the public sector and in the unionized parts of the private sector. Through tax assistance, governments sought to encourage employers with plans to improve those plans and to motivate employers without occupational plans to establish them. It became important, therefore, that the new, mandatory public pension plans leave ample room for occupational plans and focus primarily (but not exclusively) on the situation of low and lower-middle wage earners who were unlikely to be covered by occupational plans. These considerations led to the decisions that the replacement rate of the CPP and the QPP should be modest – 25 percent of average lifetime earnings – and that the ceiling on earnings subject to contributions should not be set very high.

In regard to the financing method of the plans, the federal government initially favoured a scheme that would be based on a more-or-less pure 'pay-as-you-go' (PAYG) system, which at the time was the financing method of most public pension plans in Europe and many other parts of the world. Under pure PAYG financing, the contributions made each year by workers and employers are sufficient to pay that year's pension benefits to the scheme's retired and disabled contributors and to the survivors of the scheme's deceased contributors as well as the scheme's administrative costs. Since the pension benefits paid in the early years of an earnings-related scheme will be small (benefits are based on a workers' career earnings and require a minimum period of

contribution for a full pension), the initial contribution rate under a PAYG system is low. The contribution rate will increase as the scheme matures.

Quebec, on the other hand, advocated a modified form of pay-as-you-go financing – often referred to as ‘partial funding’ – under which the initial contribution rate would be set higher than that needed under a pure pay-as-you-go system. The higher contribution rate would result in the rapid build-up of a fund that would be available for investment. As the scheme matured and pension payments increased, expenditures (benefits plus administrative costs) would eventually catch up with income from contributions and investments, and the fund would cease to grow. At (or before) that time, the contribution rate would be increased so that annual revenues and expenditures would balance – that is, the scheme would become purely pay-as-you-go.⁴ To avoid annual adjustments to the PAYG contribution rate due solely to short- and medium-term fluctuations in the economy, the scheme would maintain a fund that would be used as a stabilization reserve. A target level for the reserve – e.g. two year’s expenditures – would be set to ensure a fund of sufficient size to play this stabilization role.

Quebec’s reasons for advocating partial funding for its public pension scheme and, in particular, the build-up of a reserve were clear. In the mid-1960s the province was in the midst of its Quiet Revolution, an unprecedented period of economic and social change that over a short period would move Quebec from an inward-looking society largely dominated by outside economic interests to a modern, outward-looking, dynamic society and economy. The provincial government of the day saw the pension plan’s reserve fund as one of the key engines for financing Quebec’s economic reform and development.

It quickly became clear to the federal government and the other nine provinces that Quebec was determined to base its pension scheme on partial funding. It equally became clear to all governments, including Quebec’s, that there would be considerable advantages from having a uniform contribution rate and contributory earnings in any future federal and Quebec schemes. The issue became what the contribution rate and contributory earnings should be.

After much discussion, agreement was reached on an initial contribution rate of 3.6 percent, half to be paid by employees and half by employers, with self-employed persons paying the entire amount. Contributions were to be levied on annual earnings up to a ceiling equal to the average industrial wage⁵ (in 1966, \$5,000⁶) and known as the Year’s Maximum Pensionable Earnings (YMPE). To introduce a modest element of progressivity to the flat-rate payroll tax, the first portion of annual earnings, equal to 12 percent of the contributory ceiling, would be exempt from contributions but included in contributory earnings when calculating pensions. The exempted band is known as the Year’s Basic Exemption (YBE).⁸

The federal and provincial governments agreed that the target levels of the reserves of the CPP and the QPP should each equal two years’ expenditures (benefits and administrative costs). Once reserves at this level were attained, the initial contribution

rate of 3.6 percent would be increased, as needed, to put the plans on a PAYG basis and maintain the reserve level. The CPP's first actuarial valuation estimated that the contribution rate would begin to be increased in the early 1980s and would reach 5.0 percent by 2000 [Department of Insurance (Canada) 1970].

To invest the reserve of the Quebec Pension Plan, the province created a public agency titled the Caisse de dépôt et placement du Québec (CDPQ).⁹ The mission of the Caisse, as given in section 4.1 of its governing legislation, is “to receive moneys on deposit as provided by law and manage them with a view to achieving optimal return on capital within the framework of depositors’ investment policies while at the same time contributing to Québec’s economic development” [Quebec 2007a].

Since the creation of the CDPQ in 1965, a long list of other provincial pension and insurance programs, in addition to the QPP, have become depositors with the Caisse, making the CDPQ the largest institutional fund manager in Canada and one of the largest in North America. On December 31, 2006, the CDPQ had assets under management of \$143.5 billion, of which the QPP’s reserve constituted \$32.7 billion [CDPQ 2007].

The disposition of the reserve of the Canada Pension Plan was a question which the federal government and the nine provinces in which the CPP would operate had to decide. As an inducement for the provinces (in particular, Ontario) to be in the federal scheme and not to set up pension schemes of their own, the federal government proposed that each province could borrow from the annual surplus funds of the CPP in proportion to the contributions paid during the year by contributors in the province. The loans would be secured by non-marketable provincial bonds. The bonds would pay interest equivalent to the weighted average of the interest rates paid by outstanding federal government bonds with terms of 20 years or more. If a province did not take up the full amount of its borrowing quota, the federal government would borrow the funds on the same terms and conditions.

The federal proposal was unquestionably appealing to Canada’s provinces, especially the poorer ones which otherwise would have had to pay interest at higher rates than the federal government when they borrowed on financial markets.¹⁰ Moreover, all the provinces were under fiscal pressure at the time. The post-war babyboom generation was starting to approach university age, and the federal government had just brought in legislation cost-sharing provincial hospital-insurance schemes – the start of Canada’s universal health insurance system.

It is impossible to determine with certainty how the provinces used the funds loaned to them from the Canada Pension Plan. The funds were simply added to general tax revenues and shown in provincial accounts under headings such as ‘non-market borrowing’. However, there is good reason to believe that, in some provinces at least, the funds from the CPP provided a substantial part of the financing needed for new hospitals and other health-related infrastructure in the late 1960s and early 1970s. It also seems likely that some of the Plan’s funds went to the rapidly growing post-secondary-education sector (colleges and universities) [Battle and Tamagno 2007].

As a reflection of the federal/provincial partnership embodied in the Canada Pension Plan – in particular, the provinces’ constitutional primacy in the field of pensions enshrined in section 94A of the Canadian Constitution – the federal government made a further proposal to the provinces: Future changes to the CPP could be made only with the approval of the federal Parliament and the governments of at least two-thirds of the provinces with at least two-thirds of the population of Canada. In this way, provinces were guaranteed not only that they would be consulted before changes were made to the CPP, but also that the majority of the provinces would have to agree to the changes. In addition, since Ontario had (and continues to have) more than a third of the population of Canada, it was assured a veto over any future CPP changes. Quebec, even though it has its own pension plan, is included in the CPP’s amendment formula.

There have been five especially important milestones in the evolution of the financing of the Canada and Quebec Pension Plans. These occurred in 1983, 1987, 1993 (CPP)/1994 (QPP), 1995, and 1997.

The year 1983 was the first in which the expenditures (benefits and administrative costs) of both plans exceeded their respective revenues from contributions. Because investment earnings (for the CPP, interest on the provincial bonds, and for the QPP, returns from the CDPQ) were greater than the shortfall of contributions over expenditures, the reserves of both plans continued to grow.

In 1987, the contribution rate to both the CPP and the QPP began to be increased from the initial rate of 3.6 percent. The annual increase was small – 0.2 percent per year. By 1996, the plans’ contribution rate had reached 5.6 percent.

The next milestone in the financing of the two plans occurred in 1993 for the CPP and in 1994 for the QPP. These were the first years in which the *total* revenues of the CPP and the QPP – their respective revenues from contributions *and* investment earnings – were no longer sufficient to cover their expenditures. At this point, the two plans had to dip into their reserves.

By 1993/1994 it had become readily apparent to those who understood the financing of public pension programs that some relatively drastic measures would have to be taken in the coming years to put the CPP and the QPP on a sound financial footing. The extent of the challenges facing the two schemes was put in bold highlight when their actuarial reports for the period ending on December 31, 1993 were tabled in the federal Parliament and Quebec’s National Assembly in early 1995.

The Canada Pension Plan’s actuarial report projected that the plan’s reserve would be exhausted by 2015, at which time the contribution rate would have to jump from 9.9 percent in 2015 to 11.26 percent in 2016. By 2030 the PAYG contribution rate would reach 14.22 percent [OCA 1995]. There was a strong view among federal and provincial ministries of finance, shared by many others (but by no means all) in Canada, that a 14.22 percent contribution rate would have a negative effect on future economic

growth, especially as regards job creation. They also felt that such a contribution rate would be politically unsustainable because it would require future cohorts of workers to pay significantly higher contributions to finance the pensions of past cohorts than they would need to pay to finance their own pensions.

A round of federal-provincial discussions followed, which included extensive consultation with civil society and individual citizens across Canada. The process has been documented by Battle and Tamagno [2007]. For its part, the government of Quebec conducted similar consultations in that province regarding the Quebec Pension Plan.

The outcome of the process was an unprecedented reform in 1997 of the financing of the Canada and Quebec Pension Plans, making Canada the first among the G-7 countries, and one of the first among the OECD countries, to put its public pension system on a long-term financially sustainable basis. The modest scale of the CPP and the QPP – as noted previously, retirement pensions of only 25 percent of average lifetime earnings and contributory earnings limited to the average wage – undoubtedly made the reform somewhat easier in Canada than in countries with more generous schemes. However, Canada's accomplishment remains significant.

The 1997 financing reform of the CPP and the QPP

As regards the Canada Pension Plan, the 1997 financing reform consisted of three key elements:¹² a rapid increase in the contribution rate in order to raise significantly the level of the plan's funding; a new investment policy that would substantially increase revenues from the reserve, which itself would grow significantly because of the higher contribution rate; and a permanent freeze on the band of annual income exempt from contributions (the Year's Basic Exemption) at its 1997 level of \$3,500.

Under the reform, the CPP contribution rate, which stood at 5.85 percent in 1997, rose in yearly steps to 9.9 percent in 2003. This level, according to an actuarial valuation by the Chief Actuary, was the 'steady-state rate' – the lowest rate at which revenues from contributions, along with the investment earnings from the reserve, would maintain the plan indefinitely without further increases to the contribution rate, while ensuring the same ratio of the plan's reserve to its annual expenditures at the start and end of a 50-year period.¹³ The increase to the contribution rate would move the CPP from a funding level of six percent of accrued liabilities to a funding level of approximately 25 percent. The CPP's reserve, which at the time of the reform was equal to about two years' expenditures, would increase to almost five years' expenditures around 2020. It would then decrease gradually to 4.3 years' expenditures around 2040, after which it would remain stable at that level [OCA 1997: 12].

Table 1 shows the contribution rates from 1997 to 2030 that would have applied if the reform had not been made to the financing of the CPP, the contribution rates resulting from the reform, and the annual differences. Figure 1 shows the same data on pre- and post-reform contribution rates in chart form.

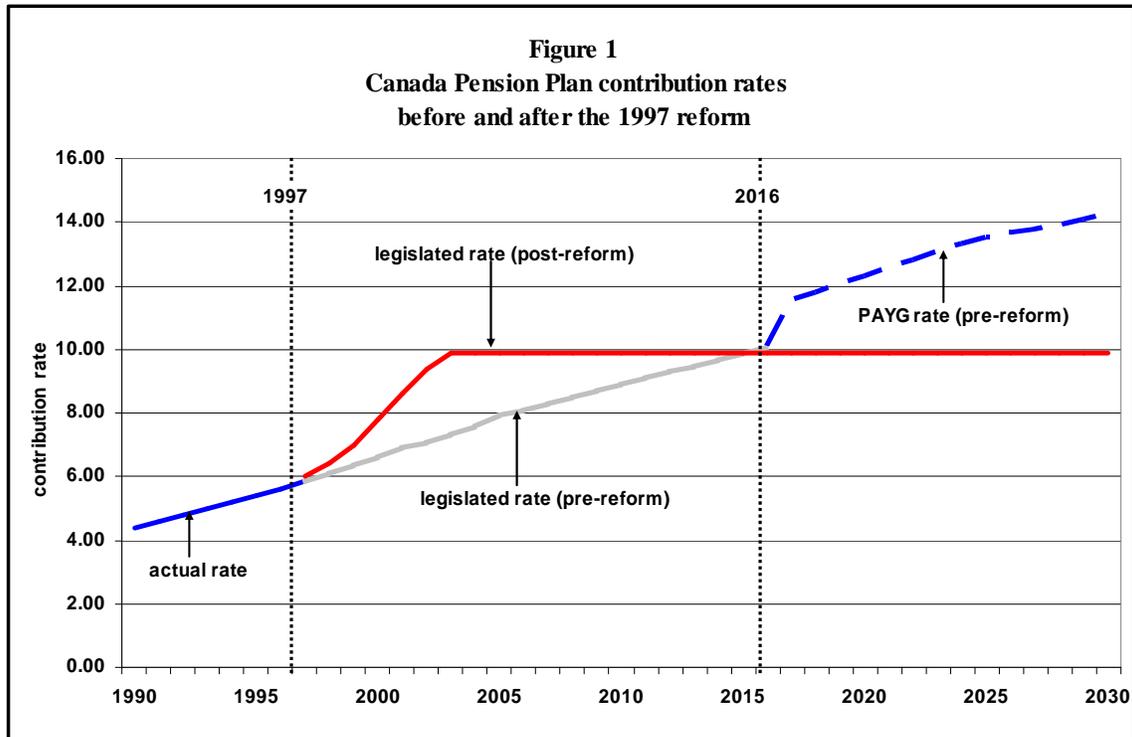
Table 1
Canada Pension Plan contribution rates
before ^a and after the 1997 reform

<i>Year</i>	<i>Pre-reform (percent)</i>	<i>Post-reform (percent)</i>	<i>Difference (percentage points)</i>
1997	5.85	6.0	+0.15
1998	6.10	6.4	+0.30
1999	6.35	7.0	+0.65
2000	6.60	7.8	+1.20
2001	6.85	8.6	+1.75
2002	7.10	9.4	+2.30
2003	7.35	9.9	+2.55
2004	7.60		+2.30
2005	7.85		+2.05
2006	8.10		+1.80
2007	8.30		+1.60
2008	8.50		+1.40
2009	8.70		+1.20
2010	8.90		+1.00
2011	9.10		+0.80
2012	9.30		+0.60
2013	9.50		+0.40
2014	9.70		+0.20
2015	9.90		--
2016	11.26		-0.20
2020	12.29		-2.39
2025	13.49		-3.59
2030	14.22	9.9	-4.32

Source: Author's calculations based on data from [OCA 1995: Main Table 1a].

^a The pre-reform contribution rates for the years 1997 through 2015 are the legislated rates that would have been in effect in the absence of the 1997 reform. The pre-reform rates for years after 2015 are the PAYG rates projected by the Office of the Chief Actuary at the time of the reform [OCA 1995].

As Table 1 and Figure 1 demonstrate, the 1997 CPP financing reform resulted in contribution rates from 1997 to 2014 that are higher than would have been the case in the absence of the reform. However, in the years 2016 and later, the financing reform will produce contribution rates that are lower and, by 2030, appreciably lower than if the reform had not been made.



Source: [OCA 1995: Main Table 1a].

The rapid and sizeable increase in the contribution rate between 1997 and 2003 meant that the CPP’s reserve would grow quickly. While this would generate some of the resources required to pay for the increased pension costs of the ageing of the baby-boom generation, it would not, by itself, be enough to keep the plan’s contribution rate indefinitely at 9.9 percent and ensure a constant ratio of the plan’s reserve to the plan’s annual expenditures. To achieve these results, the return on the investment of the reserve would have to be considerably higher than could be expected from fixed-income securities such as government bonds. In fact, the long-term average annual return would have to be at least 4 percent in real (after inflation) terms. Such a long-term real rate of return could only be achieved by investing in a diversified portfolio that includes asset classes such as equities, real property and infrastructure.

The federal Department of Finance could easily manage a portfolio consisting entirely of non-marketable federal and provincial government bonds whose term and interest rate were fixed according to formulas. However, neither the Department of Finance nor any other government ministry could be expected to manage a diversified portfolio invested in capital markets. This would require an entirely new mechanism, for which the experience of the Caisse de dépôt et placement du Québec could provide important ‘lessons learned’.

The federal government and the nine provinces participating in the Canada Pension Plan decided to create a new specialized agency, the Canada Pension Plan Investment Board (CPIB), to invest the future surplus funds resulting from the increase

in the CPP's contribution rate. The objectives of the CPPIB are given in section 3 of the act establishing the Board:

- (a) to assist the Canada Pension Plan in meeting its obligations to contributors and beneficiaries ...;
- (b) to manage any amounts transferred to it ... in the best interests of the contributors and beneficiaries [of the plan]; and
- (c) to invest its assets with a view to achieving a maximum rate of return, without undue risk of loss, having regard to the factors that may affect the funding of the Canada Pension Plan and the ability of the Canada Pension Plan to meet its financial obligations on any given business day [Canada 2007a].

To allow it to carry out its objectives, the CPPIB is authorized to invest in equities, real property, bonds and any other asset class in which occupational pension plans in Canada can invest. Just as importantly, and arguably even more so, the CPPIB operates at arms' length from governments and is armed with a strong set of governance safeguards against any real or perceived political interference in its operation.

The provincial bonds that were in the CPP's reserve in 1997 can, at the discretion of each province, be rolled over once at maturity for a further period of 20 years. If a province chooses to roll over its bonds, the interest rate is set at the market rate for that province's other bonds.¹⁴ The interest becomes available, as paid, to the CPPIB. If a province does not choose to roll over its bonds at maturity, the principal becomes immediately available to the CPPIB.

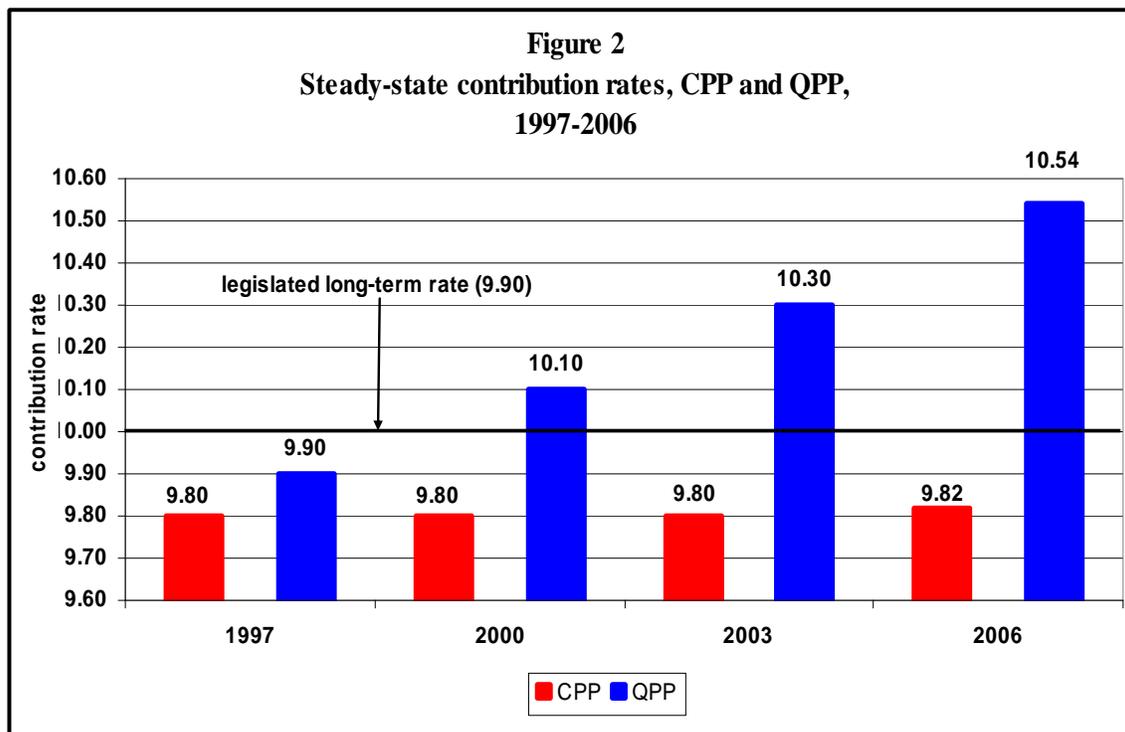
Since Quebec had already established the CDPQ more than 30 years before the creation of the CPPIB, there was no need for the province to change the way in which the Quebec Pension Plan's reserve was invested. Based on its own actuarial valuation, the QPP adopted the same schedule of contribution rate increases as the CPP for the years 1997 to 2003, and set 9.9 percent as the QPP's legislated rate for 2003 and future years. As well, the QPP also permanently froze its YBE at \$3,500. These changes to the QPP were enacted through Bill 149.

The actuarial report tabled in Quebec's National Assembly at the time of the introduction of Bill 149 made specific mention in its introduction of the desirability "to maintain parallelism between the Quebec Pension Plan and the Canada Pension Plan, particularly in regard to the contribution rate of the two schemes", adding that "Bill [149] is witness to this intent" (author's translation from [RRQ 1997: 1]). The report forecast an increase in the QPP's reserve to 5.5 times annual expenditures by 2020, with a gradual decrease to approximately 4.5 times annual expenditures by 2040 and a stable ratio thereafter [RRQ 1997: Graphique 3]. The forecast for the QPP's reserve was virtually identical to the forecast (already discussed) for the CPP's reserve.

The unfolding universe since the 1997 financing reform

Actuaries apply complex analytical techniques to estimate the likely future cost of pension and insurance schemes under different scenarios based on various economic and demographic assumptions. However, actuaries are not seers. Even the best actuaries – and the Canada and Quebec Pension Plans are served by actuaries¹⁵ held in high esteem both in Canada and around the world – cannot predict the future with certainty. They can only deal with probabilities.

The uncertainty inherent in actuarial valuations is illustrated in the differing fortunes of the CPP and the QPP since the 1997 financing reform. Figure 2 shows the evolution of the steady-state¹⁶ contribution rates of the CPP and the QPP. The steady-state rates for the years 1997, 2000, 2003 and 2006 for each plan are those given in their respective triennial actuarial valuations as of December 31 of the year in question.



Source: [OCA 1998, 2001, 2004, 2007]; [RRQ 1998, 2001, 2004, 2007a].

CPP and QPP actuarial valuations – 1997 and 2000

The CPP and QPP actuarial valuations as at December 31, 1997, coming shortly after the enactment of the 1997 financing reform, confirmed, not surprisingly, that the legislated long-term rate of 9.9 percent should be sufficient for both schemes. In fact, for the CPP, the 1997 valuation indicated that the steady-state rate was actually somewhat lower, by 0.1 percentage point, than the legislated rate [OCA 1998]. Although small, the 0.1 percentage-point difference between the steady-state and legislated rates gave the CPP a ‘cushion’ against adverse future developments.

The following triennial actuarial valuations of the CPP and the QPP, as at December 31, 2000, gave the first hint of a possible divergence in the long-term financial prospects of the two plans. The CPP's steady-state rate remained at 9.8 percent, as in its actuarial valuation three years earlier [OCA 2001]. The QPP's steady-state rate, on the other hand, increased to 10.1 percent, up 0.2 percentage points from the previous valuation [RRQ 2001]. A working paper issued by the Quebec government in 2004 explained the difference in the 2000 steady-state rates of the QPP and the CPP as due to "a less favourable demographic situation in Québec, and ... more generous survivors' and disability benefits under the Québec Pension Plan than under the Canada Pension Plan" [RRQ 2003: 51]. These are valid factors which are examined later in this paper.

While significant, the 0.2 percentage-point difference between the QPP's steady-state and legislated rates was not yet cause for serious concern. The QPP's 2000 actuarial report estimated that the plan's reserve would peak at 4.5 times annual expenditures in 2020 and then gradually decline thereafter to 3.1 times annual expenditures in 2050¹⁷ – levels still sufficient to allow the QPP to meet its future commitments fully, and not significantly different from the ratios projected in the QPP's 1997 actuarial report.

CPP and QPP actuarial valuations – 2003

The actuarial valuations of the CPP and the QPP as at December 31, 2003, released in late 2004, showed that the divergence in the long-term financial prospects of the two schemes had become more pronounced. The CPP's actuarial report again gave the federal plan's steady-state rate as 9.8 percent [OCA 2004]. The QPP's report, however, indicated that the Quebec plan's steady-state rate had risen from 10.1 to 10.3 percent [RRQ 2004].

The 0.4 percentage-point gap between the QPP's steady-state and legislated contribution rates was unquestionably significant. The plan's 2003 actuarial report included the following observations regarding the significance of the shortfall:

The steady-state contribution rate is an indicator of the "ideal" state of the [Quebec Pension] Plan's funding. In reality, it is not necessary for the Plan to be perfectly balanced. A certain difference between the actual contribution rate set by law and the steady-state rate can be tolerated without making an adjustment to the Plan necessary.

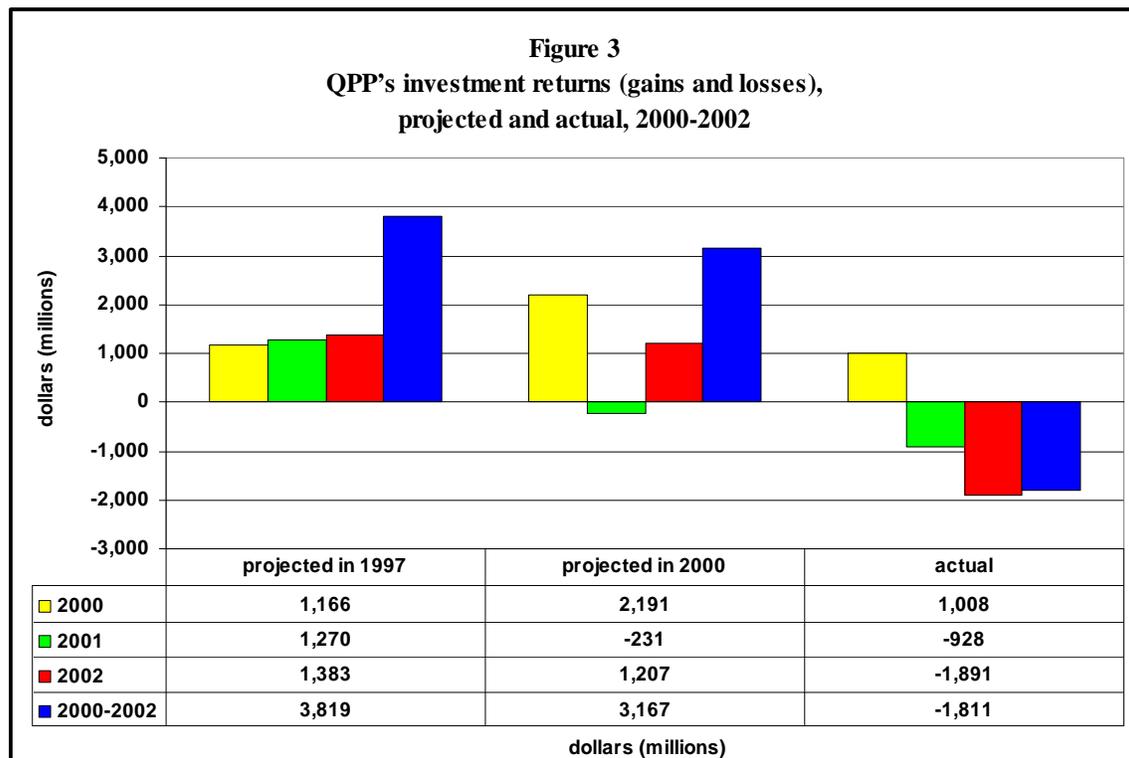
Based on simulations performed by Régie actuaries, a 0,3 percentage point difference compared to the steady-state contribution rate can be considered as an acceptable tolerance zone. On the other hand, a difference greater than 0,3 below the steady-state contribution rate, translates into a reserve lower than twice the annual cash outflows at the end of the projection period. Adjustments to the Plan could then be necessary.

Fluctuations in the steady-state contribution rate from one actuarial report to another may depend on conjunctural phenomena, the consequences of which could be mitigated (or aggravated) in the future. A difference of more than 0,3 of

a point between the 9.9% contribution rate and the [steady-state] rate may warrant changes to the Plan, strictly from a funding perspective. However, to be certain that such a difference will persist, it must be noted in two consecutive actuarial reports [RRQ 2004: 15].

The principal reason for the increase in the QPP's steady-state rate between 1997 and 2003 was the sharp decline in the value of equities that began in the late summer of 2000 and only started to recover in mid-2003. Few investors anticipated the depth and length of the decline in equity values in this period, and the QPP was hardly the only pension plan in Canada to be adversely affected. In fact, almost all pension plans suffered. The CPP, for reasons discussed below, was one of the very few plans to emerge relatively unscathed.

Figure 3 shows the QPP's investment returns for 2000-2002 that were projected in the plan's 1997 and 2000 actuarial reports and the actual investment returns for 2000-2002, as shown in the 2003 actuarial report.



Source: [RRQ 1998, 2001, 2004].

In the QPP's 1997 actuarial report, the plan's investment returns for 2000, 2001 and 2002 were projected at \$1,166 million, \$1,270 million and \$1,383 million respectively [RRQ 1998: Table 7] – a cumulative projected gain for the three years of \$3,819 million. In the QPP's 2000 actuarial report, which was prepared before the final investment return for 2000 was determined, the 2000 return was estimated as a gain of \$2,191 million [RRQ 2001: Table 11], and the projected returns for the next two calendar years were estimated as a loss of \$231 million in 2001 and a gain of \$1,207 million in

2002 [RRQ 2001: Tables 7 and 8]. This lowered the QPP's cumulative projected gain for 2000-2002 to \$3,167 million – not as high as the cumulative gain of \$3,819 million projected in the previous actuarial report but nonetheless a positive result.

The actual returns for 2000-2002, however, were very different from the projected returns. The QPP's 2003 actuarial report showed that the plan's actual investment return for 2000 was a gain of only \$1,008 million – below the amount projected in the 1997 actuarial report and less than half of what has been estimated in the 2000 report. Moreover, the actual return for 2001 was a loss of \$928 million – four times the loss for that year projected in the 2000 report. Most damaging to the QPP's financing, the actual result for 2002 was not the gain of \$1,383 million projected in the 1997 actuarial report or the gain of \$1,207 million projected in the 2000 report but a loss of \$1,891 million [RRQ 2004: Table 12]. In the three-year period 2000-2003, the QPP had suffered a cumulative investment loss of \$1,811 million. Because of this loss, the QPP's reserve at December 31, 2003, which in the 1997 actuarial report had been projected at \$21,292 million [RRQ 1998: Table 7] and in the 2000 actuarial report at \$20,631 million [RRQ 2001: Table 8], was only at \$18,704 million [RRQ 2004: Table 12].

The Canada Pension Plan, in contrast, experienced a cumulative investment gain of \$7,787 million in the period 2000-2002 [OCA 2007: Table 10]. Why was the CPP's experience so different from the QPP's?

By far the most important reason was the difference in the way in which the reserves of the two plans were invested. As noted earlier in this paper, since the start of the QPP in 1966, its reserve has been invested by the Caisse de dépôt et placement du Québec, which has long had a broad investment mandate including investing in equities. In contrast, until 1998, the CPP's reserve was invested entirely in fixed-income securities (as explained previously, provincial and federal government bonds). The investment of the CPP's reserve started to diversify into equities with the establishment of the CPP Investment Board in 1998, but the process was incremental.

On March 31, 2000 (the end of the CPPIB's fiscal year), only about 7 percent of the Canada Pension Plan's total reserve was invested in equities [CPPIB 2000: 11]. A year later, on March 31, 2001, the portion of the CPP's reserve invested in equities had grown to about 14 percent [CPPIB 2001: 12]. On the other hand, 42 percent of the QPP's reserve was invested in equities as of December 31, 2000, and another 15 percent in a specialized portfolio of the CDPQ (Québec-Mondial) consisting of derivatives functioning “as an international stock market index” [RRQ 2001: 80]. It is quite understandable, then, why the broad decline in stock markets in the period 2000-2002 negatively affected the QPP much more than the CPP.

There was another factor which, although considerably less important overall, is nonetheless worth noting.

When the CPPIB began operations, its investments in Canadian equities were limited, by federal regulation, to replicating pre-determined stock market indices

(i.e. passive investing). The CPPIB chose the most widely based Canadian index, the Toronto Stock Exchange's TSE 300. In 2000, as part of their triennial review of the CPP, federal and provincial ministers of finance agreed to relax the restriction on domestic investments and to allow the CPPIB to begin to invest actively in Canadian equities. The change was given effect by regulations that entered into force in August 2000.

In August 2000, a single company, Nortel Networks Corporation, represented 35 percent of the TSE 300. The CPPIB was concerned about the risk in having such a large part of its funds in the shares of a single company. Therefore, using its newly-obtained authority to invest actively, the CPPIB divided its Canadian equities, effective September 15, 2000, between the full TSE 300 and the TSE 300 excluding Nortel.

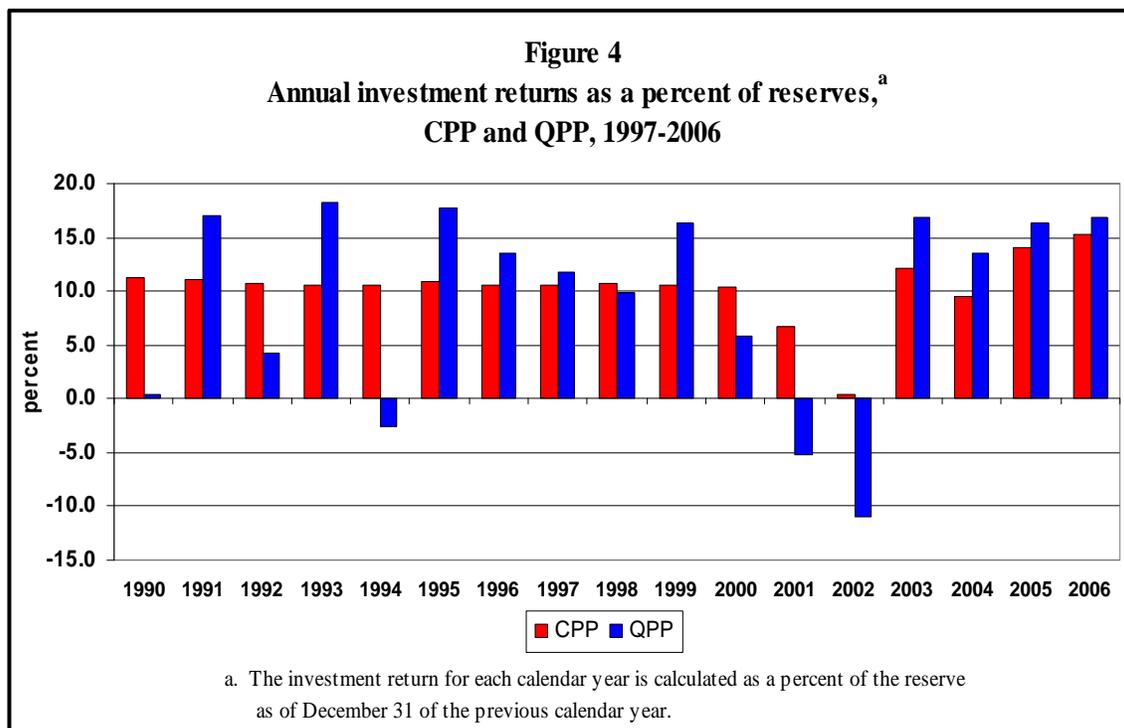
The TSE 300 index peaked in August 2000 and, along with most other major market indices around the world, began a major turn downward. During the next two years, the TSE 300 (which has since become the S&P Composite) lost close to half its value. The near-collapse in the value of Nortel shares played a major role in the depth of the fall in Canadian equity markets. As a result of its September decision to limit its exposure to Nortel, the CPPIB was able to report that it "avoided \$535 million in losses that would otherwise have occurred" [CPPIB 2001: 5].

The CDPQ also had a large investment in Nortel. According to the CDPQ's 2001 annual report, the Caisse held 87.2 million Nortel shares as of December 31, 2001, and the 'fair value' of those shares was \$1,038.1 million [CDPQ 2002: 133]. There is insufficient data to ascertain whether the CDPQ did the same as the CPPIB and significantly reduce its exposure to Nortel before the value of the company's shares tumbled. What is known is that as of December 31, 2002, the CDPQ held 60.0 million Nortel shares – about a third less than a year earlier – and the fair value of those shares was \$151.1 million – on a per-share basis, about a fifth of the value a year before.

Before continuing with the analysis of the divergence in the financial evolution of the CPP and the QPP since the 1997 financing reform, it is important to make a digression.

The preceding discussion should *not* be taken as an argument that public pension programs ought necessarily to invest exclusively in fixed-income securities (e.g. bonds and similar instruments). While there are risks inherent in investment strategies involving variable-income securities such as equities, there is empirical data showing that, over the long term, a diversified investment strategy will usually yield a higher rate of return than a limited strategy based only on fixed-income securities. Moreover, it must not be forgotten that even fixed-income securities involve an element of risk – in particular, inflation risk.

It is also important to note that the period 2000-2002 was a particular exception to the historical comparative experience of the CPP and the QPP in the investment of their respective reserves. Figure 4 shows the annual investment returns (gains and losses) of the CPP and the QPP as a percentage of their reserves for the period from 1990 to 2006.



Source: Author's calculations based on data from [OCA 2007], [RRQ 2007a].

As Figure 4 shows, the QPP often experienced a higher rate of return from its investments – in some years as much as five percentage points higher – than the CPP during the 1990s when the CPP invested exclusively in government bonds and the QPP invested in a diversified portfolio. However, there were years in the 1990s when the CPP had the higher return. In the most recent years (2005 and 2006), the QPP's investments have outperformed the CPP's, but the gap has been smaller.

The QPP's higher rate of return than the CPP's in recent years *may* be related, at least in part, to the degree of investment risk in the respective portfolios of the two plans. The higher the target rate of return, the higher the investment risk that must be assumed. Although the assumed rates of return on investments used in a pension scheme's actuarial valuation are not explicitly designated as the scheme's target rates of return, in practical terms the assumed rates have to be the de facto target rates. Otherwise the contribution rate recommended in the valuation, which is based on demographic and economic assumptions including rates of return on investments, would have little meaning.

The CPP's most recent actuarial valuation assumes a real (after inflation) rate of return in the period 2007-2020 between 3.8 and 4.4 percent. After 2020, the CPP's valuation assumes a long-term real rate of return of 4.2 percent [OCA 2006: 20]. The QPP's most recent actuarial valuation, on the other hand, assumes considerably higher real rates of return: 4.9 percent between 2007 and 2015, and 4.7 percent in 2020 and thereafter [RRQ 2007a: 92].

In light of the fact that the CPP's and the QPP's reserves now have access to the same investment markets, the difference in the assumed real-rates of return of the two plans is striking. This is not to say that one plan is right and the other is wrong. Only time will tell. However, the CPP, with its lower assumptions, has a better chance to achieve its investment-return target over the long-term than the QPP, with its higher assumptions.

Signs of things to come

As the QPP's 2003 actuarial valuation made clear, it would be necessary to wait until the next valuation, as at December 31, 2006, before Quebec would make a definitive decision whether the QPP's financial projections would require significant modifications to the plan's financing or benefits, or both. However, postponing a definitive decision did not mean doing nothing. In fact, the Quebec government put forward proposals to address the QPP's financial situation, and the federal government, in an oblique way, did as well.

Quebec's 2004 working paper on the QPP

In March 2004, eight months before the QPP's 2003 actuarial valuation was tabled in the National Assembly, the Quebec government released a working paper titled *Adapting the Pension Plan to Quebec's new realities* [RRQ 2003]. The message from the Minister at the start of the working paper succinctly summarized the document:

The Québec population is aging more rapidly than the populations of most other industrialized societies, and it is important to be prepared for the results of that phenomenon. Moreover, the labour force is very different than it was when the Québec Pension Plan began, and the current mechanisms for the transition from economically active life to retirement do not correspond to these changes. Family realities have also changed. Some adjustments have become necessary. Finally, this working paper informs the public on the Québec Pension Plan's financial situation [RRQ 2003: 3].

The issue of Quebec's more rapid ageing than other industrialized societies – and, in particular, than the rest of Canada – is an important one which is explored later in this paper. As that discussion will show, the rate of ageing of Quebec's population is certainly a key factor creating financial pressures on the QPP.

The working paper presented various possible changes to QPP benefits. Some of the proposals would have added to the QPP's future costs, while others would have reduced those costs. However, if all the proposed changes had been implemented, the plan's future costs would unquestionably have been substantially lowered. The working paper estimated that, without the changes, the difference between the QPP's steady-state rate (referred to in the paper as the 'balanced rate') and the legislated rate (9.9 percent) could be as high as 0.6 percentage points. With the proposed changes, if all were implemented, the working paper estimated that the gap would be reduced to 0.3 percentage points [RRQ 2003: 52]. The difference of 0.3 percentage points is exactly the

limit of the ‘acceptable tolerance zone’ that would be noted in the QPP’s 2003 actuarial report.

In regard to the financing of the QPP, the working paper gave clear indications of problems ahead, with headings such as ‘a plan under pressure’ and ‘a tense situation to watch closely’ [RRQ 2003: 53]. The working paper stressed the need to maintain ‘similarity’ between the CPP and the QPP, especially as regards contribution rates. It noted that:

Today, the greater mobility of workers increases the proportion contributing to both the Québec Pension Plan and the Canada Pension Plan. As the number of contributors to both plans increases, similarity becomes even more important to maintain confidence in the plans and to simplify the process for a growing number of participants who can claim their pensions as if they had always contributed to a single plan [RRQ 2003: 51].

Regrettably, the proposals in the 2004 Quebec working paper came to naught. A committee of Quebec’s National Assembly held hearings on the paper. One of the working paper’s proposals – a major restructuring of survivors pensions – drew particular fire from many groups. In response, the Quebec government eventually withdrew the proposal. However, the proposal concerning survivors pensions was key to the overall reduction of the long-term costs of the QPP. With the proposal off the table, the goal of reducing the gap between the QPP’s steady-state and legislated rates to 0.3 percentage points could not be achieved. The working paper was, in the end, quietly put aside. But this is not likely to be the end of the debate, either in Quebec or in Canada as a whole. Given the financial situation of the QPP demonstrated in the plan’s 2006 actuarial valuation, some of the 2004 proposals, perhaps in somewhat modified form, are likely to be resurrected.

The federal Budget of May 2006

In May 2006, the Conservative government led by Prime Minister Stephen Harper, elected to office in January of that year, tabled its first Budget. In the 302-page Budget plan, under the heading of ‘accountability’, was the statement that “[t]he Government will examine the possibility of allocating a portion of any surplus at year-end larger than \$3 billion to the Canada Pension Plan and Quebec Pension Plan, in order to make them more equitable to young Canadians and improve economic competitiveness” [Finance Canada 2006: 11].

The proposal to allocate a part of future federal budget surpluses to the CPP and the QPP raised several questions, none of which was answered convincingly in the Budget document or the Finance Minister’s speech. Why was the proposed sharing of budget surpluses needed in the first place “to make [the CPP and the QPP] more equitable to young Canadians”? One of the basic objectives of the 1997 financing reform of the two schemes was to ensure that future cohorts of workers – today’s and tomorrow’s young Canadians – would not have to pay more for the CPP and QPP benefits of current workers than for their own eventual pensions. At least for the CPP, this objective was

clearly already on track to be met. Was the federal government suggesting that current workers should subsidize the CPP pensions of future workers? How would the proposal “improve economic competitiveness”? Canada (and Quebec) already had (and still have) lower payroll taxes for pensions than virtually any other industrialized country. As many economists have pointed out, if Canada has a problem with competitiveness due to its system of taxes and transfers, the root of the problem lies in the marginal rates of the income tax system and not in Canada’s payroll and consumption taxes.

The federal government’s proposal to transfer part of its surpluses to the CPP and the QPP was all the more strange in light of the fact that the proposal flew in the face of one of the fundamental tenets of public financing in Canada: that the Canada and Quebec Pension Plans had to be funded entirely and exclusively from contributions by workers, employers and self-employed persons and from the investment earnings of their reserves, with no subsidies or transfers whatsoever from any level of government.¹⁸ Why would the federal government now suggest a deviation from this principle when the Canada Pension Plan was already financially sound and had all the revenues it needed?

The Budget plan offered no coherent, logical explanation for the federal government’s proposal, essentially repeating it in different words and at greater length. However, tucked away in the repetition, there was one sentence that was illuminating because it added a new consideration. The sentence read “by contributing to a well-functioning federal-provincial program, [the sharing of surpluses with the CPP/QPP] would help further progress already achieved in building a cooperative, effective federation” [Finance Canada 2006: 56].

It seems likely that the prime objective – perhaps the only real objective – behind the federal proposal was to provide a mechanism through which Ottawa could channel federal funds to assist Quebec in relieving the financial pressure on the Quebec Pension Plan ... but without explicitly stating this as the goal. As Canadians will recall, in the January 2006 federal election, which resulted in a minority government, Prime Minister Harper’s Conservatives had made important gains in the province of Quebec. It was no secret that the Prime Minister and his party hoped that they could win even more seats in Quebec in the next general election and that these additional seats would contribute to propelling them into a majority. Prime Minister Harper and his Quebec counterpart had held high-visibility meetings in which Mr. Harper reiterated his election promise to address Quebec’s longstanding complaints about a Quebec/Ottawa ‘fiscal imbalance’ and the two leaders pledged to work together. The May 2006 Budget delivered on the fiscal-imbalance promise. Perhaps the proposal to allocate a part of future federal surpluses to the QPP and the CPP was designed with the same intent.

Whatever the federal government’s objective, its proposal went nowhere. No organization spoke in its favour. The C.D. Howe Institute warned that the “benign-sounding proposal ... would breach what has up to now been a solid wall between the CPP and the regular federal budget. Create a hole through which money repeatedly flows between the two, and the odds are high that one day the flow will go the other way”

[Robson 2006]. No province expressed its support for the federal proposal. In the end, the federal government simply dropped the idea.

The Régie des rentes du Québec's annual report for 2006-2007

The RRQ's annual report for 2006-2007 contained a clear – and for this type of document, unusually frank – warning of the financial challenges confronting the Quebec Pension Plan. The warnings is found at the start of the report, in the message of the RRQ's President and CEO, which reads in part: "...the long-term financial pressures on the Plan call for prudence. With a rate of aging of Quebec's population higher than that of the rest of Canada, the increase in the number of beneficiaries confirms a reality which demands our full attention. The next actuarial report, now in preparation, will be one of the tools that will assist to determine, as needed, the adjustments required to assure the long-term viability of the Plan" (author's translation from [RRQ 2007b: 8]). A note to the financial statement in the annual report gives considerably more details, but the message is the same.

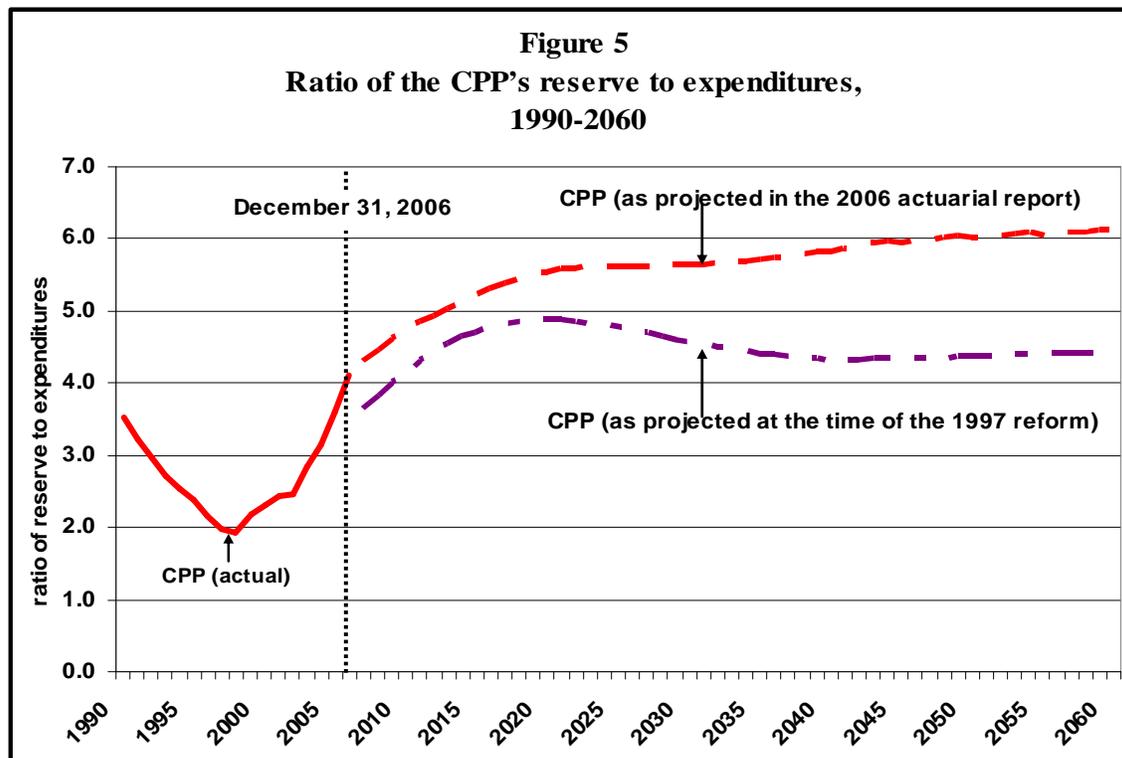
There could be no missing the point. For the Quebec Pension Plan, the status quo would not be sustainable and difficult decisions would need to be taken.

CPP and QPP actuarial valuations – 2006

The Canada Pension Plan's actuarial report as at December 31, 2006 was tabled in the House of Commons on October 29, 2007. The report shows that the CPP remains in a good financial state. The plan's minimum¹⁹ contribution rate has increased slightly, from 9.8 percent to 9.82 percent, but the increase is due entirely²⁰ to a change in the eligibility requirements for disability pensions that had been agreed by federal and provincial ministers in their previous triennial review²¹ of the CPP.

Figure 5 shows the ratio of the CPP's reserve to its annual expenditures for the 70-year period from 1990 to 2060. Data for years before 2007 (shown as a solid line) are the actual ratios, while data for 2007 and beyond (shown as dashed lines) are the projections in the CPP's actuarial valuations. To illustrate the evolution of the CPP's funding since the enactment of the 1997 financing reform, two projections are shown: the projection in the actuarial report produced at the time of the 1997 reform and the projection in the 2006 report.

As Figure 5 makes clear, the funding status of the CPP has strengthened considerably since the 1997 financing reform. The actuarial valuation produced at the time of the reform had forecast that the plan's reserve-to-expenditure ratio would be 3.4 in 2006, reach a high of 4.9 in 2019, and decline gradually to 4.3 in 2040, after which the ratio would stay stable in the 4.3-4.4 range through at least 2075. The actual ratio in 2006 was 4.1. The 2006 valuation projects that the ratio will reach 4.9 in 2012, grow to 6.1 in 2053 and stay stable thereafter at 6.1 through at least 2075.



Source: [OCA 1997, 2007].

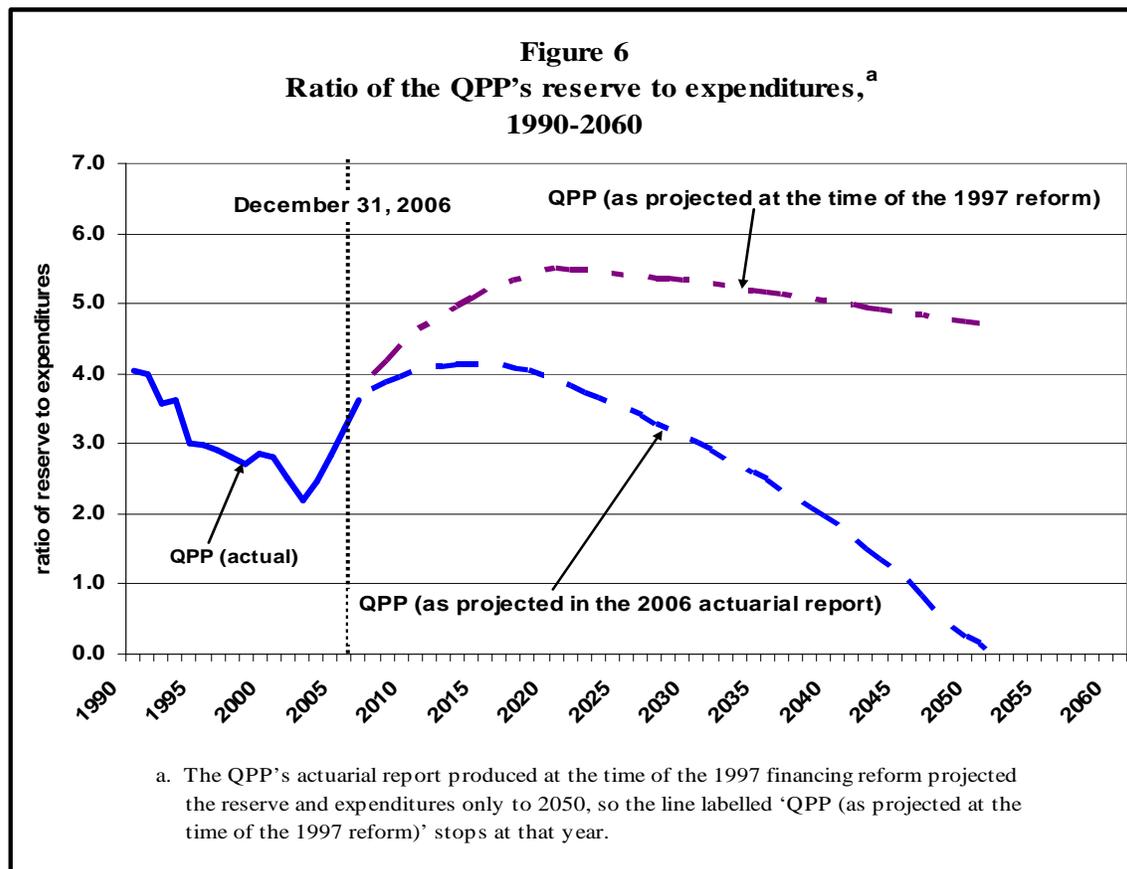
With the CPP's actuarial report as at December 31, 2006 in the public domain since late October 2007, the Quebec Pension Plan's triennial valuation was the second to come. The QPP report was tabled in the province's National Assembly on December 14, 2007 [RRQ 2007a].

As expected, the report confirmed the warnings that the RRQ had given earlier in the year in its annual report for 2006-2007, but this time with hard numbers. The QPP's steady-state rate had increased from the 10.3 percent given in the 2003 actuarial valuation to 10.54 percent. The gap between the QPP's steady-state and legislated rates stood at 0.64 percentage points. In two consecutive actuarial reports, the gap had exceeded the 0.3 percentage-point 'acceptable tolerance zone' that the RRQ had identified as the signal that adjustments had to be made to the plan. And the gap between the steady-state and legislated rates had widened between 2003 and 2006.

Without adjustments to the QPP, according to the 2006 actuarial report, the plan's reserve would be exhausted as of 2051. At that point, the contribution rate would have to increase at least to the pay-as-you-go rate, which is estimated at 12.6 percent. Needless to say, there is very little chance – in fact, virtually no chance – that this will happen because adjustments will have been made to the QPP well in advance of 2051. However, the need for action soon is clear.

Figure 6 parallels Figure 5 and shows the ratio of the QPP's reserve to its annual expenditures for the period from 1990 to 2060. As in Figure 5, two projections are

shown: the one from the actuarial report produced at the time of the 1997 financing reform, and the projection in the 2006 report.



Source: [RRQ 1997, 2007a].

Figure 6 is a 'good news/bad news' story that illustrates two key facts about the short- and long-term financial situation of the QPP.

The good news, and perhaps a surprising fact, is that the ratio of the QPP's reserve to expenditures in 2006 was almost the same as what had been projected in the actuarial report produced at the time of the 1997 financing reform. The actual ratio in 2006 was 3.6, while the ratio for 2006 projected at the time of the reform had been 3.8. In spite of the cumulative investment loss which the QPP suffered in 2000-2002, the QPP has had very substantial investment gains in each subsequent year, as shown in Figure 4. The gains in 2003-2006 largely counterbalanced the losses in the previous years and put the QPP's reserve-to-expenditure ratio almost back on track, at least temporarily.

The bad news, however, is that having the ratio almost back on track in 2006 will not be sufficient to keep the QPP's long-term financial situation on the track projected in 1997. Rather than peak at 5.5 in 2020 as had been projected in the actuarial report produced at the time of the 1997 reform, the ratio is now projected to peak much lower, at only 4.1, and much sooner, in 2012. In 2018 the ratio will begin to decline. The decline

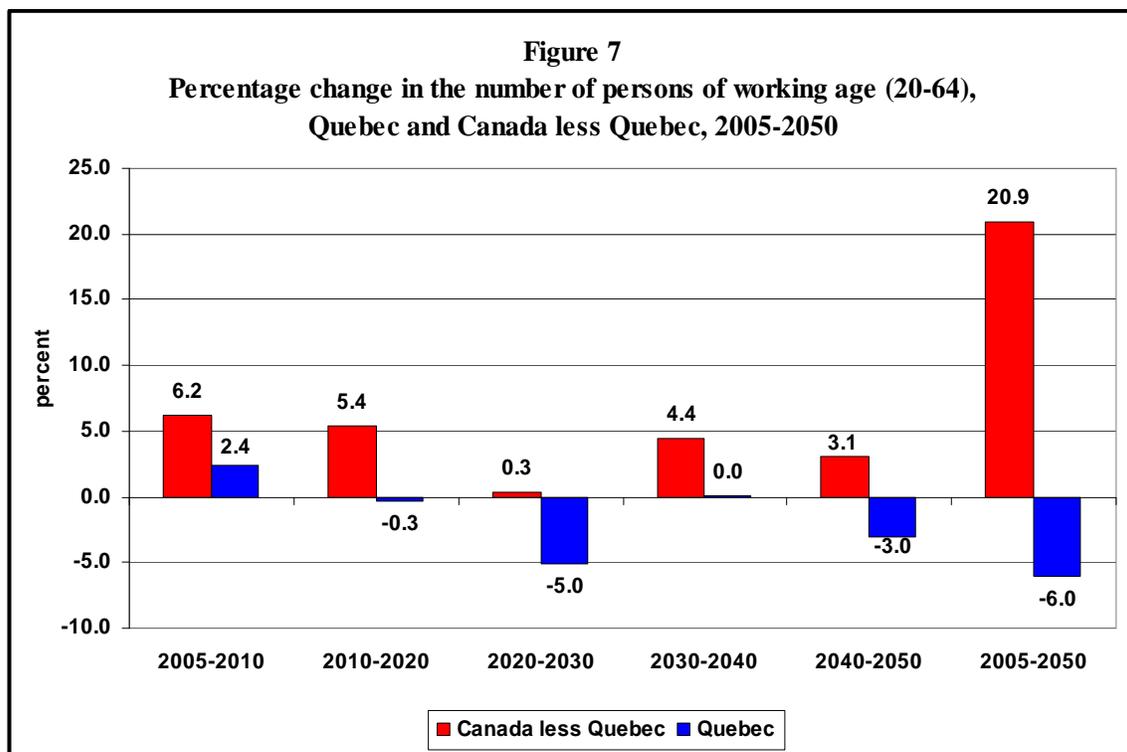
will be gradual at first and later accelerate. By 2051, the QPP's reserve will be exhausted.

Why are the QPP's long-term financial prospects not more positive when, in spite of the investment set-backs in 2000-2002, the plan has almost met its reserve-to-expenditure ratio projected at the time of the 1997 reform?

The answer lies primarily²² in the demographics.

It is universally known that Canada's population, like the population of almost all other industrialized countries, is rapidly ageing. Quebec is not immune to this trend. In fact, the population of Quebec is ageing even more rapidly than the population of the rest of Canada. A principal reason is the projected decline in the number – the *absolute* number, and not just the relative number – of persons of working age (20-64) in Quebec.

Figure 7 compares the rate of change in the working-age population of Quebec and that of Canada less Quebec (the rest of Canada) from 2005 to 2050.



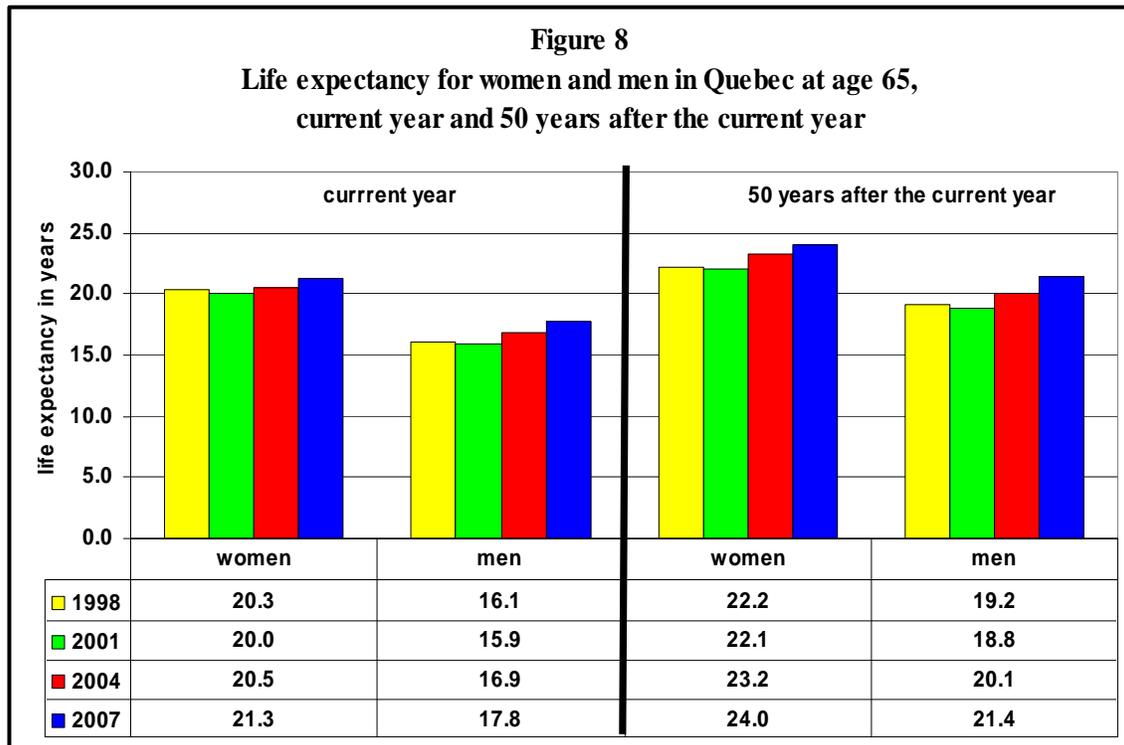
Source: Authors calculations based on data from [OCA 2007], [RRQ 2007a].

Canada outside Quebec will experience some growth in the number of persons of working age in each of the periods shown (albeit a very feeble growth rate in the decade 2020-2030 when the greatest impact of the retirement of the baby-boom generation will be felt). Quebec, on the other hand, will experience a decline in the number of its persons of working age in every period except 2005-2010. Cumulatively over the period 2005-

2050, while the number of persons of working age in the rest of Canada will grow by more than a fifth, in Quebec the number will drop by six percent.

At the same time as the number of persons of working age in Quebec will be declining, life expectancy will continue to increase, meaning that pensioners will receive their retirement benefits, on average, for a longer period.

The increase in life expectancy is illustrated in Figure 8, which shows life expectancy at age 65 for men and women in Quebec. The data is taken from the QPP's actuarial reports for 1997, 2000, 2003 and 2006. Two series of data are given.²³ The first looks at life expectancy at age 65 as reported in each actuarial report for the calendar year immediately following the report (i.e. life expectancy in 1998 as given in the actuarial report for 1997, life expectancy in 2001 as given in the report for 2000, etc). The second series of data looks at the projected life expectancy in 50 years as estimated in each of the actuarial reports.

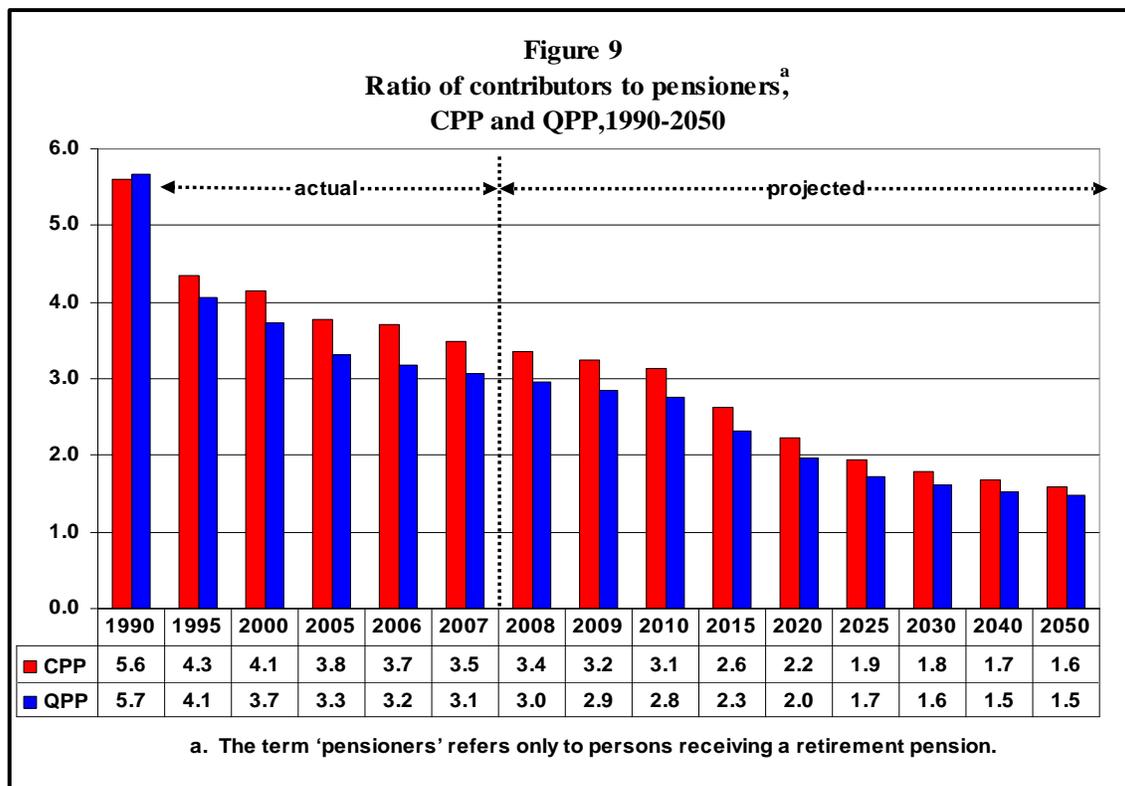


Note: 'Current year' in Figure 8 means the year shown at the left of the data table at the bottom of the chart. The data shown for 1998 is the life expectancy in 1998 at age 65 given in the QPP's actuarial report for 1997, which was produced in 1998; the data for 2001 is the life expectancy in 2001 at age 65 given in the report for 2000; etc. The data shown under '50 years after the current year' is life expectancy at age 65 approximately 50 years after the current year, as given in the corresponding QPP actuarial report. The data shown on the line for 1998 is the life expectancy in 2050 at age 65 estimated in the QPP's actuarial report for 1997; the data for 2001, the projections for 2050 in the 2000 report; the data for 2004, the projections for 2055 in the 2003 report; and the data for 2007, the projections for 2060 in the 2006 report.

Source: [RRQ 1998, 2001, 2004, 2007a].

As the data on the left side of Figure 8 shows, life expectancy at age 65 in Quebec rose one year for women and 1.7 years for men between 1998 and 2007. And, as the data on the right side of Figure 8 indicates, life expectancy at age 65 is likely to continue to grow for at least the next half century. The QPP's 2006 actuarial report estimates that life expectancy at age 65 in 2060 will be 24.0 years for women and 21.4 years for men – an increase of 3.7 years for women and 5.3 years for men over the life expectancy at age 65 in 1998.

The consequences for the Quebec Pension Plan of the two demographic factors just described – the decrease in the number of persons of working age and the longer life expectancy – are significant and largely account for the long-term financial pressures to which the plan is subject. The Canada Pension Plan, of course, is also subject to the effects of increased longevity. However, these effects are mitigated by the increase in the number of persons of working age in Canada outside Quebec. This is illustrated in Figure 9, which looks at the ratio of pensioners to contributors for the CPP and the QPP for the period 1990-2050.



Source: Author's calculations based on data from [OCA 2007], [RRQ 2007a], [HRSDC 2007].

In 1990, the CPP and the QPP had about the same ratio of contributors to pensioners – slightly more than five-and-a-half contributors for each pensioner. Since 1995, the ratio of contributors to pensioners has declined for both schemes, but the QPP

has experienced a significantly greater decline than the CPP, and this gap is projected to continue for many years before disappearing in the last half of the century.

Securing the future

The challenge facing the Quebec Pension Plan is clear. The question now is how to respond to that challenge and secure the long-term financial future of the QPP. This report suggests an integrated two-track approach – one track involving the QPP alone, and the other the QPP and the CPP together. The QPP track would focus on the benefits under the Quebec plan, while the joint CPP/QPP track would focus on the financing of the federal and Quebec schemes.

Possible adjustments to QPP benefits

It is inevitable that changes will need to be made to QPP benefits to reduce, to some extent at least, the long-term costs of the plan. The issue is: what changes and which benefits?

Changes to benefits of the magnitude that would be necessary to close entirely the gap between the QPP's steady-state and legislated rates do not seem feasible. Such changes would require major reductions in the amount of benefits or major modifications to the eligibility conditions for benefits – for example, by raising the age of entitlement to a retirement pension significantly above the current age of 65. Not only would such drastic changes likely be politically unacceptable to Quebecers, but they would introduce major new differences between the QPP and the CPP, thus further eroding the parallelism between the two schemes that has been a cornerstone of federal-provincial social policy for the past 42 years and that has served all Canadians well.

Changes to QPP benefits, therefore, will have to be relatively modest and, as a result, will address only part of the gap between the QPP's steady-state and legislated rates. The changes will need to be mindful of the key role the QPP plays in Canada's and Quebec's retirement income system and not jeopardize the plan's ability to carry out that role.

The Quebec government's 2003 working paper, *Adapting the Pension Plan to Quebec's new realities* [RRQ 2003], still provides a good, comprehensive and cohesive blueprint of changes to the QPP. However, there is no point trying to revive all the working paper's proposals. Such an effort would almost certainly suffer the same fate as the first attempt. Instead, selective proposals from the working paper, some in modified form, should be submitted for public consultation.

Retirement pensions

Retirement pensions are unquestionably the most important benefits provided by the QPP and the CPP. In 2005 (the most recent year for which complete statistics are

available), 92.5 percent of all senior households²⁴ in Quebec received some income from the QPP.²⁵ In that year, QPP income represented 19.5 percent of the aggregate income of senior households in the province [Statistics Canada 2007].

As part of the 1997 financing reform, CPP and QPP retirement pensions were somewhat reduced.²⁶ The reduction was the result of a change in the way in which earnings from years prior to the start of receipt of a retirement pension are adjusted to current levels (earnings at the time the pension starts to be paid). If the change had not been made, the maximum monthly QPP and CPP retirement pension in 2008 would have been \$907.64. Because of the change, the actual maximum monthly retirement pension in 2008 is \$884.58 – \$23.06 or about 2.5 percent less.

It is regrettable that retirement pensions were reduced at all as part of the 1997 financing reform. However, the reduction was necessary to bring the steady-state rate down to 9.9 percent. Alternatives such as increasing the age of entitlement to retirement pensions or more drastic reductions in disability and survivors benefits would have been more regrettable.

Every effort should be made to avoid further reductions to QPP retirement pensions as means are sought to contain the long-term overall costs of the plan. A reduction in QPP retirement pensions would be felt most severely by low- and modest-income seniors in Quebec, who rely heavily on the QPP's retirement pensions along with the federal benefits under the Old Age Security program. Moreover, in terms of parallelism between the CPP and the QPP, a reduction in QPP retirement pensions would introduce a major additional difference between the two plans.

Disability pensions

Unlike retirement pensions, there is scope for modest reductions in the QPP's current disability and survivors pensions. In regard to disability pensions, there are two possible changes. The first concerns the QPP's special eligibility requirement for contributors aged 60 to 65. The second concerns the general contributory requirements for a disability pension.

Under both the CPP and the QPP, the definition of disability for purposes of entitlement to a pension requires a physical or mental medical condition that is severe and prolonged. The act governing the Quebec Pension Plan defines the term 'severe' to mean "only if by reason thereof the person is incapable regularly of pursuing any substantially gainful occupation." The act defines the term 'prolonged' to mean "only if [the disability] is likely to result in death or to be of indefinite duration" [Quebec 2007b]. Virtually the same definitions are found in the legislation governing the Canada Pension Plan [Canada 2007b].

The QPP legislation, however, contains a special provision applicable to persons aged 60 to 64.²⁷ The provision reads: "... in the case of a person 60 years of age or over, a disability is severe if by reason thereof the person is incapable regularly of carrying on

the usual gainful occupation he holds at the time he ceases to work owing to his disability.”

In order to qualify for a disability pension, QPP contributors aged less than 60 (and all CPP contributors) must be unable to do *any* kind of work.²⁸ However, because of the special provision just cited, QPP contributors aged 60-64 can qualify for a disability pension (provided the other eligibility conditions are met) if they are unable to perform their *usual* work. At first glance the difference between ‘any work’ and ‘usual work’ may seem only semantic, but it is far more than that. It is considerably easier to qualify for a disability pension under the ‘usual-work’ test than under the ‘any-work’ test, and the easier qualifying condition increases the cost of QPP disability pensions.

In regard to the contributory requirements for a QPP disability pension, the act governing the Quebec Pension Plan sets out three alternatives: (i) a person must have made contributions²⁹ in at least two of the three years before becoming disabled; or (ii) she or he must have made contributions in at least five of the ten years before becoming disabled; or (iii) she or he must have made contributions in at least half of the years since turning 18, but not less than two years.

Prior to the 1997 financing reform, the Canada Pension Plan also had alternatives (i) and (ii) as its contributory requirements for a CPP disability pension. As one of the measures in the 1997 reform to reduce the CPP’s costs, the two alternatives were replaced with a single new contributory requirement: contributions in at least four of the six years before becoming disabled. According to the actuarial report prepared at the time the legislation implementing the reform was presented in Parliament, this change reduced the CPP’s pay-as-you-go rate in 2030 by 0.14 percentage points [OCA 1997: 6].

In their most recent triennial review of the CPP, federal and provincial ministers agreed to ease somewhat the contributory requirements for a CPP disability pension for older workers. A contributor who has made contributions for at least 25 years can qualify for a disability pension with only three years of contributions in the six years before becoming disabled. Legislation implementing the change in the contributory requirement (Bill C-36) was passed by Parliament in May 2007. At the time of writing, it had not yet received approval from a sufficient number of provincial governments to enter into effect. The change will increase the CPP’s minimum long-term contribution rate by 0.02 percentage points [OCA 2006: 17].

Consideration should be given to aligning the QPP’s eligibility requirements for a disability pension with those of the CPP. The exact effect of such an alignment on the QPP’s steady-state rate can only be determined conclusively through an actuarial valuation. However, it seems reasonable to estimate that it would mean a reduction in the steady-state rate of between 0.1 and 0.2 percentage points.

Survivors pensions

With the exception of pensions for surviving spouses or partners aged 65 or more and for some surviving spouses or partners who are aged less than 45 and who are not disabled and without dependent children, QPP survivors pensions are higher than CPP survivors pensions. For example, for a surviving spouse or partner aged 45 to 64, the maximum monthly QPP survivors pension in 2008 is \$745.77, while the maximum CPP survivors pension is only \$493.28. This is a very appreciable difference.

The effective difference in the amount of the survivors pensions under the CPP and the QPP, however, is substantially reduced if the surviving spouse or partner has dependent children. The flat-rate monthly benefit for the child of a deceased contributor is much higher under the CPP than under the QPP – \$208.77 versus \$66.29 (2008 rates). Thus, for example, a surviving spouse aged 45 to 64 with two dependent children could receive a total maximum CPP benefit (survivors pension plus children's benefits) of \$910.82 a month, but only \$878.35 from the QPP.

The higher survivors pension of the QPP makes sense, from a policy perspective, if one assumes that the pension is the surviving spouse or partner's *only* or *principal* source of income following the death of the deceased contributor. The CPP's maximum monthly survivors pension, \$493.28, is insufficient for anyone to get by. However, today most working-age households have two earners. In Quebec in 2005, 81.6 percent of all women aged 25 to 54 were in the paid labour force, while the rate for men in the same age group was 90.7 percent³⁰ [Luffman 2006].

In the light of the long-term financial challenges facing the QPP, consideration should be given to reducing the amount of QPP survivors pensions for surviving spouses and partners aged less than 65 to bring them closer to the amounts paid by the CPP. A reduction in survivors pensions could be coupled with an increase in the flat-rate children's benefits, although the latter may be less imperative for children aged less than 18 in light of the substantial amounts paid by the Canada Child Tax Benefit,³¹ which did not exist when the QPP and CPP child benefits were designed.

As with changes to the QPP's disability pension, an actuarial valuation would be required to determine the effect on the plan's steady-state rate of a reduction in the amount of pensions to survivors aged less than 65, with or without an increase in the plan's child benefits.³² It appears reasonable to expect that the steady-state rate would be reduced by at least 0.1 percentage points.

The financing side of the equation

Changes to benefits, such as those just discussed, can likely bring the QPP's steady-state contribution rate back to the level estimated in the plan's 2003 actuarial report. However, this will still leave a gap between the steady-state and legislated rates. Filling the remaining gap will require changes on the financing side of the equation.

As explained in the introduction to this paper, since the start of the CPP and the QPP in 1966, federal and provincial governments have considered it important in terms of both economic and social policy that the two plans have the same contribution rate and the same band of contributory earnings (upper and lower limits on the earnings on which contributions are levied). How can the two schemes' contribution rates and contributory earnings be kept the same while altering the financing to close the QPP's gap between its steady-state and legislated rates?

The obvious answers would be to raise either both schemes' legislated rates above their current level of 9.9 percent, or raise the ceilings on the two schemes contributory earnings (the Year's Maximum Pensionable Earnings), or do both. However, trying to persuade CPP contributors – workers and employers – to accept any of these possible solutions would be, to say the least, difficult. As already shown in this paper, the CPP is in sound financial health with the current contribution rate and contributory earnings. Raising either would add to CPP contributors' costs without giving them any tangible added value.

There is, however, another approach that would not require increasing either the legislated contribution rate or contributory earnings. The approach is based on the most recent projected ratio of the CPP's reserve to the plan's expenditures, which is considerably higher than the ratio projected at the time of the 1997 CPP financing reform.

When the 1997 financing reform were adopted, as noted earlier in this paper, the Chief Actuary projected that the CPP's reserve-to-expenditure ratio would reach a high of 4.9 in 2019, decline gradually to 4.3 in 2040 and remain essentially stable thereafter until 2070 [OCA 1997]. According to the most recent CPP actuarial report, the ratio will reach 4.9 in 2012 and will grow to 6.1 in 2060 [OCA 2007] – far better than could have been estimated a decade ago.

Would it be possible to use the CPP's projected 'surplus' to counterbalance the QPP's projected 'deficit'?

Figure 10 shows the CPP's and QPP's reserve-to-expenditure ratios as projected in the two plans' most recent actuarial reports for the period through 2060. The data is the same as that which appears in Figures 5 and 6, with the CPP shown in red and the QPP in blue. However, there is a new element in Figure 10 – the dashed green line marked 'CPP+QPP (author's estimate)'. This line shows the estimated ratio of reserve to expenditures if the CPP's and QPP's respective reserves and annual expenditures are added together and a combined reserve-to-expenditure ratio is calculated.

The estimated 'combined CPP+QP' ratio shown in Figure 10 is based on the following assumptions:

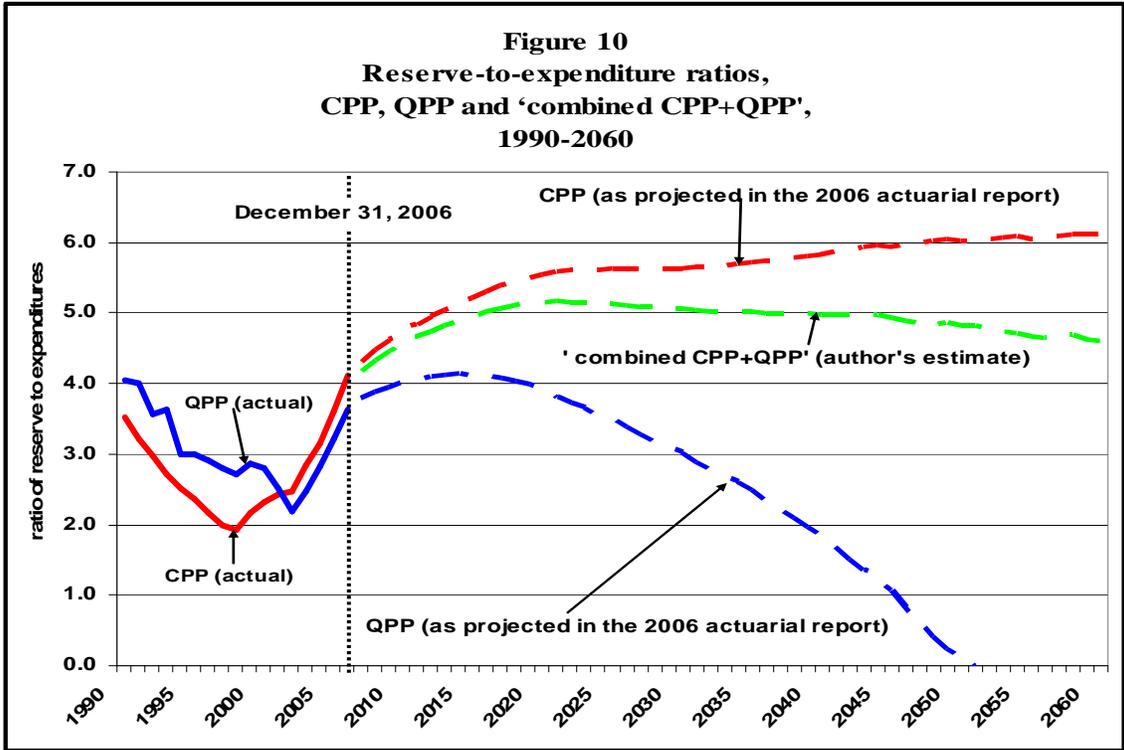
- (1) The Canada Pension Plan and the Quebec Pension Plan will remain distinct schemes, each with its own legislation and administration, as has been the case since the two plans began in 1966.

- (2) Throughout the projection period, both the CPP and the QPP will maintain their current legislated contribution rate of 9.9 percent and their current upper and lower limits on contributory earnings (i.e. a YBE of \$3,500 and a YMPE equal to the average industrial wage, calculated according to the formula given in the plans' governing legislation).
- (3) The QPP will use its reserve to make up any shortfall between the plan's annual expenditures and revenues until the reserve is exhausted.
- (4) When the QPP's reserve is exhausted, the QPP will borrow from the CPP's reserve to make up the shortfall between its annual expenditures and revenues. The terms of the borrowing will be determined through discussions among the federal government, Quebec and the other provinces, and will be confirmed in a written agreement. The borrowing will be secured by fixed-income securities (i.e. interest-paying bonds) issued by the Quebec government, as agreed in the intergovernmental discussions. The legislation governing the CPP and the QPP will be amended, as required, to reflect the terms of the intergovernmental agreement.³³
- (5) Although the CPP's loans to the QPP will be repayable along with interest, the borrowing will result in an effective year-over-year reduction in the amount of funds available to the CPPIB for investment in markets until the repayments are made. In order to avoid any impression of 'smoke-and-mirrors' accounting, the QPP's cumulative borrowing has been deducted from the CPP's reserve when calculating each year's combined reserve-to-expenditure ratio shown in Figure 10.

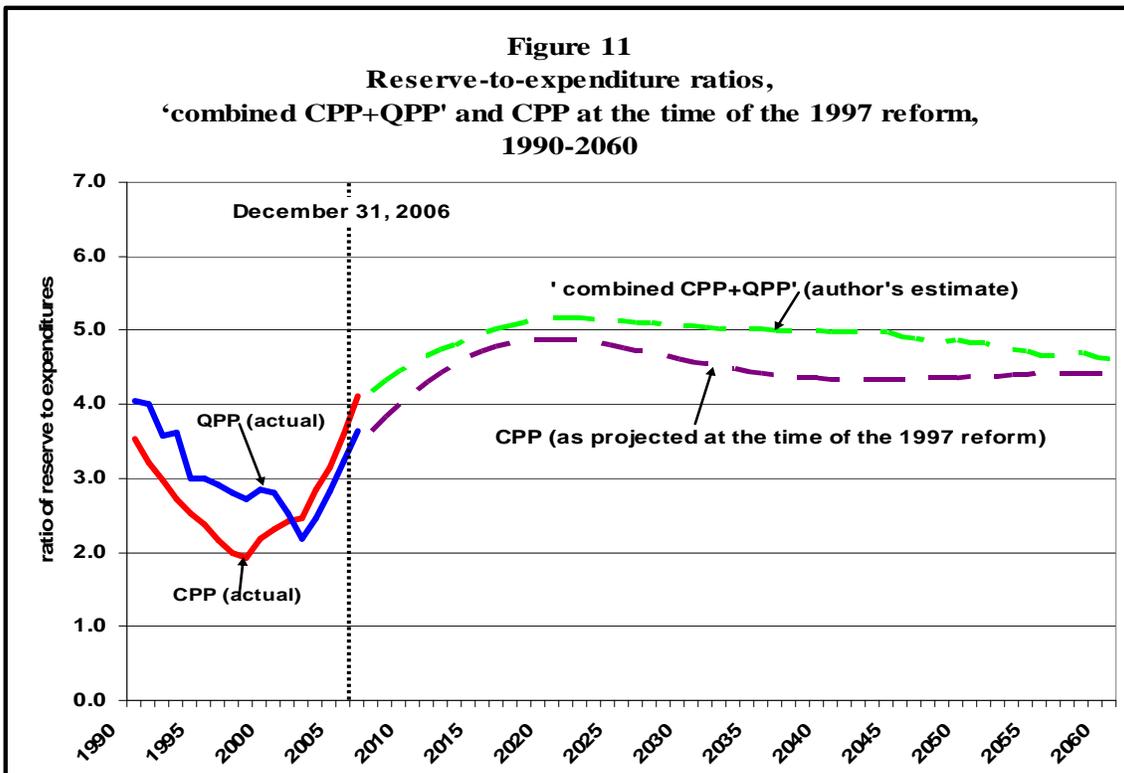
It is important to keep in mind that the estimated reserve-to-expenditure ratio shown in Figure 10 for the 'combined CPP+QPP' does *not* take into account any reductions in QPP expenditures that would result from changes to QPP benefit, such as those discussed in the previous sections of this paper. Such reductions in expenditures would increase the ratio, bringing it above the level shown by the dashed green line in Figure 10.

As Figure 10 indicates, the reserve-to-expenditure ratio of the 'combined CPP+QPP' would peak at 5.2 around 2020 and then decline gradually to 4.7 around 2056, after which it would stabilize at that level through to 2060.

It is worth noting that the reserve-to-expenditure ratio of the 'combined CPP+QPP' would be *higher* than the ratio projected for the CPP alone at the time of the 1997 financing reform. This is illustrated in Figure 11.



Source: Author's calculations based on data from [OCA 2007], [RRQ 2007a].



Source: Author's calculations based on data from [OCA 1997, 2007], [RRQ 2007a].

Further analysis is required to confirm whether the financing approach proposed in the preceding paragraphs is, in fact, technically feasible. A starting point would be joint actuarial valuations of the CPP and the QPP based on a methodology and assumptions agreed by the Chief Actuaries of the two plans. (Although the actuarial reports of the CPP and the QPP are both prepared in accordance with the general standards of practice of the Canadian Institute of Actuaries and the Guidelines of Actuarial Practice for social security programs of the International Actuarial Association, there may be differences in methodology and there certainly are differences in assumptions.) There might be value to having such a joint valuation subject to a peer review in order to satisfy all stakeholders of its objectivity and rigour.

If the proposed financing approach is confirmed as technically feasible – and we are convinced it will be – implementing the approach will not be straightforward. Complex intergovernmental discussions will need to take place. Such discussions will require time and considerable effort. However, if successful, they would secure the future of an essential part of Canada’s shared legacy – one of the most effective pension systems in the world.

Concluding observations

The 2006 federal Budget cited earlier in this paper referred to the Canada and the Quebec Pension Plans as “a well-functioning federal-provincial program.” On a purely technical level, the statement is not entirely correct. Legally, the plans are distinct programs, and they will remain distinct programs. However, on the level of policy and practice, the statement is unquestionably correct. Through enduring commitment over more than four decades on the part of all the participating governments – the federal government, Quebec and the other provinces – and through the dedication and professionalism of the officials administering the CPP and the QPP, the two plans have always worked as a ‘virtual’ single program – an outstanding example of federal-provincial cooperation in Canada.

The Canada and Quebec Pension Plans are key parts of Canada’s social fabric which, together, provide almost 20 percent of the total income of Canadian seniors [Tamagno 2006]. As actuarial reports have shown, the CPP is financially secure for the foreseeable future. Measures must now be taken to make the QPP similarly secure. Accomplishing this goal in a way that maintains the historical parallelism between the two plans will require, once again, federal-provincial cooperation in the quest for mutually acceptable solutions.

Securing the future of the Quebec Pension Plan will require action on the part of Quebec in adjusting the plan’s benefits. This paper has suggested some measures that might be considered. Whatever proposals for changes to QPP benefits are ultimately put forward for public discussion by the government of Quebec, there will inevitably be some persons who would receive less in benefits than if the current provisions of the QPP are maintained. But *all* Quebecers – and, in a sense, *all* Canadians – would be losers if the

Quebec Pension Plan were not to be made financially secure. It is with this fact in mind that the proposals of the Quebec government will need to be considered.

In spite of the hard choices Quebec will need to make in deciding the changes to benefits under the Quebec Pension Plan, these changes will not, by themselves, be enough to secure the plan's financial future. Changes will also need to be made on the financing side of the equation. This paper has suggested an approach that could effect such changes while, at the same time, maintain the parallelism of the QPP and the CPP in terms of contributions and avoid an increase in the contribution rate of either plan.

As the history of the establishment of the Canada and the Quebec Pension Plans in the 1960s shows, there were many challenges that arose as the two plans were being designed. And there were many times when it seemed as if no mutually acceptable solutions could be found. In the end, the challenges were overcome and the solutions found. The solutions reflected the complicated political and social reality of Canada, and they have worked remarkably well.

In the same spirit, today's challenges can be met if all of Canada works together for our shared future.

List of abbreviations and acronyms

CDPQ	Caisse de dépôt et placement du Québec (Quebec Deposit and Investment Fund)
CPP	Canada Pension Plan
CPPIB	Canada Pension Plan Investment Board
CCTB	Canada Child Tax Benefit
HRSDC	Human Resources and Social Development Canada
OCA	Office of the Chief Actuary (Canada)
OECD	Organisation for Economic Co-operation and Development
OSFI	Office of the Superintendent of Financial Institutions (Canada)
PAYG	Pay-as-you-go
QPP	Quebec Pension Plan
RRQ	Régie des rentes du Québec
YBE	Year's Basic Exemption
YMPE	Year's Maximum Pensionable Earnings

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Endnotes

1. There are some differences in the eligibility conditions for CPP and QPP benefits and the way in which the amount of benefits is calculated. Some of the differences are discussed in this paper in the section headed 'Possible adjustments to QPP benefits.'
2. The territories of Canada (Nunavut, Northwest Territories and Yukon) have no choice other than being included in the federal scheme.
3. These plans are sometimes referred to as employer-sponsored pension plans, workplace pension plans, private pension plans, or, in Canada, registered pension plans.
4. In practice, the procedure described could be done in several steps, until the scheme reaches maturity, at which time pure PAYG financing would apply.
5. The original 1965 act governing the CPP set the YMPE for 1966 and 1967 at \$5,000, which was approximately the average industrial wage in Canada in 1966. The act went on to specify that the YMPE would be adjusted from 1968 to 1975 according to a Pension Index prescribed in the act and thereafter according to an Earnings Index. By 1974, the adjusted YMPE had fallen significantly below the average industrial wage. Under amendments to the CPP act approved in 1974, the YMPE, with effect from January 1, 1976, was increased annually by 12.5 percent until it equaled the adjusted 12-month average of the wages and salaries of the Industrial Composite, as published by Statistics Canada. Thereafter, a formula using a moving 36-month average of wages and salaries of the Industrial Composite would be used to ensure that the YMPE for following years would be kept in line with the average wages and salaries of the Industrial composite. The YMPE finally caught up to the Industrial Composite in 1986. In June 1986, Statistics Canada introduced a new monthly wage and salary measure known as the Industrial Aggregate. The CPP act was amended in 1986 to replace the Industrial Composite with the Industrial Aggregate, with effect from January 1, 1988 [Department of National Health and Welfare (Canada) 1987].
6. A note for readers outside Canada: Whenever the word 'dollar' and the dollar sign (\$) appear in this paper, they refer to the Canadian dollar (CAD). At the time of writing, the Canadian dollar is approximately at par with the United States dollar; it is worth about 68 euro cents (EUR 0.68).
8. The original 1965 act governing the CPP set the YBE at 12 percent of the YMPE. Under amendments to the act that took effect on January 1, 1975, the percentage was lowered from 12 percent to 10 percent [Department of National Health and Welfare (Canada) 1987]. As part of the 1997 financing reform of the CPP (discussed later in this paper), the YBE was frozen, with effect from January 1, 1998, at its 1997 level of \$3,500. The YBE is included in a worker's contributory earnings for a year for purposes of calculating the amount of future pensions only if the worker's earnings in the year exceed the YBE. If the worker's

annual earnings are less than the YBE, the worker receives a refund of contributions paid and has no contributory earnings credited for the year.

9. The CDPQ was modeled, at least in part, on a French institution, the Caisse des Dépôts et Consignations established in 1816.

10. In effect, there was an implicit subsidy to Canada's poorer provinces. The subsidy was operative only when interest rates were stable over long periods of time (which had been the case when the Canada Pension Plan was designed in the mid-1960s) or were increasing. However, when interest rates were in decline, the weighted average of the interest rates on outstanding long-term federal government bonds could be greater than market rates. This was especially the case in the mid-1980s, when interest rates declined sharply after several years of double-digit inflation and interest rates in the late 1970s and early 1980s. In such a situation, it was not advantageous for provinces to borrow the amounts allocated to them, and the federal government was obliged to do so.

12. The three measures put the CPP's financing into balance on the basis of the plan's benefits in 1997 and the actuarial valuation conducted in 1997. Two additional provisions were directed to any possible future changes to the CPP's benefits and future actuarial valuations. Both provisions have become part of the legislation governing the Canada Pension Plan and can only be amended with the approval of the federal Parliament and the governments of at least two-thirds of the provinces of Canada with, in aggregate, at least two-thirds of the population of Canada. One provision requires that any future increase in benefits (other than annual adjustments for inflation) or any introduction of new benefits must be financed through an actuarially determined increase in the contribution rate if it would bring the steady-state contribution rate above the legislated rate (currently 9.9 percent). The second provision contains default measures that would apply if a future actuarial valuation were to indicate that the CPP's steady-state rate exceeded the legislated contribution rate and if the federal and provincial governments were not able to reach agreement on the corrective steps required. In such circumstances, under the default measures, a contribution increase would automatically be triggered to bring the contribution rate up to the new steady-state rate within three years.

13. The technical definition of the steady-state rate given in the CPP's most recent actuarial valuation is "the lowest level contribution rate applicable after the end of the review period [the three calendar years following the date at which the actuarial valuation is based], rounded to the nearest 0.001%, that results in the projected asset/expenditure ratio of the Plan being the same in the 10th and 60th year following the end of the review period" [OCA 2007: 35-36]. The actuarial valuation of the CPP that was tabled in the federal Parliament when the bill implementing the 1997 financing reform was given first reading did not use the term 'steady-state contribution rate'. Instead, the report referred to the 'stable contribution rate'. The term 'steady-state contribution rate', which was widely used in contemporary descriptions of the 1997 financing reform, first appeared in a CPP actuarial valuation in the report as of December 31, 1997 [OCA 1998].

14. Section 9(8)(b)(iii) of the regulations made pursuant to the *Canada Pension Plan Investment Board Act* requires that the provincial bonds "bear interest at a rate that is substantially the same as the interest that the province would be required to pay if it were to borrow the same amount of money for the same term through the issuance of a security on the open capital market."

15. For the Canada Pension Plan, actuarial services are provided by the Office of the Chief Actuary (OCA) in the Office of the Superintendent of Financial Institutions (OSFI). OSFI is a department of the federal government reporting to the Minister of Finance. For the Quebec Pension Plan, actuarial services are provided by a unit of the Régie des rentes du Québec (RRQ), which administers the QPP.

16. For 2006, the CPP steady-state rate shown in Figure 2 is the rate designated in the plan's 2006 actuarial report as the 'minimum contribution rate'. For an explanation of the minimum contribution rate, see footnote 19.

17. The QPP's 2000 actuarial report provided projections only to 2050. Given that the projected reserve-to-expenditure ratios were shown as 4.0 in 2035, 3.7 in 2040, 3.4 in 2045 and 3.1 in 2050, it is clear that the ratio after 2050 would be lower than 3.1.

18. As employers, governments contribute to the CPP and the CPP in the same way as private-sector employers. These contributions are the only payments governments are allowed, by law, to make to the CPP and the QPP.

19. The minimum contribution rate is the sum of two rates: (i) the steady-state rate for the CPP *without* any legislated changes since the 1997 financing reform, and (ii) the 'full-funding' rate for any legislated changes to the plan since the reform. For purposes of comparisons and analysis, the minimum rate in the

2006 actuarial valuation should be considered as the equivalent of the steady-state rate in the 1997, 2000 and 2003 valuations.

20. There were a number of differences due to improvements in methodology, experience update and changes in assumptions. However, when combined with rounding (rates are calculated to three decimal points but rounded to two), these differences offset each other. For full details, see [OCA 2007: Table 31, page 81].

21. Under section 113.1 of the legislation governing the Canada Pension Plan, the federal and provincial ministers of finance, following the release of the plan's triennial actuarial report, are required to meet to "review the financial state of the Canada Pension Plan." As a result of the review, the ministers "may make recommendations as to whether benefits or contribution rates or both should be changed." The law goes on to state that "If possible, the review in each three year period must be completed in time to permit the [federal] Minister of Finance to make recommendations to the [federal Cabinet (Council of Ministers)] before the end of the second year of the three year period" [Canada 2007b]. The next federal-provincial review of the CPP is scheduled to take place in 2008.

22. Another important factor is economic. The total pensionable earnings in 2005 – the aggregate wages subject to QPP contributions of all Quebec workers taken together – was in line with what had been projected for 2005 in the QPP's 1997 actuarial report. The 1997 report forecast total pensionable earnings in 2005 of \$84.9 billion, and the actual pensionable earnings in 2005 were \$85.9 billion (estimate obtained from RRQ officials). However, this outcome was the result of two offsetting developments. There were more contributors in 2005 than estimated for that year in the 1997 valuation (the actual number was 3.7 million while the number forecast in the 1997 report had been 3.6 million), but the average wages of the contributors in 2005 were lower than the average for 2005 estimated in the 1997 valuation. While the two factors offset each other for 2005, when forecasting the future financial situation of the QPP, the lower starting average wages will create more pressure on the plan that will be relieved by the higher number of contributors.

23. The QPP actuarial reports for 2000, 2003 and 2006 give two estimates of life expectancy: life expectancy *excluding* future reductions in mortality (i.e. using 'static' mortality tables) and life expectancy *including* future reductions (i.e. using 'dynamic' mortality tables). The 1997 actuarial report gives only life expectancy excluding future reductions in mortality, which is the notion most often used in discussions of life expectancy. For consistency when making comparisons, the data shown in Figure 8 gives the estimates of life expectancy excluding future reductions for each of the years indicated.

24. The term 'senior households' means single seniors and senior families taken together. The term 'single senior' means an unattached individual aged 65 and over living alone or with other persons to whom he or she is not related (e.g. a lodger). The term 'senior family' means an economic family of two or more persons in which the person with the highest individual income is aged 65 or more. An economic family is a group of two or more persons who live in the same dwelling and who are related to each other by blood, marriage, common law or adoption.

25. The data source [Statistics Canada 2007] from which this figure is taken does not distinguish between income from the QPP and income from the CPP. All such income is shown in a category labeled 'CPP/QPP'. However, administrative data [HRSDC 2007] shows that more than 98 percent of the QPP/ CPP income received by seniors living in Quebec is from the QPP. Less than two percent is from the CPP.

26. Since the earnings-related portions of disability and survivors pensions are based on a contributor's actual or imputed retirement pension, disability and survivors benefits were also somewhat reduced.

27. Under both the CPP and the QPP, persons aged 65 or more are not eligible for a disability pension. When a person in receipt of a disability pension reaches age 65, the disability pension ceases to be paid and is replaced by a retirement pension.

28. The definition of the term 'severe' refers to a 'substantially gainful occupation'. For the QPP, the term 'substantially gainful' means an income over the course of a year which is more than 12 times the maximum monthly QPP disability pension. In 2008, this is an income of more than \$12,930. A comparable definition of 'substantially gainful' applies to the CPP.

29. In the case of a person who has contributed to both the Canada and the Quebec Pension Plan (referred to in the administrative parlance of the schemes as a 'dual contributor'), contributions to both plans are taken into account for purposes both of meeting the contributory requirements and of calculating the amount of benefits.

30. The rates for Canada as a whole in 2005 were about the same as those for Quebec – 81.1 percent for women aged 25-54 and 91.5 percent for men in that age group.

31. The Canada Child Tax Benefit (CCTB) is an income-tested refundable tax credit that is part of the federal income tax system. A CCTB is payable for any child aged less than 18. The maximum annual benefit in the current payment year (July 2007-June 2008) is \$3,271 for the first child, \$3,041 for the second child, and \$3,046 for the third and each additional child. For a comprehensive discussion of the CCTB, see Battle [2008].

32. The term ‘child benefit’ is used to refer to both the benefit for the child of a deceased contributor (the orphan’s benefit) and the benefit for the child of a disabled contributor. The two benefits have always been in the same amount. Therefore, if one is raised, the other will also need to be raised.

33. Amendments will also be required to either the *Canada Pension Plan Investment Board Act* or the regulations made pursuant to that act, or to both.