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Worse Than It Looks: The True Burden and Risks of Federal Employee Pension Plans

A fair-value calculation reveals that the unfunded liability of federal employees' pension plans stood at \$269 billion at the end of the 2015 fiscal year – \$118 billion worse than reported. The annual cost of benefits accruing in these plans is also much higher than reported. More transparent reporting of the cost and risks these plans create for taxpayers would prompt discussion of reforms that could produce more durable and affordable pensions for federal employees.

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THE STUDY IN BRIEF

Federal government employees enjoy pure defined-benefit pensions that promise relatively generous benefits to a large current and former workforce. Being largely unfunded, these plans impose on taxpayers obligations running into the hundreds of billions of dollars. What is worse, misleading accounting understates the true burden and risks these plans create for Canadian taxpayers.

This *Commentary* provides more economically meaningful estimates of the value of federal employee pensions to their participants, and the cost to taxpayers. Its goal is twofold: to alert Canadians to the fiscal burdens and risks created by these plans; and to prompt discussion of reforms that could produce more durable and affordable pensions for federal employees.

Official figures on the current cost of these plans and their accumulated obligation use notional interest rates to calculate their value. Because their pension promises are guaranteed by taxpayers and indexed to inflation, the appropriate discount rate is the yield on federal-government real-return bonds (RRBs), which for years has been much lower than the assumed rate in official figures.

Correcting this distortion produces a fair-value estimate for Ottawa's unfunded pension liability of \$269.3 billion at the end of 2014/15 – around \$30,000 per family of four, and \$117.9 billion higher than the reported number. Because the unfunded pension liability is part of Ottawa's debt, the fair-value adjustment also raises the net public debt by \$117.9 billion: from the \$612.3 billion reported at the end 2014/15 to an adjusted \$730.2 billion.

The authors note that recent changes will raise the share of these plans' costs that their participants must fund, but object that the reported current costs of these plans – and therefore the total contribution rates that determine employer and employee shares – are too low. With RRB yields at recent levels, even the higher employee contributions anticipated by the reforms would leave the taxpayers' true share far above 50 percent. A fair-value approach to the current service cost can ensure that participants and taxpayers equally share the cost of accruing benefits.

The authors further note, however, that even 50:50 sharing of the true current service cost of federal pensions would leave taxpayers exposed. This exposure would apply not only to fluctuations in the annual costs as interest rates, experience, and plan provisions changed but – far more important – to fluctuations in the value of previously earned benefits as well. Ottawa could protect taxpayers from this risk by capping employer contributions at a fixed share of pensionable pay.

To relieve taxpayers of their current sole responsibility for risks in the federal plan, Ottawa would need to switch to a shared-risk, target-benefit model already common in much of the provincial public sector, which calculates benefits with reference not only to salary and years of service but also to the plans' funded status.

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All over the world, defined-benefit (DB) pension plans are in trouble. The stress of properly funding promises to pay specific future benefits has led many private-sector plan sponsors to wind plans up or go to flexible-benefit, shared-risk alternatives.

In Canada, many public-sector plans – notably plans covering education, healthcare, and municipal workers – also make contingent promises. Others, however, are still pure defined-benefit plans – most notably those covering federal government employees. The commitment to pay relatively generous benefits to a large current and former workforce means they impose on taxpayers obligations running into the hundreds of billions of dollars. What is worse, misleading accounting understates the true burden and risks these plans create for Canadian taxpayers.

Ottawa's most recent financial reports give hints about the true situation. The fall Economic and Fiscal Update, for example, revealed direct program spending running about \$1.0 billion annually higher than the previous spring's budget had indicated (Canada 2015). The latest Public Accounts, for fiscal year 2014/15, had a below-the-line charge of nearly \$2 billion related to employee pensions and other future benefits – meaning that, despite a reported budget surplus, the federal government's accumulated deficit increased that year.

This *Commentary* provides more economically meaningful estimates of the value of federal employee pensions to their participants, and the cost to taxpayers. Our goal is twofold: to alert Canadians to the fiscal burdens and risks created

by these plans; and to prompt discussion of reforms that could produce more durable and affordable pensions for federal employees.

The Value of Ottawa's Pension Promises

The federal government manages a number of pension plans. Some are for Crown corporations: although they are not small by private-sector standards, they do not loom large in Ottawa's financial position. More material are the federal plans for members of parliament, judges, the public service, the Canadian Forces, and the Royal Canadian Mounted Police.

Aside from the Crown corporations, none of these plans were funded at all until 2000. Although Ottawa reported estimates of its pension obligations, it held no assets to back them. The reported obligation was simply part of the government's debt. Since 2000, contributions to the public service, Canadian Forces, and RCMP plans have flowed to the Public Sector Pension Investment Board. The Public Accounts now show some pension assets in respect of those plans as well as much larger liabilities. However, the numbers in the federal balance sheet, and the difference between them – Ottawa's unfunded pension liability – are not economically meaningful measures.

The Reported Numbers

The Public Accounts for the fiscal year 2014/15 reported the accumulated obligation of Ottawa's defined-benefit plans at \$272.5 billion as at March 31, 2015. After allowing for recorded assets of \$111.3 billion and an "unrecognized net actuarial loss" of \$9.7 billion, the balance – an unfunded liability that is part of Ottawa's accumulated deficit – was \$151.4 billion (Table 1, first column).

That total is a large unfunded liability – about one-quarter of the federal obligations Canadian taxpayers underwrite,¹ and around \$17,000 per Canadian family of four. Yet the actual liability is even larger.

The reported numbers are misleading in several ways. The 2014/15 figure for assets is an understatement, "smoothed" by recognizing gains and losses larger than a threshold amount over a number of years. The estimated market value of the plans' assets was \$122.6 billion (Table 1, second column).

Calculating the Fair Value of Federal Pension Liabilities

Unfortunately, the reported numbers also understate liabilities, and by a much larger amount. Showing the value of future pension payments on a balance sheet involves discounting them. The best way to do so – what is often termed a "fair-value" calculation – is to use market yields on securities that resemble the pension promises.²

Table 1: Balance Sheet of Federal Pension Plans, March 31, 2015

	Public Accounts	Fair Value
	(\$ billions)	
Assets ^a	111.3	122.6
Liabilities ^b	272.5	391.9
Unrecognized net actuarial loss	–9.7	
Balance	151.4	269.3
Notes: Number may not add up due to rounding. a Includes investments and contributions receivable for past service. b Fair value estimated using methodology found in text. Sources: Canada, Receiver General for Canada 2014/15; authors' calculations.		

Suppose Canadians who are not in federal-employee pension plans want retirement income similar to that of those who do – or, as taxpayers, want income to cover the taxes that unfunded federal pensions will eventually oblige them to pay. Those Canadians would need assets resembling the promises in federal pensions, backed by taxpayers and indexed to inflation. Such an asset does exist: the federal government's real return bond (RRB). The yield on RRBs determines the size of the nest egg that Canadians wanting that income would need.³ At the end of March 2015, RRBs yielded a mere 0.2 percent.

1 The reported accumulated deficit stood at \$612.3 billion as at March 31, 2015.

2 "Fair value" reflects the idea that things are worth the price at which willing parties would exchange them in an arm's-length transaction. Whether market prices are "correct" or not, they unambiguously reveal the price at which transactions occurred. For that reason they have major advantages over assumptions based on history and/or wishful thinking.

3 Pension experts increasingly accept discounting liabilities at rates reflecting the nature of a plan's obligations, rather than using assumed returns on plan assets (see, for example, Andonov, Bauer, and Cremers 2016). For Ottawa's pensions, which are partially unfunded, it is clearly inappropriate to use assumed returns on assets that do not exist. The challenge other Canadians would face in achieving the same retirement income, or hedging the taxes to cover unfunded federal pensions, also clarifies the logic behind discounting at the RRB yield. Suppose federal employees received a buyout offer to forgo their pension benefits in return for a package calculated using the Public Accounts' higher discount rates. They would be foolish to accept: the nest egg needed to replace the pension would be larger than the offer.

Yet the federal government does not use the RRB yield in valuing its pension obligations. Rather, it uses two notional interest rates. One, related to pre-2000 obligations, is an average of past and expected yields on 20-year federal bonds – currently 2.2 percent in real (inflation-adjusted) terms. The other, related to benefits earned since 2000, is an assumed return on investments – currently 3.8 percent in real terms. These arbitrary formulas and assumptions produce numbers higher than the RRB yield – and they understate both the value of federal pension promises and their cost to taxpayers.⁴

The Public Accounts do not provide all the information needed to calculate federal pension liabilities at a real rate of 0.2 percent, but they allow an estimate. As Box 1 details, the gap between the real discount rates used in the Public Accounts and the 0.2 percent actual yield on the RRB translates into a pension obligation of \$391.9 billion (Table 1, second column), not the \$272.5 billion reported in the Public Accounts (Table 1, first column) – a difference of \$119.4 billion.

The final step toward a fair-value estimate of Ottawa's pension obligation is removing the “unrecognized net actuarial loss” (Table 1, first column). This figure represents changes in asset and liability values that, thanks to smoothing and amortization, have yet to show up in the Public Accounts.⁵ Fair value recognizes all changes in the value of assets and liabilities right away, so it has no

counterpart in a fair-value measure (Table 1, second column).

The net result is an unfunded pension liability of \$269.3 billion at the end of 2014/15 – around \$30,000 per family of four, and \$117.9 billion higher than the reported number. Because the unfunded pension liability is part of Ottawa's debt, the fair-value adjustment also raises the net public debt by \$117.9 billion: from the \$612.3 billion reported at the end 2014/15 to an adjusted \$730.2 billion.

The Growth, Volatility, and Significance of Federal Pension Obligations

The size of the federal government's unfunded pension liability is startling, as are its changes over time. The unfunded liability has trended upward as the salary base and years of service on which pensions are calculated have grown. The difference between the reported and the fair-value numbers has also fluctuated with economic conditions (Figure 1).⁶

Tracking the Unfunded Liability over Time

The gap was small 15 years ago, when the RRB yield was close to the notional interest rates used in the Public Accounts. It grew as RRB yields declined faster than the notional interest rates were revised downward (Table 2 shows the key

4 The federal plans are pure defined-benefit plans, promising benefits unrelated to funded status. This unconditional promise justifies using the equally unconditional RRB as a comparator. If participants bore some risk that insufficient funding might impair their benefits, a higher discount rate, reflecting that risk, would be appropriate.

5 For a discussion of why smoothing is no longer standard practice and speculation about governments abandoning it, see Beauchamp 2014.

6 The 2015 Public Accounts reclassified pension figures for consolidated Crown corporations and other entities, which are now presented within the same class as other federal government employee pension valuations. Although the 2015 report restated the figures for 2014, it did not provide revised figures before that, so the figures before 2014 are not exactly comparable with those after 2014. The net impact of the change is small compared with total pension assets and liabilities – the new presentation reduced the reported net pension liability by about \$0.8 billion – and the inclusion of these pensions does not materially affect our calculations of the plans' fair value.

Box 1: Discount-Rate Sensitivity of Estimates of Federal Pension Plan Obligations

Beginning in 2015/16, the government will include the defined-benefit pension plans of some of its consolidated Crown corporations as part of its employee pension obligations. These plans are funded and relatively small.

Although the Public Accounts report separate figures for the totally unfunded pension obligations accrued before the 2000 reforms and the “funded” obligations accrued since then, they do not provide separate estimates of their sensitivities to different interest rates. The Public Accounts show the effect of a one-percentage-point change in the discount rate for the funded obligations. But for the unfunded obligations, they show only the effect of a change in one component of the composite discount rate – future bond yields – not the full effect of a change in the discount rate.

In Robson and Laurin (2014), we referred back to the 2011/12 Public Accounts for an estimate of the sensitivity of the unfunded obligations to a change in the discount rate that year. We used the ratio of that figure to the sensitivity of the funded obligations in 2012/13 to come up with a sensitivity for the unfunded obligations in 2012/13. We applied the same method in Robson and Laurin (2015) to come up with a sensitivity for the unfunded obligations in 2013/14. To estimate the sensitivity for the unfunded obligations in 2014/15, we use the same method with our 2013/14 sensitivity estimate as an input – adjusted to reflect the impact of including the pension plans of consolidated Crown corporations. This method suggests that the effect of a 1 percent lower discount rate on the funded portions of the plans is \$22.5 billion, and the effect of a 1 percent lower discount rate on the (larger) unfunded portion of the plans is \$19.0 billion (see Table Box 1).^a

The actual difference between the discount rates used in the unfunded and the funded portions of the plans and the RRB field is 2.0 and 3.6 percentage points, respectively. Multiplying these percentages by the appropriate sensitivities results in the \$119.4 billion upward adjustment in plan liabilities shown in Tables 1 and 2. Because the effect of differences in the discount rate is not linear – the sensitivities in the Public Accounts show that, while lowering the discount rate on the funded parts of the plans increases their liability by \$22.5 billion, raising it lowers the liability by only \$17.3 billion – this adjustment is conservative. It more than compensates for any exaggeration in our estimate of the sensitivity of unfunded obligations to a one-percentage-point change in the discount rate. For that reason, our total estimate of pension liabilities is lower than a fair-value estimate based on more complete information would be.

Finally, we note that the Public Accounts present estimates labelled as fair values (Canada, Receiver General for Canada 2014/15, 2.36) that show the difference between “carrying value” and “fair value” for various federal assets and liabilities. Those estimates include a fair value for the net unfunded pension liability that reflects only a restatement of the assets to their market value (and the recognition of actuarial gains/losses), and no adjustment to the liabilities. As shown here, full application of the fair-value approach would produce much larger adjustments. In particular, discounting with the RRB rate produces a much larger amount for the pension obligation and for the net unfunded liability. It is regrettable that the Public Accounts use fair-value terminology, but not fair-value methodology.

^a The duration of the unfunded obligations, which were earned longer ago, is much shorter than that of the funded obligations, so separate estimates of the sensitivity of each one is better than using a combined figure.

Table Box 1: Estimates of the Sensitivity of Pension Obligations to a Lower Discount Rate

	Funded	Unfunded	Total
	(\$ billions)		
Fiscal year 2013/14 sensitivity to a decrease of 1 percent in the discount rate of “funded” obligations and to a decrease of less than 1 percent (undisclosed value) for “unfunded” obligations (from Canada, Receiver General for Canada 2014/15, 2.26).	20.4	9.5	29.9
Fiscal year 2013/14 sensitivity breakdown for full one-percentage-point discount rate change (from Robson and Laurin 2015 – adjusted to reflect impact of the accounting change in 2014/15).	20.4	19.9	40.3
Fiscal year 2014/15 sensitivity to a decrease of 1 percent in the discount rate of “funded” obligations and to a decrease of less than 1 percent (undisclosed value) for “unfunded” obligations (from Canada, Receiver General for Canada 2014/15, 2.26).	22.5	9.1	31.6
Estimated fiscal year 2014/15 sensitivity to a decrease of 1 percent in the discount rate, using the ratio of 2013/14 unfunded sensitivities as a guide.	22.5	19.0	41.5
Sources: Canada, Receiver General for Canada 2011/12, 2012/2013, 2013/14, 2014/15.			

numbers for each year). Some of the year-to-year swings were large: a deterioration exceeding \$35 billion in 2011/12, when the RRB yield plunged; an improvement close to \$25 billion in 2013/14, when it rebounded; and a deterioration close to \$25 billion in 2014/15, when it plunged again.

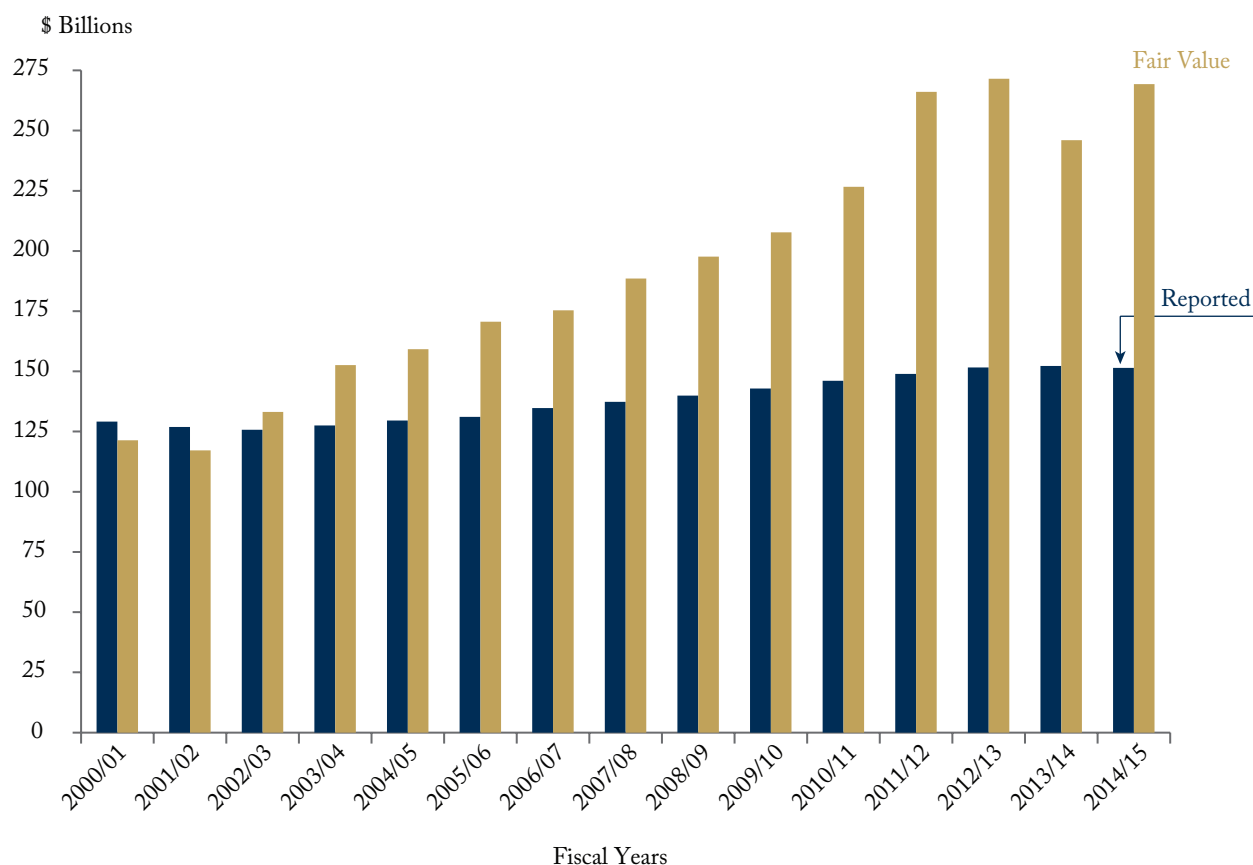
Anything that affects Ottawa’s net worth – its accumulated deficit – year to year must have a counterpart in Ottawa’s annual statement of revenue and expenditure. The annual federal budget surplus or deficit, which gets most of the attention, is the main contributor to annual changes in net worth, but Ottawa also reports other “comprehensive income.” A major component of this income is recognition of changes in the valuation of net pension obligations – it is the key reason why the budget surplus reported in fiscal 2014/15 coincided with an increase in the accumulated deficit.

A more economically meaningful measure of the annual balance would include changes in the fair-value net pension obligation. That measure would make recent federal fiscal history look very different, reducing or eliminating the surpluses the government reported from fiscal years 2001/02 to 2007/08, worsening the deficits reported over the next five years, producing a surplus in 2013/14, and converting the 2014/15 surplus into a sizeable deficit.

Federal Pension-Related Risks Borne by Canadian Taxpayers

Critics of fair-value accounting for defined-benefit pensions think that the swings in net worth and the volatile annual balances it reveals are problems. We disagree: in our view, these swings and volatility convey vital information. The design of defined-

Figure 1: Net Federal Pension Obligation, Reported versus Fair-Value Estimate, Fiscal Years 2000/01–2014/15



Note: Starting in 2013/14, the reported figures include some pension plans of consolidated Crown corporations and other entities.

Sources: Canada, Receiver General for Canada (various years); authors' calculations.

benefit plans is supposed to make plan sponsors – taxpayers in the case of public-sector plans – bear all the risks of changes in longevity, fluctuations in investment returns and so on. Sponsors can mitigate this exposure by holding assets that

match the obligations. To pursue the earlier point about taxpayers hedging their obligations, Ottawa could have accumulated a nest egg of RRB-like assets, such as currency-hedged investments in the US government's Treasury Inflation-Protected

Table 2: Fair-Value Adjustments to the Federal Pension Balance Sheet, Fiscal Years 2000/01–2014/15

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
	(\$ billions except where otherwise indicated)														
Assets as Reported	2.8	5.9	8.9	13.4	18.3	24.9	31.6	38.7	37.2	44.9	53.5	62.0	71.7	92.9	110.8
Assets at Fair Value	2.5	5.6	8.1	14.2	19.4	27.6	35.0	38.9	33.8	46.3	58.0	64.5	76.1	102.3	122.0
Obligation as Reported	124.0	125.9	134.3	142.4	145.3	155.8	168.3	178.6	190.3	201.4	213.3	230.8	242.7	254.4	272.5
Effective Discount Rate Used in Public Accounts (%)	3.52	3.54	3.47	3.49	3.52	3.31	3.34	3.37	3.15	3.19	3.23	3.12	2.6/3.9	2.6/3.9	2.2/3.8
Real Return Bond Yield (%)	3.51	3.68	3.05	2.39	2.03	1.58	1.76	1.60	1.81	1.56	1.15	0.51	0.49	0.91	0.19
Sensitivity of Liabilities to 1% Lower Discount Rate	18.6	18.6	17.5	22.6	22.7	24.9	27.0	28.1	31.1	32.6	34.6	38.4	20.7 /18.1	19.9 /20.4	19.0 /22.5
Obligation at Fair Value	124.3	123.2	141.7	167.3	179.1	198.8	210.9	228.3	232.1	254.5	285.2	331.1	348.2	348.9	391.9
Unrecognized Actuarial Gain/Loss	8.3	7.3	0.7	-0.9	3.1	0.7	-1.3	-1.7	-12.6	-13.2	-13.2	-19.4	-18.9	-8.6	-9.7

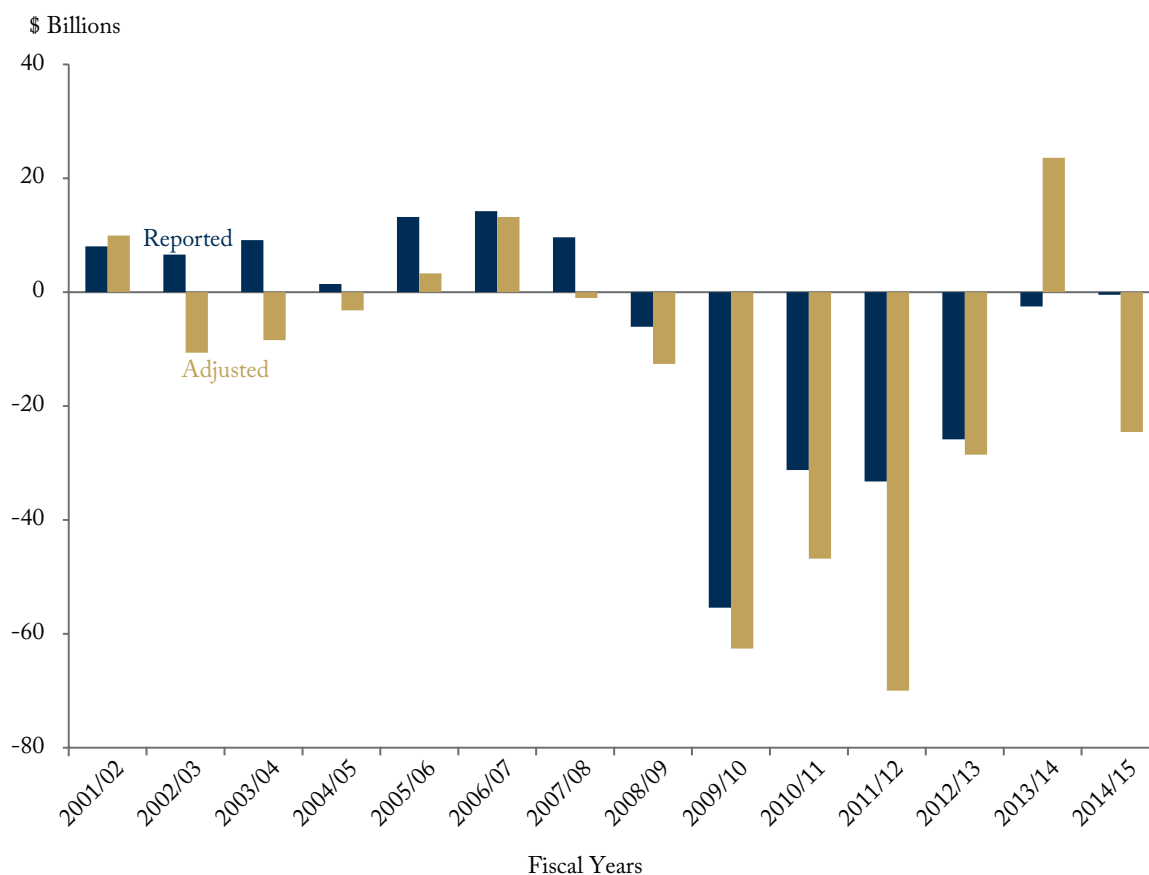
Notes:

For the first time in 2012/13, the Public Accounts show a separation between “funded” and “unfunded” benefit obligation sensitivities to discount rate changes; see Box 1 for further methodological details.

Starting in 2013/14, the reported figures include some pension plans of consolidated Crown corporations and other entities.

Sources: Canada, Receiver General for Canada; Canada, Office of the Chief Actuary; Bank of Canada (Selected Bond Yields <<http://www.bankofcanada.ca/rates/interest-rates/canadian-bonds/>> accessed 19 April 2016>; and authors’ calculations.

Figure 2: Federal Budgetary Balance, Reported versus Adjusted with Fair-Value Pension Accounting, Fiscal Years 2001/02–2014/15



Note: Starting in 2013/14, the reported figures include some pension plans of consolidated Crown corporations and other entities.
 Sources: Canada, Receiver General for Canada (various years); authors' calculations as described in text and explained in Laurin and Robson 2009.

Securities.⁷ It did not, however: the assets it holds are quite different, and most of its pension

obligations are matched by nothing. Smoothing and arbitrary assumptions hide the resulting risk.

7 Someone concerned about the federal government's overall balance sheet and its net debt might think that federal pension plans identical to those that now exist, but backed largely or entirely by a stock of RRBs much larger than currently exists, would not be much better. If the unfunded pension liability were zero, for instance, but the stock of RRBs and therefore market debt were larger by the same amount, where is the advantage? One answer is that Ottawa's pension plans would not likely have evolved as they have if funding them had required actual issues of debt rather than bookkeeping entries. Historically, issuing market debt required special authorization from Parliament, auctions in which investors put up cash, and interest payments that were also in cash. The transparency and exposure to capital markets involved in that approach would almost certainly have led the federal government to modify its employment practices, better controlling the generosity of its compensation and/or hiring fewer employees.

The adjusted budget balances in Figure 2 represent changes in exposure that Canadian taxpayers knew little or nothing about. If they had known, they might – or might not – have agreed to this large and unpredictable obligation. It would be straightforward for the federal government to provide the necessary information as part of, or as a supplement to, the Public Accounts. We think that if Canadians were better informed, they would have reservations about the arrangement.

Recent and Potential Reforms

The previous federal government did make some changes. Notably, the 2012 *Jobs and Growth Act* raised the normal retirement age and other thresholds from age 60 to 65 for new Public Service plan members on or after January 1, 2013. It also affected contributions: it initiated increases in the employees' share of contributions to the Public Service plan that will see them reach half the plan's reported current service cost by the end of 2017; and it initiated increases in employees' contributions to the Canadian Forces and the RCMP plans, which will follow the (lower) path of increases for Public Service plan members who joined the plan before January 1, 2013, and reach about 45 percent of those plans' reported costs by 2018.

Reflecting the Fair-Value Pension Promise in Federal Employees' Contributions

Opposition to those changes owes much to lack of information. Lack of information also impedes

discussion about next steps. Among the criticisms in the Auditor General's 2014 report on federal pension plans was the fact that the Treasury Board Secretariat, after five years of work, had not yet drawn up a funding policy – including such key issues as the risk tolerance of the sponsor and intergenerational fairness. The Auditor General also noted that Canadians must consult up to eight separate documents to gather pertinent information on these plans. The report called for improvements in reporting to provide a clearer picture “of the methodology, the assumptions, and the discount rates used to assess the liabilities, as well as the interest charges related to public sector pension plans” (OAG 2014, p.22).

That criticism is more important now than ever. As we have just detailed, the reported current costs of these plans – and therefore the total contribution rates that determine employer and employee shares – are too low (Robson and Laurin 2014 elaborate this point). With RRB yields where they are today, even the higher employee contributions anticipated by the reforms would leave the taxpayers' true share far above 50 percent. A fair-value approach to the current service cost can ensure that participants and taxpayers equally share the cost of accruing benefits.⁸

More Equitable Sharing of Risks Related to Past Service

Even 50:50 sharing of the true current service cost of federal pensions would leave taxpayers exposed. This exposure would apply not only to fluctuations

8 The federal *Income Tax Act* prohibits annual contributions greater than 18 percent of pay, up to a maximum of about \$25,000, to defined-contribution pension plans and registered retirement savings plans. Tax-deferral opportunities for federal employees vastly exceed those for other Canadians (see Pierlot and Siddiqi 2011 for more on this point). Canadians not employed by the federal government who want a similar retirement nest egg would need to save even more of their pre-tax earnings than these current service-cost estimates imply because most of those savings would be with post-tax income. Considering that these Canadians are also on the hook for the unfunded liability of federal employees' pension plans, the system is doubly unfair.

in the annual costs as interest rates, experience, and plan provisions changed but – far more important – to fluctuations in the value of previously earned benefits as well.

Change the Plans' Benefit Structure

Ottawa could protect taxpayers from this risk by capping employer contributions at a fixed share of pensionable pay.⁹ Plan participants would then need to pay both the balance of each year's current service cost and whatever was needed to cover changes in the value of previously earned benefits. But too many participants in federal pension plans are already retired or close to retirement. The number of active members now and in the future whose contributions would swing up and down to cover the changes in the value of past benefits would be relatively small, and the impact on their take-home pay correspondingly large.

What about benefits, then? It makes sense to lessen the pension liability over time by eliminating incentives for early retirement. Basing benefits on career-average earnings rather than final salary would also be desirable.¹⁰ To relieve taxpayers of their current sole responsibility for risks in the federal plan, however, Ottawa would need to switch to a shared-risk, target-benefit model that calculates benefits with reference not only to salary and years of service but also to the plans' funded status. The broader public-sector plans many provinces established in the 1990s make future benefit accruals contingent on plan funding. New Brunswick's new "shared-risk" pension regime also makes benefits already earned contingent on plan

funding – a far more powerful tool in mature plans (Steele et al. 2014).

Meaningful Financial Reporting Is a Crucial First Step

As matters stand, the artificially low annual and accumulated costs for federal pensions reported in the Public Accounts are obstacles to reform. More meaningful fair-value numbers would better support the discussions that the federal government (as a sponsor), federal employees, and Canadians generally need to have.

Public-sector accounting standards may require fair-value estimates before long. Some US municipalities have already defaulted on their obligations, and state governments may be next – developments that cast further doubt on the supposed virtues of traditional government pension accounting. Ottawa can move ahead in any event, by providing the necessary information in the Public Accounts or simply by including fair-value numbers in its financial statements.

If it did, legislators, plan participants, and taxpayers would see that Ottawa's unfunded pension liability stands at around \$270 billion – \$118 billion worse than stated. They would realize that federal employees cost much more than reported. In addition, they would see how the net pension liability swings – sometimes wildly, and far from predictably – from year to year. Those insights would prepare the way for reforms that would slow the growth of a burden few taxpayers know they bear and would mitigate risks that few taxpayers know they carry.

9 Gros (2013) recommends such a change, noting that New Brunswick has specified 18 percent of covered pay as the maximum combined contribution rate for its public-sector plans in the future.

10 Tying benefits to a person's purchasing power at the end of her or his career rather than to its average over the career has two adverse effects: it creates opportunities for "spiking" – inflating earnings in a person's final years of work to push up the pension – and it redistributes wealth inside pension plans away from those with relatively flat career earnings profiles (administrative staff, for example) and toward those with steep earnings profiles (senior government executives) (Young 2012).

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