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C.D. Howe Institute COMMENTARY

THE HEALTH PAPERS

A Social Insurance Model for Pharmacare:

Ontario's Options for a More Sustainable,
Cost-Effective Drug Program

COLIN BUSBY
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In this issue...

How to sustain and improve Ontario's Drug Plan for seniors – and avoid passing on an exorbitant bill to the future.

THE STUDY IN BRIEF

THE AUTHORS OF THIS ISSUE

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Rigorous external review of every major policy study, undertaken by academics and outside experts, helps ensure the quality, integrity and objectivity of the Institute's research.

With annual spending of about \$4.5 billion dollars in 2010, Canada's largest drug plan – the Ontario Drug Program (ODB) – will become harder to afford as the babyboomers age and workforce growth slows. A business-as-usual approach to funding the plan, which provides publicly funded drug benefits to every Ontario resident aged 65 and older, presents a bleak prospect and amounts to wilfully passing on an exorbitant bill to future generations.

Looking at a past sustainability challenge to a key Canadian social-insurance program, the reforms to the Canada Pension Plan (CPP) in the late 1990s may offer some lessons for ODB reform. In particular, an early increase in contributions to partially prefund future liabilities would limit growth in contribution rates later on.

A plan to partially prefund the ODB would be the equivalent of asking citizens to sacrifice consumption on other goods and services today to help cover the cost of drugs they will need later, without imposing problematically higher taxes on tomorrow's workers. Higher contributions in the near term could go into an ODB fund, with its investment returns helping to support drug spending in the decades to come.

A complementary reform would restructure the ODB's expenditures to provide part of its payments to individuals, rather than as direct reimbursements to suppliers. These payments, which could be used largely or entirely to purchase drug-related insurance from competing providers, would inject more individual autonomy, choice, and sensitivity to the costs and benefits of alternative treatments, into drug purchases in Ontario.

Ontario, like all jurisdictions, faces tough challenges at the intersection of fiscal and health policy. Partial prefunding and benefit-payment reform of the ODB would put a key health program on a stronger and more sustainable footing.

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Publicly funded healthcare is a point of pride to Canadians, a pillar of the welfare state to many actual and potential users of health services – and a concern to those who wonder how we will cover the growing needs and desires of an aging population from a constrained tax base.

Provincial budgets regularly highlight the fact that healthcare spending is outpacing other programs and revenues. A prominent concern in this troubling commentary is the increasing cost of drug programs, which tend to outpace other healthcare spending. These tendencies are long-standing, as Figure 1 indicates for Ontario. Hence concerns that drug programs will be in the vanguard of healthcare spending that forces taxes ever higher or crowds out other government programs, including some, such as education and infrastructure, that have important benefits to health as well.

The raw arithmetic behind these concerns is daunting. Yet dramatic reactions – freezes on prices or wholesale benefit cuts, for example – are no more appropriate than despair. It is unremarkable that the share of healthcare in Canadians' spending would rise over time: once a country is rich enough that other necessities of life are largely covered, healthcare is a natural priority. The key challenge is to ensure that the benefits of extra resources devoted to healthcare are attractive relative to the costs – which on the benefits side means getting good health payoffs, and on the costs side means extracting the resources in ways that are economically tolerable now and in the future.

Both the benefits and the costs present challenges – with a particular problem on the costs side being the fact that public spending on drugs is, whether as a matter of policy or a result of health status, strongly geared to age. The task of paying for pharmaceuticals for a relatively large population of aging babyboomers therefore appears likely to fall on a relatively small generation of younger workers, who may find the cost increasingly onerous. Figure 2 shows the results of projecting the current pattern of age-specific provincial spending under the Ontario Drug Benefit (ODB)¹ as a share of provincial income into the future, as demography raises the utilization of the program and slows the growth of the workforce that underpins provincial output and incomes (Box 1). Even if these drugs produce huge increases in future seniors' quality of life, levying the cost at the expense of other things future younger workers will want for themselves and their families raises the prospect of damage to the economy and, potentially, conflicts between generations.

One way to alleviate this pressure is partial prefunding – setting aside additional resources in the near term, while most babyboomers are still economically active, to draw on in the future, when they are retired. Since the share of drug spending in the economy appears to be on a relentlessly rising track, it might be wise to forgo some near-term consumption of other goods and services so that, as people age, they can spend what they expect to on drugs without having to drastically cut back spending on other things. Using the ODB as a case study, this *Commentary* describes how a social-insurance-inspired pharmacare program, loosely modeled on the example of the Canada Pension Plan (CPP),

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1 The bulk of ODB spending is geared to age as a matter of policy. The next section presents the breakdown of drug expenditures by age of beneficiary. Other details of these projections, which also underlie the simulations later in the paper, appear in Appendix A.

Box 1: Projecting ODB Spending

Projections of spending in healthcare inevitably rely heavily on assumptions, which in turn inevitably rely heavily on history. This projection, and the variations we use later in the paper, overlay changes in demographics on an assumption of underlying spending increases about which experts will differ.

Our baseline rate in this projection is 6 percent nominal, which might be thought of as involving 2 percent general inflation – the rate the Bank of Canada targets for the economy overall – plus some combination of changes in costs specific to drugs covered by the ODB and changes in the volumes of drugs consumed that sums to 4 percent. Some may feel that this 6 percent baseline overstates likely increases in spending, since many of the drugs covered by the ODB are becoming less expensive over time, in part because of expiry of patents. Other may feel that it understates likely increases because price declines will be offset by volume increases for many of the same drugs, and/or because new drugs, especially those tailored for ever-more specific conditions or predispositions, will drive per-recipient spending up faster than in the past. Given these uncertainties, the inevitable tendency is to project trends similar to those we have seen recently – hence the 6 percent figure.

The 6 percent baseline interacts with demographic change to raise ODB expenditures by 8.5 percent each year, on average, over the next 20 years – a slight deceleration from the 9.4 percent annual increases of the past 20 years. After 2030, the demographic factors taper off somewhat and the overall growth rate falls, converging to about 6.0 percent annually in 50 years' time.

Critics of healthcare cost projections that assume current age-specific expenditure patterns will continue point out that the older population is getting healthier and that life expectancy is increasing. If that is so, current age-related increases in spending will occur later in life in the future. The same consideration would apply to the ODB if its payments were triggered only by patient needs, but the fact that age is key to eligibility will mute the impact of increases in healthy life expectancy. Only if the age of eligibility rose along with healthy life expectancy would the delays in people's need for drugs translate straightforwardly into later age-specific utilization rates.

That said, several reviewers of this paper pointed out that unlike in the past, the many upward pressures on pharmacare costs are likely to abate in future years as large patents expire, more generic drugs come to market, the rate of introducing new “breakthrough” drugs falls, and recent policy reforms to save costs take effect. For the later calculations in this paper we introduce a low growth path for ODB expenditures of 5 percent – and a high growth scenario of 7 percent – to demonstrate the range of outcomes under diverging drug program costs. We note, however, that the government of Ontario has, at its disposal, significant tools to manage cost growth including management of the formulary and, to a lesser extent, generic drug pricing arrangements.

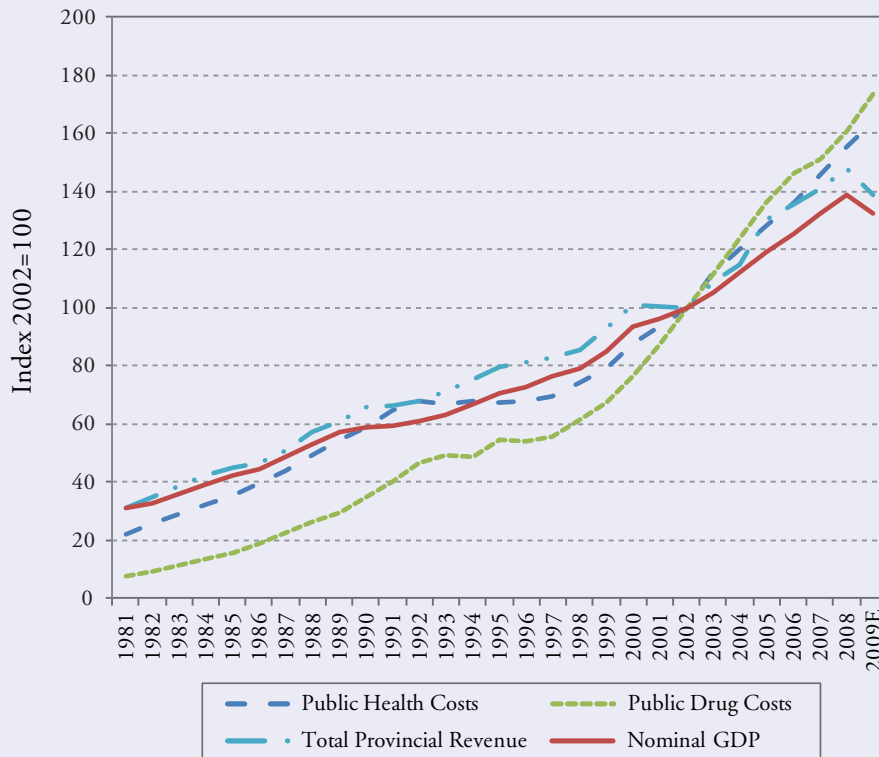
Projecting provincial income, the denominator for the ratio shown in Figure 1, also draws on history. We project the workforce on the basis of the population of prime working age, multiply the number of potential workers by an index of productivity that grows at historical rates of 1.5 percent annually per personage 18-64, and assume overall inflation of 2 percent.

Source: CIHI (2010) and authors' calculations.

might spread the costs of drugs for aging babyboomers more evenly over time. It discusses the mechanics of such a pharmacare program: how contributions might be collected, how the funds might be managed, and how the payouts from the fund would support drug treatments by

participants. While many devils lurk in the details, we argue further that complementary reforms to the payouts from the program, as they affect consumer choices of drug benefit delivery, could improve the health bang per beneficiary buck.

Figure 1: Growth in Ontario’s Public Drug Costs, Total Health Costs, Government Revenues and Nominal GDP, 1981 – 2009E.



Source: CIHI (2010) and authors’ calculations.

Background: How the ODB Works and What it Costs

Ontarians age 65 and over qualify for coverage of prescription drugs under the ODB. Residents can also qualify for ODB coverage if they reside in long-term or special care homes, if they receive support from Ontario Works or Ontario Disability, if they receive professional home services or qualify for the Trillium Drug Program.² In 2008, with a total cost of roughly \$4.1 billion, the ODB accounted for about one-tenth of all healthcare spending by the provincial government (CIHI 2010).³

The ODB manages a list of covered drugs – a formulary – and considers exceptional requests case-by-case.⁴ There are co-payments and deductibles in the program: single income seniors aged 65+ with annual income of \$16,018 or more and couples with income of \$24,175 currently pay an annual deductible of \$100 and pay up to \$6.11 towards a dispensing fee; people with income below these levels pay \$2.00 for each prescription filled.

Sixty-nine percent of ODB beneficiaries in 2007 were seniors.⁵ While private insurance covers almost as large a share (36 percent) of the population as the ODB (44 percent), it serves

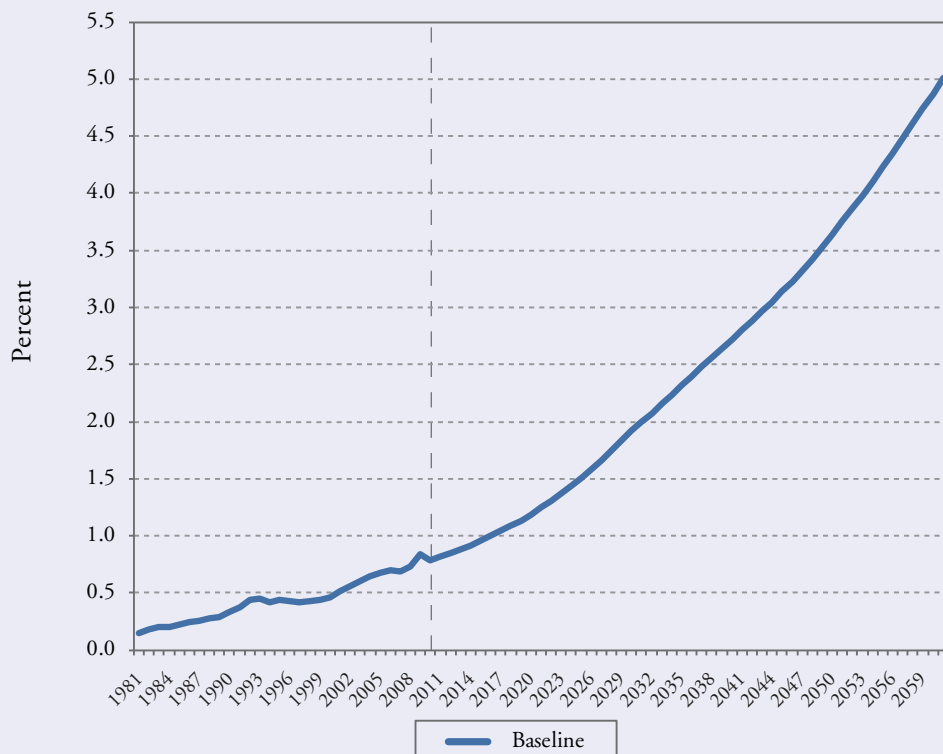
2 The Trillium Drug Program is a program for Ontario residents, not based on age, who face relatively onerous prescription drug costs relative to net household income.

3 Figures for 2007 show the ODB covering 44 percent of all spending on drugs in Ontario that year, with private insurers and patients paying out-of-pocket covering the rest (Ontario Ministry of Health and Long-Term Care 2009).

4 In 2007/08, the exceptional access program cost about \$224 million, or about 6 percent of all ODB costs. This is up from 1.5 percent of ODB costs in 1998/99.

5 Trillium beneficiaries make up about 6 percent; the remaining 25 percent of beneficiaries qualify either through social assistance or are residents of special care homes (Ontario Ministry of Health and Long-Term Care 2009).

Figure 2: Past and Projected Ontario Drug Benefit Costs as a Percentage of GDP, 1981 – 2061.



Source: CIHI (2010) and authors' calculations.

people under age 65 almost exclusively. So ODB payments are much more strongly geared to age than health expenditures generally (Figure 3A). The number of people entitled to ODB by virtue of their age is about to expand sharply (Figure 3B). This movement of babyboomers into the age groups that use the program more heavily is a critical factor driving the steep upward slope in the spending line in Figure 2 in the coming decades. There is about one Ontarian aged 65 and older for every five Ontarians of traditional workforce age (18 to 64) at present; current fertility and trend migration rates (see Appendix A, Table 1 for the complete demographic assumptions) imply that in 2060,

there will be one senior for roughly every two potential workers.⁶

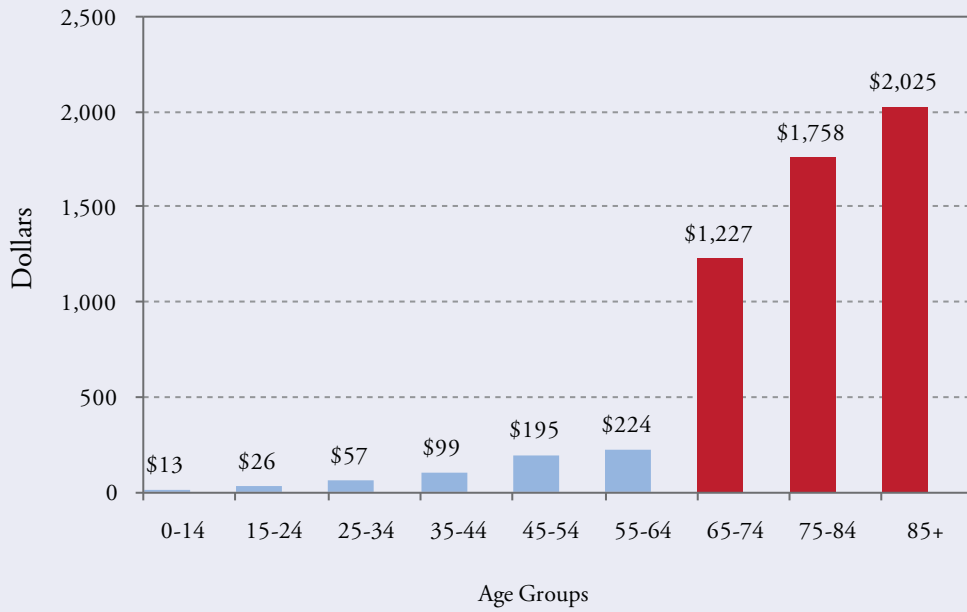
CPP-Style Prefunding: An Overview

The explicit targeting of much of the ODB to seniors raises a question: why not treat these benefits more like pensions, which are also strongly geared to age, but which we assume will be at least partly funded by the same people or age cohort who will one day draw them down, through saving during their younger lives?⁷ ODB funding is now pay-as-you-go: setting aside government deficits, each dollar spent is financed by taxes raised at the time. In the mid-1990s, the

6 The movement of the babyboomers out of traditional workforce age, which these projections assume happens at age 65, depresses the income that is the denominator of the ratio in Figure 2, a key factor in the steep upward slope of the line.

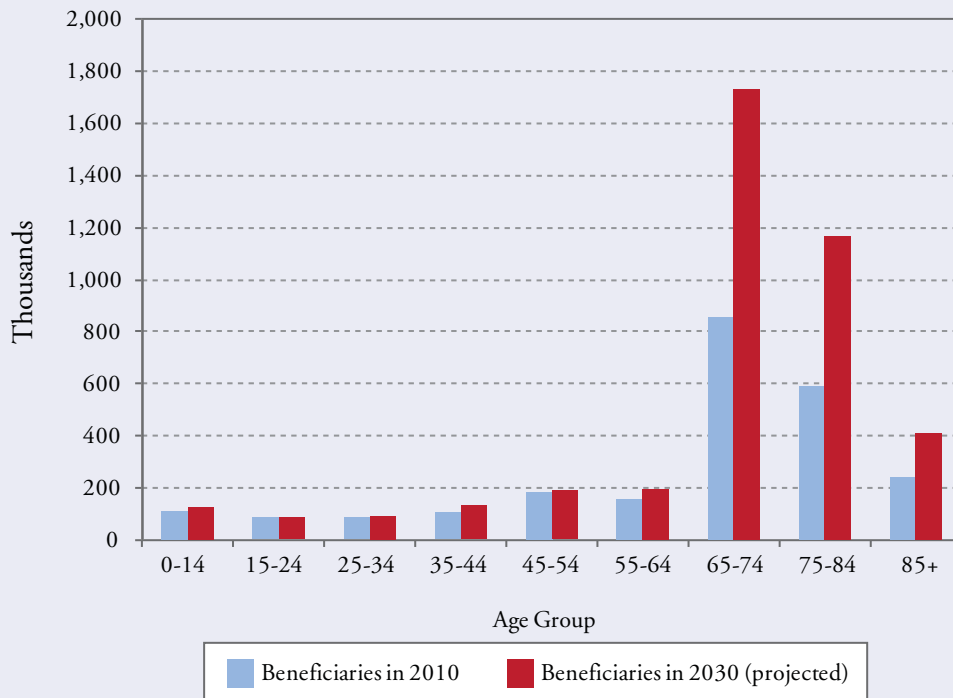
7 The principle of partial prefunding is evident in the US Medicare, which provides health insurance to individuals age 65 and older. Much of the spending in that program, such as that on hospital inpatient stays in Part A, is financed by payroll-tax contributions to a trust fund. In practice, however, the holdings of this trust fund are exclusively nonmarketable federal government securities – an internal IOU. So it is prefunding in form but not in fact: all Medicaid spending will need to be financed by taxes or borrowing when its time comes.

Figure 3A: Ontario Drug Benefit Expenditures by Age Group, 2007/08.



Source: Ontario Ministry of Health and Long-Term Care (2009) and authors' calculations.

Figure 3B: ODB Beneficiaries Set to Expand, 2010 vs. 2030 Projections



Source: Ontario Ministry of Health and Long-Term Care (2009) and authors' calculations.

Table 1: Contribution Hikes to Stabilize Old-Age ODB Costs over 50 Years

	Net 2011 Amount	Gross Contribution as Share of GDP	Net Contribution per Person 18-64	Gross Contribution per Person 18-64	Unfunded Liability
	\$ billion	%	\$	\$	\$ billion
Low Return on Fund Assets: 3%					
Low Spending Growth (5%)	7.4	1.8	855	1,190	362
Baseline Spending Growth (6%)	11.9	2.6	1,373	1,711	573
High Spending Growth (7%)	18.6	3.7	2,148	2,490	878
Moderate Return on Fund Assets: 5%					
Low Spending Growth (5%)	5.7	1.5	662	997	189
Baseline Spending Growth (6%)	9.0	2.1	1,044	1,382	295
High Spending Growth (7%)	13.9	2.9	1,605	1,946	444
High Return on Fund Assets: 7%					
Low Spending Growth (5%)	4.4	1.3	505	893	105
Baseline Spending Growth (6%)	6.7	1.7	779	1,117	160
High Spending Growth (7%)	10.2	2.3	1,172	1,513	237

Source: Authors' calculations.

CPP and its Quebec counterpart, the Quebec Pension Plan, moved from pay-as-you-go funding – which also threatened to make future workers pay much larger contributions for their benefits than their predecessors had done – to a partially prefunded status that moved contribution rates higher in the short run to build a fund intended to forestall further increases.⁸

Adapting this approach for the ODB was first proposed by Robson (2002) and we provided modeling results for an updated paper on the subject by Stabile and Greenblatt (2010). To elaborate how such an approach might work, we focus on the old-age coverage of the ODB, and

assume that the Ministry of Long-Term Care continues other elements of the program under the same provisions that exist today.⁹ Our assumption for this exercise is that Ontario continues to target much of its drug coverage on the basis of age; as we discuss later, prefunding in this way would not preclude moving toward a more need-based system, but the existing age-related structure makes the projections more straightforward. We also note that partial prefunding creates an opportunity to restructure payments out of the plan – a topic we explore later in this paper.

8 The Quebec Pension Plan (QPP) was not fully pay-as-you-go: it had a longer benefit phase-in period than the CPP in order to build an investment fund. Disappointing performance on many of those investments and particularly adverse demographics, however, meant that the QPP also faced decades of continually escalating contribution rates. Economic and demographic pressures are now forcing the QPP to raise its “steady-state” rate.

9 As we discuss below, other reforms to drug coverage may be desirable: our partial prefunding would not preclude them. See Appendix A for the assumptions used in ODB costs projections with and without a focus on seniors.

The Numbers

We begin with the aggregate numbers. How large an increase in funding in the near term would stop the claim of the age-related part of the ODB on Ontarians' current incomes from rising indefinitely, as in Figure 1, and instead stabilize it after the initial jump? The answer depends on the rates of spending growth in the program and the rates of return earned on investments of revenue not needed for current spending and invested in a new ODB Fund.

We show the results for three potential rates of underlying spending growth (independent of demographic change) and three potential rates of return on investment (Table 1). Although people commonly think of projections such as these as describing processes over which policymakers have little control, ODB spending is in a meaningful sense a policy choice: the government picks what treatments and drugs to cover and set reimbursement rates, so we choose rates of increase that are more conservative than past trends and appear to be in a range of financially and politically acceptable outcomes. We find:

- Under the most favourable of our assumptions – those under which the immediate hike in ODB funding that makes further hikes unnecessary for 50 years is smallest – the immediate hike is \$4.4 billion, or roughly \$500 per person aged 18-64.
- Under the least favourable assumptions, the immediate hike is \$18.6 billion, or about \$2,150 per working-age person.
- Under the assumptions we adopt for our baseline scenario – underlying spending growth of 6 percent and moderate, 5 percent returns on investment – the immediate hike is \$9.0 billion, or \$1,040 per working-age person. In other words, Ontarians would need to pay an additional \$9.0

billion annually – above the pay-as-you-go rate – to partially prefund the old-age components of the ODB that currently cost \$3.1 billion. With high returns to investment and the same underlying spending growth, the increase would be \$6.7 billion or \$780 for each working-aged person.

These are big numbers: the immediate hike in our baseline scenario is 2.1 percent of provincial income. Yet the counterpart of more money into the program in the near term is less money into it in the longer term. If we think of the provincial government's implicit promise to provide the ODB in its current form, but not raise taxes to finance it, as a commitment Queen's Park should show on its balance sheet, it amounts to an unfunded liability of some \$295 billion.¹⁰ The provincial government has implicitly committed to maintain benefits under this program as the population ages, and thereby has implicitly committed taxpayers to pay for them. The bill will arrive: the question is whether to pay some of it sooner, or leave it all for later.

In a nutshell, our proposal would see revenues earmarked for the ODB, with funds raised by an incremental boost deposited into an ODB Fund. Following the boost in contributions, net additional revenues would flow into the Fund and investment returns would further boost its size. Later on, the net flow of revenues into the Fund would reverse, preventing the tax increases that would otherwise occur (as illustrated for the moderate investment income, baseline spending scenario in Figure 4).

The Benefits of Prefunding in Principle

Just as the proposal to prefund the CPP was controversial back in the mid-1990s, many would argue for leaving the entire bill for higher future

¹⁰ Demographic change creates implicit assets and liabilities for governments. In situations where demography will lower the cost of a program – children's benefits declining as the number of children falls, for example – a government could carry additional debt and still meet the total costs of the program plus the debt at unchanged tax rates: the program creates an implicit asset. Where demography will increase the cost of a program – as is the case with healthcare – a government would need additional assets to meet those costs without raising taxes: the program creates an implicit liability. Discounting the change in income over 50 years, roughly the life expectancy of the average-aged Canadian, allows us to quantify the implicit assets and liabilities created by these political promises. Robson (2010) undertakes such an exercise for the federal, provincial and territorial governments for four categories of demographically sensitive spending.

Figure 4: Prefunding the Old-Age ODB Program, Net Additional Revenues and Expenses as a Percentage of GDP, Moderate Investment Returns Baseline Spending, 2010-2061.



Source: Ontario Ministry of Health and Long-Term Care (2009) and authors' calculations.

ODB costs until the future arrives. In a critique of Stabile and Greenblatt (2010), Grignon (2010) called the benefits of tax smoothing over time and mitigating intergenerational transfers opaque, and argued that drugs are no better a candidate for prefunding than any other element of healthcare.

We disagree. Absent an improbably large pick-up in productivity growth, demography and underlying ODB spending increases – even at rates lower than experienced so far – will push tax rates up. As with other government obligations that are poorly measured and/or understood, anticipation of this higher spending does not appear to have prompted offsetting behaviour – higher public- or private-sector saving, for

example – and it is hard to see what cuts in other public programs would offset these higher revenue demands as they arrive. Since the economically damaging effects of taxes – their discouraging effects on work and saving, for example, or the incentive they create to work in the underground economy – get exponentially worse as tax rates rise, stabilizing tax rates over time can lower those costs on average over the period. Knowingly passing a higher bill to the future than we ourselves are prepared to pay raises other concerns – among them, doubts about the willingness and ability of future Canadians to pay the higher amounts we passed them, with the possible consequence that the program suffers cuts.¹¹

11 Grignon (2010) argues that future generations will benefit from pharmaceutical R&D paid for by current contributors, but since the benefits of R&D in any jurisdiction are likely to flow predominantly to people outside it, it is hard to see why this would increase either the willingness or the ability of future Ontarians to pay higher taxes.

While it might make sense to prefund other parts of the publicly funded healthcare budget for these reasons, age-related pharmacare is a uniquely attractive candidate for such treatment precisely because it is geared to age. The case for prefunding doctor and hospital care is weaker – and, as we discuss later, the case for prefunding non-age-related pharmacare is also weaker – since an important share of public spending on these programs benefits persons who are still of working age. In the case of drugs, the logic of a person paying in while young to draw a benefit when old is more straightforward: most working-age people rely on private pharmacare coverage; at age 65, most Ontarians – as well as their counterparts in most provinces – shift to public coverage.

That logic also raises another attractive possibility: that social-insurance-style financing to partially prefund the ODB would create additional confidence in the sustainability of the program. To the extent that it does, and particularly to the extent that individual contributions give rise to individual benefit entitlements, the immediate hike will feel less like a tax increase – people who feel they are paying for a benefit are less likely to avoid or evade a levy. Reaping that benefit, however, depends on the assurance they have that the fund's assets will be used as intended, an issue in which the details of the reform will matter a good deal.¹²

The Devilish Details

While partial prefunding is attractive for many of the same reasons partial funding of the CPP was attractive, the collection of contributions to a prefunded pharmacare program and – even more important – the payment of benefits out of it will differ in important ways from the CPP model. We have shown some potential aggregate or

per-adult costs to prefund the seniors' portion of the ODB (Table 1), assuming the same future pattern of expenditures under the current old-age portion of the ODB. How, then, might those funds be raised, managed, and distributed?

Possible Mechanics of Partially Prefunded Pharmacare

A key premise for this exercise is that the ODB continues to be a mandatory program. The arguments for mandatory health-insurance coverage are well known, and have parallels in other social-security programs: pooling risk over an entire population mitigates adverse selection problems that can undermine voluntary schemes. Within that overall framework, however, many key questions remain.

The Contributions

Contributions to a partially prefunded ODB could continue to come from general government revenue – meaning that the \$9 billion, or whichever figure from Table 1 is most apt, would come from a general tax hike. Judging that a general tax hike would be less obviously linked to a benefit, and therefore both more economically damaging and less likely to inspire confidence in the ODB's promises than a dedicated levy, we favour an earmarked ODB contribution that at least partially links a participant's benefit package to her or his contributions – at a minimum, gearing entitlements to the contribution period.¹³

The partially prefunded ODB could levy such a contribution on different bases. One straightforward way of expressing the social-insurance ideal is to levy a specific charge per working-age person per year – a kind of poll tax – that would escalate with

12 Joanis, Boisclair and Montmarquette (2004, 42) raise some of the operational challenges in making healthcare prefunding work. We address some of them below.

13 Normal economic analysis highlights the importance of incremental payments yielding incremental benefits at the individual level. Perfect matching of personal costs and benefits makes contributions to a program akin to payments for a good or service, and in that sense free of the distortions created by taxes. We judge that the literature on “tax morale” justifies an assumption that people will more willingly pay a tax when they are confident that the revenue will be used efficiently to fund a known program, which would make an earmarked revenue source preferable even without perfect cost/benefit matching at the individual level.

wage growth over time. Imposing such a levy on all employed people would create a severe clawback of employment earnings at whatever bottom threshold for employment income was chosen. A second alternative that would avoid any labour-market distortions – though induce no less fierce political opposition – would be to impose it on all people of working age. As noted above, this option would impose a charge of about \$1,000 per head in our baseline spending, 5 percent returns scenario.

For the sake of pursuing social-insurance precedents, including the CPP, more closely, we also examine payroll-related charges levied on all individuals in the workforce. The ODB contributions in these scenarios would be a share of wage and salary income above a low-income threshold. Contributions would be charged on all income above the threshold, and potentially capped at a maximum income level.

Although it is not vital to the calculation of the contribution rates, we should note that we model these two employment-income-based contributions as levies on individuals. Legally, this differs from the CPP model, in which half the contributions are formally charged to employers as a payroll tax, and the other half to employees.¹⁴ Empirical work confirms the intuition of economists that the formal incidence of these levies does not change the fact that employees pay them in the form of lower after-tax earnings (Gunderson and Hyatt 2008), so – although political saleability might cause the government to formally charge part of the levy to employers – we show the entire contribution as employee-paid.

Having explored two options that resemble a familiar social-insurance model, we also illustrate a third that is quite different: an ODB contribution levied on a consumption basis. This option has the superficially appealing feature that it would

raise money not only from younger people, but also from the older Ontarians who are already eligible through the age-related portion of the ODB. This apparent virtue is, however, also a key defect from a social-insurance perspective. It is hard to reconcile in principle with a model in which people prepare when young for something they will need when old; and problematic in terms of designing the link between benefit entitlements and contribution periods. The main motivation for including it as an option is that taxes on consumption generally inspire less damaging behavioural responses than other taxes, and are favoured by economists for their less distorting qualities.

A Per-Person ODB Levy: The individual levy option, though doubtless very tough to sell politically, is straightforward to model. We assume that each working-age person would pay it, and that it would escalate with wage growth. The new levy to prefund the program would start at \$1,040 per person aged 18 to 64 in our baseline scenario for spending growth with high investment returns, and at \$1,370 per person in the same spending-growth scenario with low investment returns (Table 1).¹⁵ Gross contributions, which include the ongoing level of ODB funding for the current pay-as-you-go plan as well as the new levy, would be \$1,380 per working-age person in our baseline spending growth with high investment returns scenario and \$1,710 per person with low investment returns.

ODB Contributions on Income from Employment, Capped at the YMPE: For convenience and familiarity, we model another payroll tax option – ODB contributions levied on income between a low-income threshold and a

¹⁴ In the case of the CPP, the formal split of the levy has some implications for funding, since employer-side contributions in respect of earnings that are less than the YBE do not get refunded, becoming a kind of surcharge to the plan that provides no benefit entitlement to the person in whose respect it was paid. This invisible payroll tax on low-income or short-term workers does not seem to us an attractive precedent for a formal charge to employers.

¹⁵ These projections, like the ones that follow, are static in that they take no account of any adverse impacts of higher tax rates on economic growth.

maximum – on the existing CPP contribution base. This means contributions would be a share of income from employment between the CPP's Year's Basic Exemption (YBE), which is set at \$3,500 and does not change over time, and the CPP's Yearly Maximum Pensionable Earnings (YMPE), which is currently \$48,300 and rises annually with changes in average earnings.

To raise the additional revenue required to prefund the old-age components of the ODB, the immediate hike – which, to repeat, is intended to be sufficient to preclude further increases for 50 years – would be 4.5 percent of the employment-earnings base up to the cap in our baseline scenario for underlying spending with moderate investment earnings (Table 2). In the low-spending scenario, the immediate hike would be 2.9 percent of that base; in the high-spending scenario it would be 7.0 percent. The gross cost – which, as above, would fund the pay-as-you-go part of the ODB as well, and therefore be offsettable by lower taxes elsewhere – would be 6.0 percent of earnings in our baseline scenario with moderate investment earnings.

ODB Contributions on Income from Employment, Capped at 1.5 times the YMPE:

In the case of the CPP, the cap on contributions at the YMPE is logically connected to the limit of benefit coverage at the same level. As we discuss below, payments from a prefunded ODB need not – indeed, likely would not – have such a feature. So the range of income for the ODB levy could be larger – say, capped at 1.5 times the YMPE, which would put it initially at \$72,450.

With that higher cap, the additional revenue required to prefund the old-age components of the ODB would require an immediate hike of 3.7 percent in our baseline scenario for underlying spending with moderate investment earnings (Table 2). In the low-spending scenario, the immediate hike would be 2.3 percent of that base; in the high-cost scenario it would be 5.7 percent. The gross cost to cover prefunding plus ongoing pay-as-you-go costs would be 4.9 percent of earnings in our baseline scenario.

ODB Contributions on Income from Employment, Uncapped: What about levying the partial prefunding premium on all employment income above the YBE? In that case, the hike required to stabilize the contribution rate without a cap would be 2.9 percent in the baseline scenario, 1.8 percent in the low-spending scenario, and 4.4 in the high-spending scenario (Table 2). The gross cost in our baseline scenario with moderate investment earnings would be 3.9 percent.

ODB Contributions on a Consumption

Tax Base: If the payroll tax option, with associated concerns about tradeoffs between caps, rates and tax distortions, is unattractive, other bases exist. Limiting tax-related distortions and gearing contributions very straightforwardly to ability to pay are considerations that point to consumption as an attractive base.

Consumption taxes come in two broad types: levies on income net of (registered) saving, or levies on sales with credits for taxes paid at earlier stages. Ontario's HST is a variation on the second of these. While far from perfect as a consumption tax, with zero rates on certain categories of expenditure, arbitrary rates on others that have exempt status, and special treatment of certain buyers and point-of-sale rebates, the HST has the merit of being familiar and straightforward to model. (It also features income-tax-related credits that could serve as a model for any transfer payments seen as helpful in cushioning the impact of a new ODB levy on low-income groups.)

Levied as a share of the Ontario HST base, the required hike in ODB revenues to stabilize its contribution rate for 50 years would be 4.8 percentage points in the baseline scenario, 3.0 percentage points in the low-spending scenario, and 7.6 percent – a hypothetical doubling of the current provincial HST rate – in the high-spending scenario (see Table 2 – we also discuss the distributional impact of this levy across family types in Appendix B). As noted already, the gross cost of the potential new ODB levy would include the pay-as-you-go elements – in this case, we

Table 2: Additional (and Steady-State) Contribution Rates on Different Tax Bases for Prefunding, 2011

	CPP Payroll Base, With Cap of \$48,300	CPP Payroll Base, With Preferred Cap of \$72,450	CPP Payroll Base, Without Cap	Consumption Base
	<i>Percent</i>			
Moderate Rate of Return, Low-Spending Scenario (\$5.7B)	2.9	2.3	1.8	3.0
Moderate Rate of Return, Baseline-Spending Scenario (\$9.0B)	4.5	3.7	2.9	4.8
Moderate Rate of Return, High-Spending Scenario (\$13.9B)	7.0	5.7	4.4	7.6

Source: Authors' calculations using SPSPD/M Version 18.

presume that the removal of those pay-as-you-go elements from the overall provincial budget would allow an offsetting cut in the HST so that the overall increase would reflect only the pre-funding.

Preferred Contribution Option: Choosing among these options is a matter of balancing quite different considerations. The individual levy has the virtue of being most like an insurance premium. If the ODB benefit to which the levy entitles the contributor is linked to contribution period, for example – and abstracting from evasion or other ways of gaming the system – striking a good balance between the levy and the entitlement could minimize individual unwillingness to pay it, and thus minimize any related disincentives to work or declare income. Its complete disconnection from ability to pay, however (see Appendix B), would count heavily against it.

The HST-like levy is, as taxes go, relatively undistorting – it may encourage the underground economy for some transactions, but the disincentives it creates to work and saving are smaller than those of most other taxes. Unless the levy were on annual consumption, however, it would be completely disconnected from benefit entitlement – which would mean that any

distortions it did create would be unmitigated – and incompatible with the social-insurance inspiration of the reform.

In our view, the social-insurance model makes the payroll-related levies most attractive, in relative terms, and also limits the extent to which redistribution should be an explicit goal of the financing system. One key trade-off, then, is between the distortions created by a high contribution rate and those created by a wide income-range over which the contribution rate applies. For the sake of concreteness, we would suggest focusing on the middle payroll-tax option – which, to repeat, would put it at 3.7 percentage points in our preferred scenario. If this option proved politically saleable, it would create more redistributive distortions within age cohorts than the lower-cap or per-person alternatives, for the sake of an overall reform that would limit redistributions among them.

The ODB Fund

The additional revenues collected by the levies just discussed would buy income-earning assets in an ODB Fund, and the proceeds from those investments would flow to ODB beneficiaries to pay for drugs. Two related questions, both familiar

from the CPP debate, arise about this Fund: how to govern the investments themselves; and how to improve the likelihood that the assets and the income they yield will support the ODB instead of being diverted to some other purpose.

In the CPP's case, joint federal-provincial responsibility for the plan proved advantageous: the Investment Board that oversees the contributions and investment earnings not needed to pay benefits is appointed jointly by, and accountable separately to, both levels of government. An important corollary of this arrangement is that the CPP's income, expenditure and balance sheet are not consolidated with those of the federal government.¹⁶ This structure helps insulate the CPP's funds from governments that might want to divert them to political goals, and creates transparency and accountability that likely increase Canadians' confidence that they will support CPP benefits as promised.

No parallel option exists for Ontario, since no subprovincial entities with independent constitutional status akin to that of the provinces within Canada exist. The province's best route to duplicating some of those features might be through a trust. Ontario already has large trusts whose revenues, expenses, assets and liabilities are not part of the consolidated financial statements of the provincial government. The Workplace Safety and Insurance Board (WSIB), the Ontario Teachers' Pension Plan, and the Pension Benefit Guarantee Fund (PBGF) are prominent examples.

Trusts are generally excludable from the books of the province because the government is supposed to have neither access to the funds in them, nor responsibility to cover any shortfalls. The ODB Fund would publish its own financial reports. The substantive corollary of this financial reporting would be protection for the Fund: if

fiscal pressure were to force future Ontario governments to cut public spending, for example, it would create a bulwark against those cuts affecting drug benefits to the retired.

A trust structure is, by itself, no guarantee against political direction of the operation of a fund, or justification for its exclusion from the province's financial statements. The provincial auditor has, for example, recently questioned the non-consolidation of the WSIB and the PBGF (AGO 2009).¹⁷ A clear mandate to invest in the sole interest of plan members, appropriate financial reporting, and a board of directors appointed through a process outside the direct control of provincial ministers and officials could strengthen the independence of the ODB Fund.

It is possible to imagine a condominium structure for an ODB Fund that would give formal representation in its governance to subprovincial bodies – the Local Health Integration Networks (LHINs), for example. None of these measures provides iron-clad political protection or justification for nonconsolidated financial reporting, but the combination would be equal to the state of the art for any such non-federal-provincial structure in Canada.

The Payments

The discussion up to this point of the collection of additional revenues and their investment in a Fund to stabilize the current-contribution cost of the ODB has no necessary implications for the way benefits should be paid. The current approach to paying benefits – out of a collective pool whenever the joint actions of prescribers, pharmacists and patients create the demand – could continue as it would without prefunding – or, preferably, the reforms could include a new

¹⁶ Public Sector Accounting Handbook, Section PS 1300.07.

¹⁷ Controversially, the Auditor General of Ontario has made numerous objections to the financial independence of the WSIB and the PBGF, both of which stem from the growing unfunded liabilities of each trust. These liabilities, it becomes clearer over time, are the responsibility of the province. The ODB plan, however, should not face any serious net liability challenge in the short run as asset growth is planned to greatly outstrip liabilities. Nonetheless, the Auditor's assessment of whether, under public-sector accounting board definitions, the government of Ontario controls the WSIB and PBGF has led to the conclusion that both programs should not be assessed as trusts and should be included in the consolidated financial statements (AGO 2009).

type of payment to individuals linked to their contribution history and subject to more discretion on their part than the current system involves.

The Appeal and Drawbacks of Unchanged ODB Disbursements: The appeal is clear of leaving the “spend” elements of the age-related elements of the ODB entirely as they are now. Risks would continue to be very broadly pooled, a large amount of redistribution would continue through the program, benefits would depend on the interaction of patient needs with provincial formulary and reimbursement controls, and individuals with greater-than-average needs would face additional costs for drugs covered by the program. The stabilization of the current cost of financing the program thanks to the partial prefunding would presumably increase ODB contributors’ confidence that they will actually have access to the drugs the program promises.

This approach would be most clearly compatible with a consumption-tax-based levy: all money going into and coming out of a common pool, with no individual earmarking. For those who worry that financing reforms are a stalking horse for other changes to the current system, no change at the payment end would be reassuring.

From another perspective, though, leaving the payment end of the program unchanged has two key defects. Asking people to pay additional contributions to partially prefund the ODB is likelier to succeed if individuals see their own contributions as funding a benefit that is, at least in part, contingent on their participation. For example, benefits in the CPP, while pooling risk of longevity, disability and so on across all participants, are predominantly contingent on contributing to the plan.

Establishing a link between individual contributions and benefits would make the increased levy to pre-fund feel less like a tax to those who pay it, mitigating its economic damage. And turning part of the payout from a reformed ODB into a cash or voucher payment, akin to an annuity from a social-insurance pension plan,

would create an avenue whereby sensitivity to the balance of costs and benefits for drug treatments on the part of prescribers, pharmacists and patients improves the health bang per buck spent.

Linking ODB Entitlements to Contribution

History: Partial prefunding along the lines described here means that funding for the bulk of ODB spending will still come from current revenue when the scheme is mature. Suppose that the bulk of ODB spending also continues to occur as it does now. It would still be possible to create a link between contributions and entitlements by making a small portion of ODB spending an individual entitlement, geared to the time period over which the individual has contributed.

Conceptually, the eventual contribution of investment income from the ODB Fund provides the basis for such an arrangement, with the individual entitlements growing as a share of total ODB spending as the scheme matures. Making entitlements straightforwardly dependent on that income would make payouts from the fund too sensitive year-by-year to changes in yields, however, and would also produce an early and unsustainable increase in payouts before the Fund settles toward the target of five times expenditures.

What would make more sense would be a blended system, whereby beneficiaries received a base amount at the outset, followed by a transition to flexible entitlements geared to each person’s contributions as the system matures. If, for example, the mature system envisioned 40 years of contributions – say from age 25 to age 65 – as necessary for full benefits, the transition period could last for the initial 40 years.

The Nature of the Entitlement: The payments made to individuals – which would be small at first but grow over time – could be like a voucher, payable to insurance plans that would reimburse for drugs. Or they could be cash payments, available for beneficiaries to use in meeting deductibles and co-payments. A blended system is an option, as in Germany, where individual

entitlements for long-term care may be accessed as services with a budget limit – a quasi-voucher – or as a cash payment of slightly less value. The latter option comes with the risk that care needs exceed the cash limits, which is why the frail elderly generally prefer the service budget choice (Merlis 2004). Such payments would involve individuals more directly in their treatments, with potential efficiency rewards in the standard sense of cost-effectiveness and the economic sense of better matching to individual preferences. It would also heighten public scrutiny of the ODB Fund, helping ensure that the additional money raised through the higher near-term contributions did finance ODB expenditures.

The establishment and growth of such payouts would support competition-based reforms like the “Dekker-Simmons” reforms proposed in the Netherlands in the early 1990s.¹⁸ These reforms were meant to encourage private plans to compete for beneficiaries from two sources: 1) the government; and, 2) those who pay a premium to enrol. Plans would compete on quality of service. And they could also compete on price, with the important limitation that premiums would be the same for all individuals enrolled in a given plan, pooling the risk of needed drug treatments across all members of each plan. Government would set a minimum benefit package for each plan, and plans would be obliged to accept all applicants for coverage. The purpose would be to encourage competition and consumer flexibility, with specific pharmacies or physicians likely engaging with the plans to provide their services.

To underline the compatibility of this type of reform with other approaches to public healthcare financing, we note that the pay-as-you-go portion of ODB spending could also support a capitation system for drug treatments.¹⁹ Either insurers or providers could receive the individual’s entitlement

associated with prefunding along with a separate payment geared to various risk factors. In such systems, insurers or doctors have a budget for each elderly individual in their care, and would have the incentive to stay within the budget for each individual. The additional advantage of this system is that pharmaceutical risks would be pooled more broadly among a random group of retired patients. Further-reaching reforms to publicly funded healthcare would see more people and treatments covered by capitation systems rather than fee-for-service; our proposals for the age-related portion of the ODB would complement such reforms.

Other Issues and Implications for Other Provinces

Mobility

The potential that someone would pay into a prefunded ODB and move to another jurisdiction raises issue familiar from the CPP and other social-security arrangements. One simple possibility is that contributors to the new ODB would receive whatever payment their contributions would justify. If 40 years of contributions entitled an individual to the maximum payment, that entitlement would be smaller reduced by 1/40th for every year under the maximum. Ontario would have no concern with how the jurisdiction the person moves to would treat the income.

A similarly straightforward approach could apply to people who come to Ontario with little or no history of ODB contributions. Individual entitlements would be geared to contributions; while those with no contributions would still be entitled to benefits from the pay-as-you-go portion, their total ODB coverage would be smaller than those who had contributed.

¹⁸ These proposed reforms were never fully implemented in Holland for a variety of political and competitiveness reasons. For a discussion see Helderman et al. (2005).

¹⁹ A capitation remuneration system pays physicians’ wages based on the number of patients in his or her care; not for each individual service provided as under a fee-for-service arrangement.

Transition and Sustainability

The simulations presented here assume that the move to the higher, sustainable, ODB contribution occurs in equal increments over a six-year period. Shorter transitions imply somewhat lower sustainable contribution rates; longer transitions, higher ones. Once the higher level of contributions intended to be sustainable over 50 years is reached, key factors in the stability of the system will be – as they are for pension plans like the CPP – changes in the contribution base, changes in investment returns and changes in the cost of benefits.

The CPP has provisions to trigger either increases in contribution rates or decreases in benefits (achieved through suspension of inflation indexing) in the event that one of its triennial valuations finds that it is not sustainable at its currently legislated 9.9 percent contribution rate. A reformed ODB could contain such provisions for its contributions or the annuity portion of its benefits should economic or other circumstances not turn out as expected.

A variation drawn from social security reforms in Sweden would be to make the age for new ODB eligibility the variable that moves to balance the system. If adverse changes to the contribution base or inflation of payouts implied a further hike in contributions, an increase in the eligibility age could be the change that prevents it. Indeed, since improvements in drug treatments are likely to contribute both to better health and longer working life on the one hand, and greater longevity and demand for drug treatments on the other, increasing the age of eligibility to keep the program in balance could make eminent sense.

Applicability to Other Provinces

Because almost all Ontarians over the age of 65 get publicly funded drugs under the ODB, that portion of the ODB is a particularly attractive candidate for prefunding. The same does not apply to all publicly funded drug plans in Canada. In 2003, British Columbia, for example, changed a plan that targeted support to seniors into an

income-based plan – called Fair Pharmacare –intended to support citizens that are most in need, regardless of age (Morgan and Coombes 2006). This shift was motivated in part by concerns about future aging-related cost increases, and was in the spirit of other proposals for wider pharmacare coverage for all who lack the resources to buy private insurance or self-insure (Blomqvist 2002; Blomqvist and Lu 2001). Alberta, by contrast, recently considered a seniors' drug benefit to accompany its income-tested drug benefit, but balked at the cost – a prefunded approach, though more expensive up-front, would be a more fiscally responsible way to establish such a program.

Partial prefunding for age-based pharmacare would not preclude moves in Ontario or elsewhere to wider public drug coverage with or without means tests. As we have described above, the payments from the age-related ODB would cover drug consumption of recipients late in life: other parts of the program could evolve in a variety of ways without undercutting either the rationale for partial prefunding or the mechanisms by which the ODB Fund payments would support overall healthcare for recipients. More broadly, it implies nothing about governments' ability to control treatments and costs through other means. Partial prefunding would help reduce intergenerational inequities and stabilize a portion of drug-related funding – and by doing so, might facilitate other reforms to drug and wider healthcare policy, just as greater stability of and confidence in the CPP cleared the air for other reforms of contractual and voluntary retirement incomes in Canada.

Conclusion

The reforms that partially prefunded the Canada and Quebec Pension Plans in the 1990s provide a useful example of changes to social insurance programs that stabilized their costs in the face of demographic stresses. Hikes in CPP contributions in early years created an investment fund that is now yielding income that will help shield future workers from the onerous tax burden they would

otherwise face when the babyboomers are drawing heavily on the system. Similar reforms are possible in healthcare, where the threat of much higher taxes on today's younger people – who may feel that they are paying more for a system that will not be there for them when they are old – is even greater than was the case with the CPP. The ODB, the largest element of which finances drugs for people age 65 and up, is a striking example of a program with aggregate numbers that make prefunding particularly attractive.

Whether partial prefunding of the ODB is practical depends on several considerations – among them, the nature of the contributions, the management of the fund, and the management of payouts. We have provided several illustrations in this *Commentary*, with particular attention to options financed by levies on earnings above a \$3,500 minimum and 1.5 times the CPP's YMPE, and a payout plan in which a growing share of ODB expenditures are distributed as payments to

individuals geared to their contribution history. We realize that important features of such a reform remain unclear – the potential uses of the individual payments being a key example – and that the political acceptability of such reforms depends not only on their substance but on their presentation.

Against these difficulties, we would argue that an unreformed system presents a bleak prospect. Recent evidence suggests that a business-as-usual approach to the ODB amounts to wilfully passing an exorbitant bill to the future – risking some combination of a taxpayer revolt and more stringent rationing of access to drugs. Reforms that spread foreseeable costs more evenly over time, accompanied by greater transparency and opportunities for better balances of costs and benefits with improved flexibility for consumer choice, would brighten this prospect. Canadians have achieved such social program reforms before, and should not doubt their ability to do so again.

Appendix A: Details and Assumptions of the Projections

Table A1: Demographic Assumptions

	2010 (actual)	2020	2030	2040	2050	2060
Assumptions						
Life Expectancy at Birth (years)						
Male	80.0	81.1	82.1	82.5	82.5	82.5
Female	83.3	84.4	85.4	86.4	87.5	87.5
Total Fertility Rate	1.57	1.57	1.57	1.57	1.57	1.57
Net International Migration (persons)	106,036	106,036	106,036	106,036	106,036	106,036
Net Interprovincial Migration (persons)	2,259	0	0	0	0	0
Results						
Total Population (000s)	13,220	14,755	16,102	17,135	17,874	18,388
Working-age Population (000s)	9,179	9,800	10,052	10,523	10,808	10,904
Old-Age Dependency (65+ / 15-64) (%)	19.95	26.23	35.67	39.58	41.86	44.95

Source: Source: Statistics Canada and authors' calculations.

Table A2: ODB Utilization Rates (share of pertinent population)

Age Groups	Share of Total Population Age-Group (used in Figure 2)	Share of Total Population Age-Group (used in Table 1 and 2 calculations)
0-14	5.1%	0.0%
15-24	4.8%	0.0%
25-34	4.9%	0.0%
35-44	5.6%	0.0%
45-54	8.8%	0.0%
55-64	10.1%	0.0%
65-74	88.4%	88.4%
75-84	96.1%	96.1%
85+	100.0%	100.0%

Source: Ontario Ministry of Health and Long-Term Care (2009) and authors' calculations.

Appendix B: Distributional Impacts of Potential ODB Prefunding Levies

The degree to which a new ODB levy conforms to or violates the principle of ability to pay, and in particular the widespread expectation that people with greater ability to pay should pay proportionately more in taxes, will be a preoccupation for critics of any proposal. In a social-insurance context, this preoccupation is problematic. Social-insurance premiums ought as a matter of design to be linked to benefits, which makes comparisons against any measure of wellbeing inappropriate, especially when – as is usually the case – the incidence of benefits by the same measure of wellbeing is not part of the calculation.

An additional caveat to such an exercise is the difficulty of obtaining a meaningful measure of wellbeing. Restricting the discussion to dollar measures, lifetime consumption would be a superior measure – but since it is not available,

annual income tends to be used, a denominator that will tend to make taxes that might be proportional or even progressive with regard to lifetime consumption look regressive.

Those caveats noted, the inevitable preoccupation with incidence measured against annual income inspires Table B1, which shows each of our proposed levies against family income.

Not surprisingly, because the HST option makes contributions to the ODB proportional to consumption, its correlation with income across families is relatively weak.

The levies on CPP-like bases register as more regressive when the cap is lower, and least so when there is no cap. Even when there is a cap, higher-income families pay more – since the levy is on individuals, multi-earner families pay above the cap. For those who favour levies that are most proportional to annual income, the payroll tax without a cap would appear the most attractive choice.

Table B1: Average Household Contributions under Alternative Financing Options, 2011

	Census Family Employment Earnings				
	Families earning less than \$3,500	\$3,500 – \$28,620	\$28,621 – \$55,926	\$55,927 – \$95,610	>\$95,611
	Average Contributions per Census Family, \$				
	2.1 million	1.1 million	1.1 million	1.1 million	1.1 million
Moderate Investment Returns, Low Cost Scenario (\$5.7B)					
Option #1: Payroll tax of 2.9% of earnings, cap of \$48,300	\$0	\$325	\$1,067	\$1,545	\$2,143
Option #2: Payroll tax of 1.8% of earnings, no cap	\$0	\$205	\$688	\$1,253	\$2,933
Option #3: Provincial HST increase of 3.0% (from 8% to 11% total)	\$529	\$540	\$717	\$1,064	\$1,780
Moderate Investment Returns, Baseline Cost Scenario (\$9.0B)					
Option #1: Payroll tax of 4.5% of earnings, cap of \$48,300	\$0	\$513	\$1,684	\$2,439	\$3,383
Option #2: Payroll tax of 2.9% of earnings, no cap	\$0	\$323	\$1,086	\$1,979	\$4,632
Option #3: Provincial HST increase of 4.8% (from 8% to 12.8% total)	\$835	\$852	\$1,132	\$1,681	\$2,812
Moderate Investment Returns, High Cost Scenario (\$13.9B)					
Option #1: Payroll tax of 7.0% of earnings, cap of \$48,300	\$0	\$792	\$2,601	\$3,768	\$5,225
Option #2: Payroll tax of 4.4% of earnings, no cap	\$0	\$499	\$1,677	\$3,056	\$7,153
Option #3: Provincial HST increase of 7.6% (from 8% to 16.4% total)	\$1,288	\$1,315	\$1,748	\$2,595	\$4,345
Preferred Option					
Moderate Investment Returns, Low Cost Scenario (\$5.7B)					
Payroll tax of 2.3% of earnings, cap of \$72,450	\$0	\$265	\$890	\$15,59	\$2,366
Moderate Investment Returns, Baseline Cost Scenario (\$9.0B)					
Payroll tax of 3.7% of earnings, cap of \$72,450	\$0	\$418	\$1,406	\$2,461	\$3,736
Moderate Investment Returns, High Cost Scenario (\$13.9B)					
Payroll tax of 5.7% of earnings, cap of \$72,450	\$0	\$646	\$2,170	\$3,800	\$5,768

Source: Authors' calculations using SPSPD/M Version 18.

Note: The SPSPD/M simulations did not give a tax credit or a deduction from taxable income. In that respect, contributions were treated like the Ontario Health Premiums.

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