



Februray 7, 2013

HEALTH POLICY

Managing the Cost of Healthcare for an Aging Population: The Fiscal Challenge Quebec Has Yet to Face

by

Colin Busby and William B.P. Robson

“The health budget will continue to grow at a rate of 4.8% a year. ... [P]rogram spending growth targets have been set at 1.8% for 2013-2014...”
2013/14 Quebec Budget Speech (pp. 7 and 20)

The contrast between rapid growth in healthcare spending and a general emphasis on restraint in Quebec’s 2013 budget is symbolic of a huge, ongoing tension. For years, a debate has raged over the fiscal impact of demographic change – in particular, whether providing publicly funded healthcare to an aging population will financially stress governments. One camp has emphasized that aging itself adds no more than 1 percentage point to annual increases in health costs, and argued that it creates no urgency around reforms to treatment or financing (Barer et al. 1995; Evans et al. 2001). If taxes can rise and curbing provider compensation can restrain costs, the system is, in a familiar phrase, as sustainable as we want it to be.

The other camp has emphasized that 1 percentage point annually is large when it compounds over many years – and, moreover, that aging will slow the growth of the tax base, potentially preempting other government priorities, such as other major programs, manageable tax rates, and debt control (Robson 2001, 2007, 2010; Drummond and Burleton 2010; Dodge and Dion 2011; and Emery et al. 2012). Glaciers may move slowly, but they transform a landscape: this view tends to see the current system as unsustainable, in the sense that avoiding a painful collision between key fiscal priorities requires fundamental changes to healthcare financing and delivery.

This E-Brief is part of a series profiling the fiscal challenge of aging and publicly funded healthcare in each province. We gratefully acknowledge the support of Alexandre Laurin in calculating program costs, and thank Don Drummond, Herb Emery, Livio Di Matteo, Seamus Hogan, Al O’Brien, Paul Kershaw, Stuart Langdon, Mel McMillan, Kevin Milligan, John Richards, an anonymous reviewer, our colleagues at the C.D. Howe Institute, and the members of the C.D. Howe Institute’s Fiscal and Tax Competitiveness Council and Health Policy Council for comments on earlier drafts. We are responsible for any errors and the conclusions.



While the debate has raged, publicly funded healthcare in Quebec has risen from 7.2 percent of provincial GDP in 1991 to about 8.3 percent in 2012. At the same time, it has risen from 33 percent of the provincial government's program spending in 1991 to about 46 percent in 2012, and its share of provincial own-source revenue – that is, revenues from provincial taxes and other sources the province controls rather than funds transferred from Ottawa – has risen from 41 percent to about 55 percent.

Whatever the precise impact of aging and its interactions with changes in treatment, publicly funded healthcare's claim on Quebec's resources has increased. The above budget quotation highlights the upward pressure from healthcare spending in a period of overall restraint. How badly will demography stress Quebec's budget in the future?

Mapping Today's Spending onto Tomorrow's Population

We come at that question with a well-known, straightforward approach. We project Quebec's population using the following middle-of-the-road assumptions: a fertility rate stable at its 2010 level; longevity rising in line with Statistics Canada's "medium" improvement scenario; net out-migration to other provinces falling to zero over 10 years, and net international in-migration continuing at its 1997-to-2011 average.

We then multiply the potential workforce, which we define as Quebecers aged 18 to 64, by an index of output per potential worker – which grows at the rate recorded by the equivalent national measure from 1997 to 2011: 1.2 percent annually. This provides our model with projections of Quebec's real provincial GDP. Nominal provincial GDP is real GDP times the same 2 percent inflation rate we assume will prevail nationally.

Turning to the cost of demographically sensitive government programs, we project provincial spending on healthcare for 20 age groups of each sex across six types of spending. The per-person expenditures for each of these groups grow according to a measure of volume of services delivered and a cost index. The volume measure – an index of service intensity – represents spending on all services provided to a person by the publicly funded healthcare system, adjusted to remove the effects of inflation. Our base figures for these per-person numbers are from the Canadian Institute of Health Information (CIHI) figures for 2010, pro-rated to match recent actual totals.¹ Looking forward, we assume that service intensity per person rises at the same rate as real output per potential worker – 1.2 percent annually (see Box 1). We also assume that costs rise at the pace recorded by the government consumption price index nationwide from 1997 to 2011 – 2.4 percent annually.²

Because demography affects other provincial programs in Quebec, we use similar methods – indexes of service intensity in the case of education, and an index of transfers for family benefits – multiplied by relevant populations and price indexes to project spending on them also (Box 1 spells out our approaches for health and

1 For our projections, we use the actual CIHI age and sex spending by health category for 2010, and then adjust the 2011 and 2012 estimates to correspond with the actual and projected health spending results using public accounts and budget documents. This estimation method yields a similar increase in spending for 2011 than the CIHI estimates, and a larger increase in spending for 2012. Relative to the CIHI figure, total health spending in Quebec is \$13 million higher in 2012.

2 During this period, the Bank of Canada targeted 2 percent inflation, and achieved an annual average increase in the consumer price index of exactly 2 percent. The overall price index for government consumption rose 2.4 percent annually over the same period. We assume the same margin will prevail in the future.

Box 1: Projecting Other Demographically Sensitive Program Costs

We use similar projection methods – multiplying relevant populations by program-specific indexes of service or transfer intensity – for all the programs we examine.*

We assume that service intensity – the volume of services delivered per person in healthcare and education – rises at the same rate that output per working age person in the economy as a whole does. This assumption is not entirely arbitrary: absent good quantitative measures of quality of output, measures of activity in unpriced services such as health and education tend to be driven by inputs, and these are labour-intensive activities in which wages – which tend to rise with economy-wide productivity – are a key input. Historically, service intensity has grown at annual rates above the 1.2 percent we assume, and faster than productivity growth. We prefer to link them in our projections in order to ensure that trends upward or downward in the shares of health and education spending in GDP are not a function of different assumptions about service intensity on the one hand, and productivity growth on the other, but rather products of demographic change and the tendency for cost inflation in government consumption to outpace cost inflation elsewhere – an assumption that is explicit in our projections.

Further notes on the projections for programs other than health:

Education: Base-year provincial/local spending on elementary and secondary education is calculated using data from Statistics Canada's Summary of Public School Indicators for the Provinces and Territories, 2005/06 to 2009/10.). Base-year spending on postsecondary education comes from Statistics Canada (CANSIM, table 385-0001). Provincial populations aged 4 to 17 and 18 to 24 drive provincial spending on elementary and secondary students respectively. We multiply these populations by our indexes of service intensity. The population under 17 drives the federal Canada Education Saving Grant, while the population aged 18 to 24 and service intensity drive federal grants to postsecondary students. We multiply these by an unchanging index of transfer intensity.

Elderly benefits: Base-year federal spending is from the public accounts. Our index of transfer intensity for federal seniors' benefits is derived from the Office of the Chief Actuary's projections of spending on Old Age Security, the Guaranteed Income Supplement, and Allowances per person age 65 and up. Because many of those programs are geared to income, and the Chief Actuary's model assumes that incomes rise over time, this index tends to fall somewhat in real terms.

Family benefits: Spending on the federal Universal Child Care Benefit varies with the national population of children to age 5; spending on other child-related benefits varies with relevant populations up to age 17. We assume unchanging indexes of transfer intensity. Federal family benefits delivered through the tax system, while indexed to inflation, are income-tested, so real income growth erodes their real value. Base-year provincial benefits are from Statistics Canada's Social Policy Simulation Database and Model (SPSD/M), Release 20.0 (responsibility for use and interpretation rests with the authors). SPSD/M simulations suggest that in the scenarios modeled here, these offsetting characteristics leave Ottawa's average nominal spending per child unchanged – an assumption that has also been made for (generally much smaller) provincial programs.

* For more background information on the methodology used and the terminology see Robson (2002) and Drummond and Burleton (2010).

these other programs in more detail). We can thus see whether these programs offset, or exacerbate, any fiscal challenge presented by healthcare.

Quebec's Outlook: Trends and Implicit Liability

Our projections show the claim of Quebec's public healthcare spending on provincial GDP rising from 8.3 percent this year to 13.9 percent in 2035 and to 17.2 percent in 2062. Taking account of other demographically sensitive programs does not change the prospect of fiscal stress. The government can expect to spend a declining share of GDP on family benefits, thanks to a shrinking population of children relative to the working-age population. In education, however, the cost of labour-intensive services more than offsets the demographic effect, pushing the share of GDP devoted to these programs up. As a result, the share of all these programs in GDP rises from 15.3 to 25.4 percent over the period (see Figure 1). For Quebec to meet these demands from its own revenue sources would require an increase of more than half in the tax bite taken from Quebecers' incomes.

Another perspective on the fiscal pressure of rising healthcare costs is intergenerational: the liability implicit in a "pay-as-you-go" approach when a program's costs are not stable. As the budget quotation highlights, the Quebec government is not signalling reductions to healthcare. And recent tax proposals – which would likely have failed to bring in much revenue (Laurin 2012) – were inspired more by distributional issues than a general need for revenue: the Quebec government is not signalling increases in aggregate tax revenues. These political understandings – the same package of benefits as enjoyed now, at roughly the same tax burden – create an implicit liability for the Quebec government, because meeting the healthcare commitment will require it to tax a higher share of provincial income in the future.³

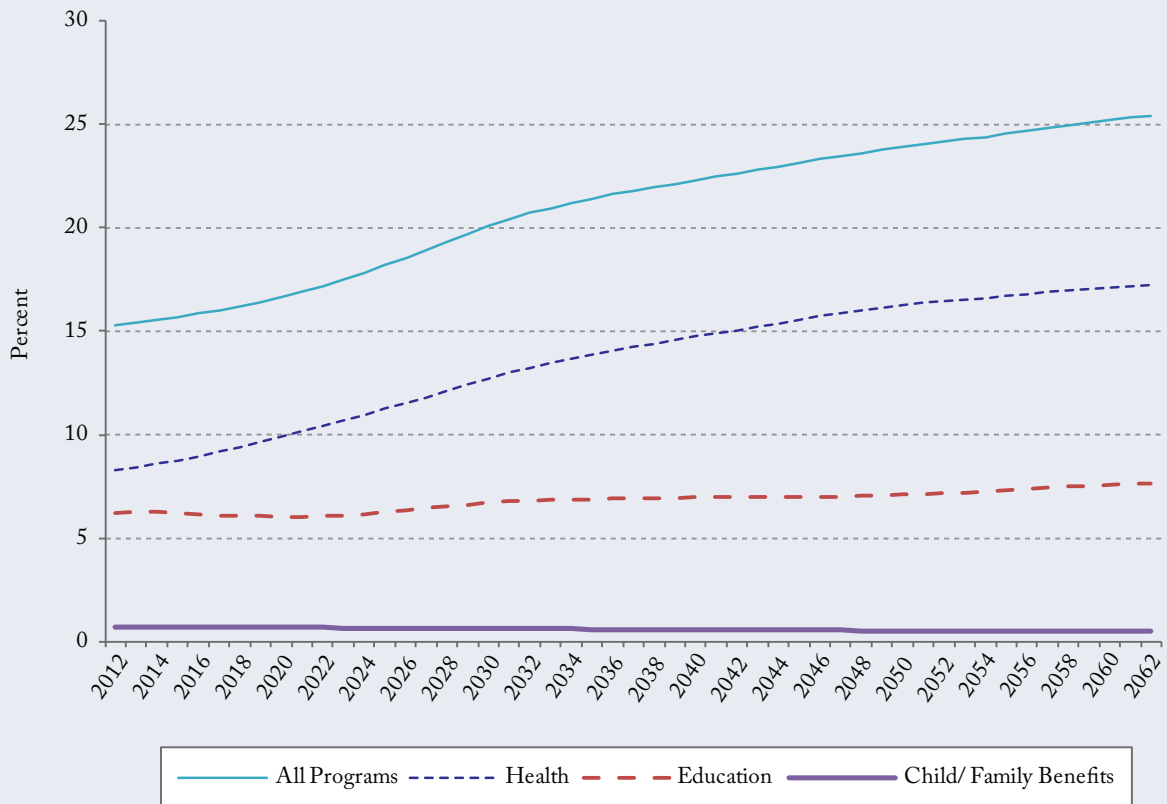
One way to quantify this liability is to calculate the present value of changes in these programs' claims on GDP over the next half-century, which is roughly the average life expectancy of the average Quebecer. Discounting the cumulative increase in the province's average tax take from its current level at the yield on government long-term bonds, the province's implicit liability amounts to \$829 billion, nearly all of which (\$768 billion) relates to healthcare (see Table 1).^{4,5} In other words, to cover the additional cost of these programs the province would need about \$830 billion in assets yielding what long-term provincial government bonds do. This figure is more than double provincial GDP, and about \$103,000 per Quebecer.

3 The parallel with explicit liabilities is straightforward: if Quebec decided to cover the higher program costs by borrowing rather than raising its aggregate tax rate, the implicit liability would, over time, become higher public debt.

4 As we explain in Box 1, the labour-intensiveness of healthcare (and education) services provides some justification for linking service intensity to economy-wide productivity. The assumption that both grow together is clearly critical to our baseline results. Should Quebec manage to constrain growth in service intensity to 0.7 percent annually, instead of 1.2 percent as assumed, demographically sensitive spending would be 19.7 percent of GDP in 2062 and the unfunded liability would be \$446 billion. Historically, service intensity has tended to outpace productivity: if Quebec let it to grow 0.5 percentage points faster than productivity, at 1.7 percent annually, demographically sensitive spending would be 31.9 percent of GDP in 2062 and the unfunded liability would be \$1.2 trillion.

5 This exceeds the \$675 billion calculated in Robson (2010) mainly because of the lower discount rate used in this study. We use the long-term Ontario bond for these calculations because a deep, liquid market makes yields readily available, and for the sake of using the same discount rate for all Canada's governments. Using federal government bond yields, which are lower than Ontario's, would produce larger liability figures; using Quebec-specific yields would produce smaller ones.

Figure 1: Quebec's Demographically Sensitive Programs as a Share of GDP, 2012-2062



Source: Authors' calculations as described in text.

Policy Pressures and Responses

We see a funding gap this big, and the prospect of such a massive increase in provincial taxation, as strengthening the case for continuing value-for-money improvements to Quebec's healthcare system.

Historically, higher net federal transfers have appeared an attractive escape from fiscal pressure. Scanning our results in Table 1 suggests, however, that these pressures will be felt everywhere. Indeed, the fact that some provinces have higher ratios of implicit liability to GDP makes higher net transfers through the federal government unlikely. And simple compression of compensation to providers of government services will not counteract pressures this big. What other moves make sense?

The Case for Prefunding

One way to mitigate the impact of rising costs in some healthcare services would be to follow the lead of the late-1990s reforms to the Quebec Pension Plan (QPP) that converted it from a pay-as-you-go to plan to one in which a portion of premiums collected today prefund the benefits of those same participants in the future.

Table 1: Quebec's Demographically Sensitive Programs, Implicit Liabilities in a National Context

	Health	Education	Elderly Benefits	Child/ Family Benefits	All Programs	All Programs Relative to GDP (2012)	All Programs Per Person
	<i>\$ Billions</i>					<i>Percent</i>	<i>\$</i>
BC	415.2	6.4	0.4	(0.1)	421.9	192	91,474
AB	615.4	65.0	13.6	(0.8)	693.2	227	180,332
SK	82.0	15.3	0.3	-	97.6	131	91,897
MB	100.8	15.4	0.1	(0.1)	116.3	197	92,493
ON	1,398.3	89.8	2.4	(6.3)	1,484.2	223	109,920
QC	767.7	79.0	-	(17.3)	829.4	242	103,344
NB	78.2	5.5	0.4	(0.1)	84.0	266	111,745
NS	99.1	2.4	0.2	-	101.7	263	107,713
PE	14.0	0.6	-	-	14.5	269	99,244
NL	75.3	4.5	0.9	(0.1)	80.6	240	158,905
YK	9.0	0.6	-	-	9.5	369	263,744
NT	12.5	1.4	-	-	13.9	278	321,187
NU	13.8	1.6	-	-	15.4	801	457,690
All Provinces and Territories	3,681.3	287.3	18.3	(24.6)	3,962.3	222	113,935
Federal		(13.5)	424.7	(25.0)	386.2	22	11,105
CANADA	3,681.3	273.8	443.0	(49.6)	4,348.5	244	125,040

Source: Authors' calculations as described in text.

Because Quebec has successfully amended the QPP since then to deal with adverse economic and demographic developments, this approach might be additionally attractive for having coped with stress over time.

Some drug and long-term care services are like social security programs that many people will need, and can prepare for by building a provident fund during their younger years. As the Clair Commission recommended more than a decade ago with respect to long-term care (Quebec 2000), Quebec could selectively prefund some of its health programs, getting the babyboomers to share more of the costs that will otherwise fall on their inadequately numerous children and grandchildren. Prefunding does not make sense for all the programs that threaten cost increases, but can spread the tax increases necessary for some health services that, like pensions, are geared to age.⁶

Reducing Healthcare Spending's Sensitivity to Aging

Unlike pensions, which are promises to pay dollars, healthcare promises services, the cost and quality of which change over time. The camp that says aging by itself is not a major problem has tended to emphasize that some factors that make per capita healthcare spending so strongly associated with age, such as high rates of hospitalization or use of certain drugs, may change over time (Evans et al. 2001), which could mitigate the demographic effects in our model.

Quebec's age-profile of provincial healthcare spending may have benefited from such changes. Comparing CIHI's first data in 1998 to the 2010 profile (see Figure 2) reveals that the relative per capita amounts on the oldest age group (ages 80 and up) fell over those 13 years. Yet not too much comfort is available from this inspection: the per capita amounts on the more numerous younger elderly (people in their 70s) rose. So a 1998 projection of the impact of demography on Quebec's healthcare spending by 2010 would have slightly overstated the impact of aging.

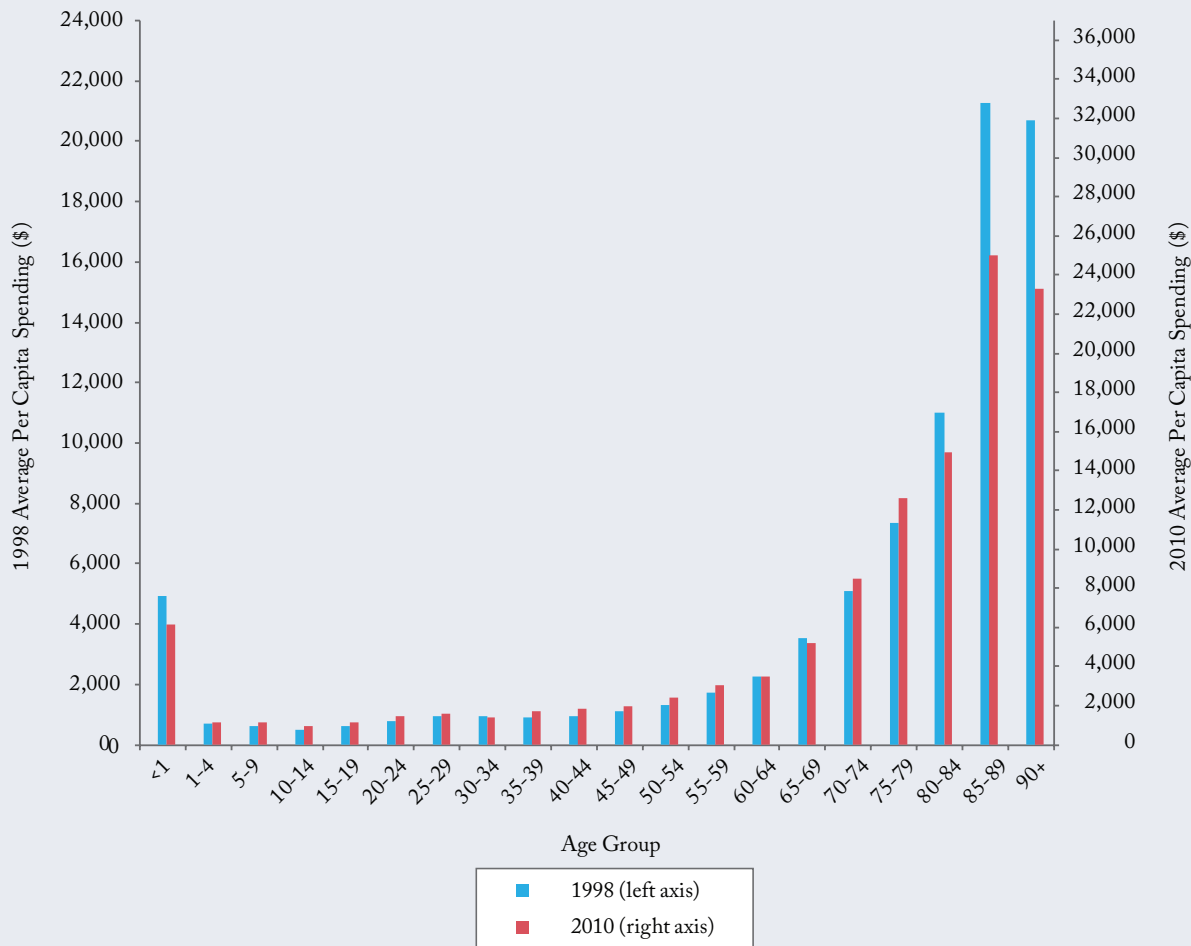
Benchmarking Best Practices

Where might Quebec look in its search for yet more bang per healthcare buck? Among the areas that commentators have identified as promising are:

- better integration of follow-up care for patients once they are discharged from hospital;
- the establishment and expanded use of electronic health records that patients and their agents can access in different locations;
- continued drive towards team-based primary care that provides non-acute services through a coordinated group of practitioners such as doctors, nurses, dieticians, and physiotherapists; and
- scope-of-practice changes that would allow such specialties as pharmacists and nurse practitioners to provide services now provided by more expensive alternatives.

6 Robson (2002) and Stabile and Greenblatt (2010) elaborate this idea for other provinces and programs. Busby and Robson (2011) explore the mechanics of pre-funding in more detail.

Figure 2: Average Per Capita Health Spending By Age Group, Quebec, 1998 and 2010



Note: The vertical axes show nominal dollars for transparency's sake: these are the actual dollar figures from CIHI. We could have used constant dollars from either – or, indeed, any – year, or index numbers, because the focus of this figure is the *relative* distribution of health spending by age in the two years. To facilitate comparison of the age-profiles of spending: we have set the vertical scales so roughly half the bars in each year are taller (or shorter) than their counterparts in the other.

Source: CIHI (2012) and authors' calculations.

Turning to different delivery vehicles, Canada's provinces exhibit large differences in spending in major categories that may yield insights.

Quebec spends less than any other province on total healthcare and in particular on physicians and “public health,” which includes expenditures for items such as food and drug safety, health inspections, health promotion activities, and community mental health programs (see Table 2). By contrast, Quebec spends more – and has been increasing spending faster – on “other institutions,” which includes nursing and residential care homes.

These differences in spending are large. Having nursing and residential home costs in line with the national average, for example, would lower Quebec's spending by some \$750 million annually. The fact that Quebec's

healthcare spending overall is relatively low may reflect overall benefits of heavier focus on care in institutions other than hospitals – more formal investigation of the costs and benefits of different modes of delivery in Quebec compared to other provinces will be helpful in giving Quebecers more bang for their healthcare bucks in the future.

Closing Comments

Notwithstanding Quebec's relatively low total healthcare spending, the province's demographic situation means it must continue to focus hard on efficiencies in delivery and innovations in financing. That health spending is so resistant to current efforts at fiscal restraint is a signal that containing healthcare's impact on government budgets will be a long-term challenge for Quebec. The current trajectory suggests large increases in the province's aggregate tax take over time, and the province's implicit liability related to demographically sensitive programs is much larger than the provincial debt that has received so much attention. In the face of this challenge, selective prefunding and benchmarking against other provinces that get better bang for their bucks in some areas can help Quebec deliver high-quality healthcare in a sustainable fiscal framework for years to come.

Table 2: Real Per Person Health Spending, By Use of Funds, Quebec vs. Provinces, 2010

	Hospitals	Other Institutions	Physicians	Other Professionals	Drugs	Capital	Public Health	Admin	Other Health Spending	Total
<i>Per Capita (in 2012 \$)</i>										
BC	1,466	245	796	34	213	245	310	33	310	3,652
AB	2,109	403	905	57	323	311	285	60	202	4,655
SK	1,657	638	793	24	301	146	379	27	274	4,239
MB	1,799	595	783	24	250	167	271	45	329	4,264
ON	1,380	389	901	28	344	236	292	34	161	3,765
QC	<u>1,392</u>	<u>531</u>	<u>653</u>	<u>24</u>	<u>316</u>	<u>220</u>	<u>122</u>	<u>59</u>	<u>150</u>	<u>3,468</u>
NB	1,987	515	763	9	266	118	154	53	266	4,130
NS	1,789	624	767	13	344	157	143	98	170	4,105
PE	1,787	514	733	20	260	271	230	141	193	4,148
NL	2,352	763	810	16	276	296	171	63	202	4,948
CAN	1,545	436	815	30	310	233	248	47	198	3,861
<i>Real Per Capita Growth Rate 1991 to 2010 (percent)</i>										
BC	1.1	-1.5	1.2	-3.2	2.5	4.4	6.2	-2.4	4.8	1.5
AB	1.2	2.7	2.1	-3.6	4.4	6.3	5.1	3.2	2.2	2.2
SK	1.4	2.0	3.0	-4.2	3.7	-1.4	5.9	-1.1	5.1	2.1
MB	1.5	2.3	3.6	-1.0	6.3	1.6	5.3	0.9	4.7	2.5
ON	0.7	2.6	1.4	-1.3	4.7	6.9	6.9	0.8	1.0	1.9
QC	<u>0.2</u>	<u>5.5</u>	<u>2.0</u>	<u>-3.5</u>	<u>5.2</u>	<u>5.3</u>	<u>3.0</u>	<u>-0.5</u>	<u>4.5</u>	<u>1.9</u>
NB	2.0	3.3	3.1	-3.3	3.4	-0.7	4.6	1.8	6.5	2.6
NS	1.5	6.8	4.1	-4.6	4.6	3.0	3.5	7.1	7.3	3.0
PE	1.5	2.1	3.5	-1.5	5.6	7.2	3.7	7.6	5.0	2.7
NL	3.0	5.2	4.4	-2.4	5.4	10.2	5.8	4.1	3.7	4.0
CAN	0.8	2.9	1.9	-2.5	4.5	5.2	5.8	0.4	3.2	2.0
Blue (with underline): among lowest third; Red (with double underline): among highest third										
Ranking Among Provinces (10 being the lowest; 1 being the highest)										
Per Capita Spending	9	5	10	5	4	6	10	5	10	10
Growth Rate	10	2	8	7	4	5	10	8	7	9

Notes: 2010 data are converted into 2012 dollars using the government current expenditure implicit price index. And because growth calculations are sensitive to the base year chosen, we took an average of the three years around 1991 and 2010 to smooth out the swings in the economy. "Other professionals" includes care primarily provided by dental and vision care professionals; "Other institutions" includes nursing homes and residential care facilities; "Public Health" includes expenditures for items such as food and drug safety, health inspections, health promotion activities, community mental health programs, public health nursing, the prevention of spreading disease and health promotion.

Source: CIHI (2012).

References

- Barer, M.L., R.G. Evans and C. Hertzman. 1995. "Avalanche or glacier? Health care and the demographic rhetoric." *Canadian Journal on Aging* 14(2): 193-224.
- Brown, Robert, and Uma Suresh. 2004. "Further Analysis of Future Canadian Healthcare Costs." *North American Actuarial Journal* 8(2). April.
- Busby, Colin, and William B.P. Robson. 2011. *A Social Insurance Model for Pharmacare: Ontario's Options for a More Sustainable, Cost Effective Drug Program*. Commentary 326. Toronto: C.D. Howe Institute. April.
- Canadian Institute for Health Information (CIHI). 2012. *National Health Expenditure Trends, 1975-2012*. Ottawa.
- Drummond, Don, and Derek Burleton. 2010. "Charting a Path for Sustainable Healthcare In Ontario: 10 Proposals to Restrain Costs Without Compromising Quality of Care." TD Economics Special Report. Toronto: TD Bank Financial Group. May.
- Emery, J.C. Herbert, David Still and Tom Cottrell. 2012. "Can We Avoid a Sick Fiscal Future? The Non-Sustainability of Health-Care Spending with an Aging Population." SPP Research Papers, Vol. 5, No. 31. October.
- Evans, Robert G., Kimberlyn M. McGrail, Steven G. Morgan, Morris L. Barer, and Clyde Hertzman. 2001. "Apocalypse No: Population Aging and the Future of Health Care Systems." *Canadian Journal on Aging*, 20 (suppl. 1).
- Laurin, Alexandre. 2012. "Tuer la poule aux oeufs d'or : Les impacts des hausses d'impôt proposées au Québec." E-Brief. Toronto: C.D. Howe Institute. October.
- Office of the Chief Actuary. 2012. *Actuarial Report (11th) on the Old Age Security Program, as at 31 December 2009*. Ottawa: Office of the Superintendent of Financial Institutions.
- Quebec, Commission d'étude sur les services de santé et les services sociaux. 2000. *Emerging Solutions: Report and Recommendations*. Quebec City.
- Quebec. 2012. "Budget Speech, Budget 2013-2014." Quebec City: Quebec.
- Robson, William. 2002. *Saving for Health: Pre-Funding Health Care for an Older Canada*. Commentary 170. Toronto: C.D. Howe Institute. October.
- _____. 2007. "Time and Money: The Challenge of Demographic Change and Government Finances in Canada." Backgrounder 109. Toronto: C.D. Howe Institute. December.
- _____. 2010. "The Glacier Grinds Closer: How Demographics Will Change Canada's Fiscal Landscape." E-Brief. Toronto: C.D. Howe Institute. January.
- Stabile, Mark, and Jacqueline Greenblatt. 2010. "Providing Pharmacare for an Aging Population: Is Prefunding the Solution?" IRPP Study 2. Montreal. February.
- Statistics Canada. 2011. *Summary of Public School Indicators for the Provinces and Territories, 2005/06 to 2009/10*. Culture, Tourism and the Centre for Education Statistics: Research Papers. Cat no. 81-595-MWE2011095. Ottawa: Statistics Canada. November.

This E-Brief is a publication of the C.D. Howe Institute.

Colin Busby is a Senior Policy Analyst at the C.D. Howe Institute.

William B.P. Robson is President and Chief Executive Officer of the C.D. Howe Institute.

This E-Brief is available at www.cdhowe.org.

Permission is granted to reprint this text if the content is not altered and proper attribution is provided.