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HEALTH POLICY

Healthcare for an Aging Population: Will Demographics Push Newfoundland and Labrador into a Fiscal Deep Freeze?

by

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"No services are more important than the health and community services we deliver through our four Regional Health Authorities. This year, we will invest more than 40% of total [operating] expenditures – nearly $3 billion – in healthcare…." *Newfoundland and Labrador 2012 Budget Speech* (p. 15).

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 Canadian governments.

One camp, developing a theme that the pressures resemble a glacier more than an avalanche, 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 Canadians 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 compromising other major government 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

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as unsustainable, in the sense that avoiding a painful collision between key fiscal priorities requires fundamental changes to the financing and delivery of healthcare.

At first glance, this debate might seem unimportant to Newfoundland and Labrador, a province where publicly funded healthcare's claim on resources has not shown the same upward trend evident elsewhere in Canada. As a share of provincial gross domestic product (GDP), provincially funded healthcare has fallen from 9.0 percent in 1991 to about 7.8 percent in 2012. While it has risen from 30 percent of the provincial government's program spending in 1991 to about 36 percent in 2012, its share of provincial own-source revenue – that is, revenues Newfoundland and Labrador raises itself rather than funds transferred from Ottawa – has fallen from 51 percent in 1991 to about 38 percent.

The above quotation from the 2012 Budget, however, highlights the growing share of government spending devoted to health services, and raises the question of whether – looking past the current natural resource boom that has boosted Newfoundland and Labrador's economy and government revenues – the province may find its future health costs a threat to achieving other priorities.

Mapping Today's Spending onto Tomorrow's Population

We come at that question with a well-known, straightforward approach. We project Newfoundland and Labrador'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 the province's population 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 Newfoundland and Labrador's real 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. 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 per person by the publicly funded healthcare system, adjusted to remove the effects of inflation. Our base figures for these per-person numbers are 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 in the province 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]

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1   For our projections, we use the actual CIHI age and sex spending by health category for 2010, and prorate these amounts to correspond with the actual and projected health spending results using the most recent public accounts and budget documents for 2011 and 2012. This estimation method yields smaller spending increases in 2011, but higher increases in 2012, than the CIHI estimates. We estimate total health spending in Newfoundland and Labrador, in 2012, to be $57 million smaller than the CIHI figure.

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.

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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 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 main 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.

Our index of transfer intensity for 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 aged 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. To the extent that provincial benefits for seniors differ from federal ones, this projection will not provide an accurate picture of the provincial outlook – but seniors' benefits are small enough in Newfoundland and Labrador that this is not a serious problem. Our index of transfer intensity for child and family benefits does not change over time: we assume that the real value of transfers per person in the relevant age group is constant.

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 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; base-year provincial spending is from Statistics Canada's Social Policy Simulation Database and Model (SPSD/M), Release 20.0 (responsibility for use and interpretation rests with the authors). As just noted, provincial payments assume the same time-path of service or transfer intensity for their elderly populations.

Child/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. SPSD/M simulations suggest that in the scenarios modeled here, these offsetting characteristics leave 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).

Because demography affects other programs, we use similar methods – indexes of service intensity in the case of education, and indexes of transfers for elderly and child/family benefits – multiplied by relevant populations and price indexes to project spending on them also (Box 1 spells out our approaches for health and these other programs in more detail). We can thus see whether these programs offset, or exacerbate, any fiscal challenge presented by healthcare.

## Newfoundland and Labrador's Outlook: Trends and Implicit Liability

Our projections show the claim of Newfoundland and Labrador's public healthcare spending on provincial GDP rising from 7.8 percent this year to 15.9 percent in 2035 and to 18.9 percent in 2062. Taking account of other demographically sensitive programs does not change the prospect of fiscal stress. In Newfoundland and Labrador, spending on senior and family programs is small, and the implicit liability from the former and the implicit asset from the other are not material. Rising service intensity in education more than offsets a relative decline in the population of students. The net result is a virtual doubling of the share of all these programs in provincial GDP – from 12.4 to 24.5 percent – over the period (see Figure 1). For Newfoundland and Labrador to meet these demands from its own revenue sources would require an increase of around 60 percent in the provincial tax bite from Newfoundlanders' 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. Most public discussion of healthcare and other programs, including Newfoundland and Labrador's 2012 Budget Speech, emphasizes maintaining them – perhaps enhancing, but certainly not cutting. And the Budget Speech emphasized that the Newfoundland and Labrador government is planning, if anything, tax relief, not higher tax rates. These political understandings create an implicit liability on the government's balance sheet, because meeting the commitment will require the government 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 Newfoundlander. 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 $81 billion, nearly all of which ($75 billion) relates to healthcare (see Table 1).[4, 5] In other words, to cover the additional cost of these

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3   The parallel with explicit liabilities is straightforward: if Newfoundland and Labrador 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 results. Should Newfoundland and Labrador manage to constrain growth in service intensity to 0.5 percentage points less than growth in productivity – 0.7 percent annually, rather than the 1.2 percent we assume in our projections – demographically sensitive spending would be 18.9 percent of GDP in 2062 and the unfunded liability today would be $54 billion. Historically, service intensity has tended to outpace productivity: if it grew 0.5 percentage points faster – 1.7 percent annually – demographically sensitive spending would be 30.9 percent of GDP in 2062 and the unfunded liability would be $109 billion.

5   This exceeds the $61 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.

Figure 1: Newfoundland and Labrador's Demographically Sensitive Programs as a Share of GDP, 2012–2062
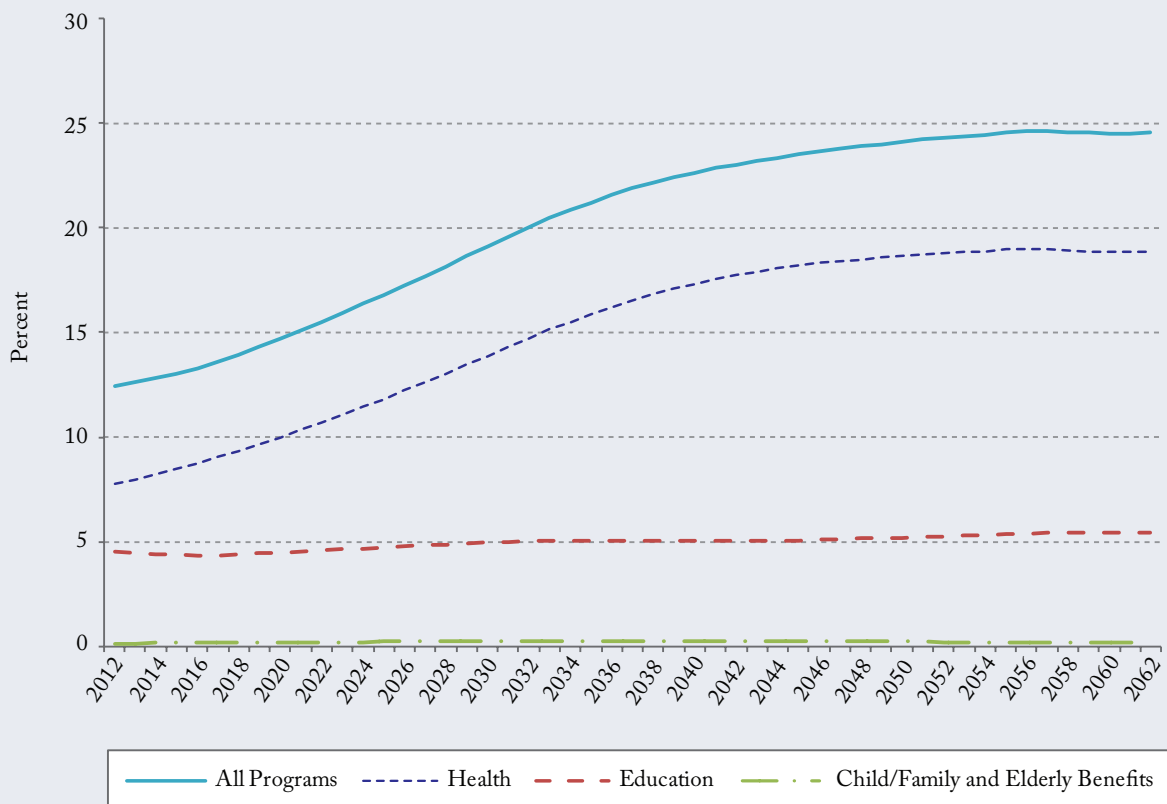
Source: Authors' calculations as described in text.

programs, the province would need more than $80 billion in assets yielding returns in line with those of Canadian provincial bonds. This is a huge amount: about double provincial GDP, or some $160,000 per person.

Policy Pressures and Responses

The debate over aging's impact on healthcare rages intensely partly because, implicitly and often explicitly, the two camps differ over the necessary size and scope of changes to healthcare funding and delivery. Our results for Newfoundland and Labrador suggest that, notwithstanding the relative ease with which the province has financed its healthcare system over the past few years, pressure for reform will intensify in the future.

A scan of our results for Newfoundland and Labrador and other provinces in Table 1 shows that – while pressure for change will be particularly intense in Newfoundland and Labrador, where the ratio of implicit liability to GDP is relatively high – similar pressures will exist across the country. That fact makes significantly larger net transfers to Newfoundland and Labrador through the federal government unlikely. So proactive moves by the province make sense to improve the chances of achieving other fiscal goals while preserving and enhancing the quality of Newfoundland and Labrador's healthcare.

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Table 1: Newfoundland and Labrador'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
	$ Billions					*Percent*	*$*
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.

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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 Canada and Quebec Pension Plans that converted them from pay-as-you-go to plans in which a portion of premiums collected today prefunds the benefits of those same participants in the future. Some drug programs, and potentially long-term care as well, are like social security programs that many people will need, and can prepare for by building a provident fund during their younger years.

Like other provinces, Newfoundland and Labrador could selectively convert pay-as-you-go programs so that the babyboomers, rather than their inadequately numerous children and grandchildren, pay some of the higher costs that loom (Robson 2002; Stabile and Greenblatt 2010). Prefunding does not make sense for all the programs that threaten cost increases, but can spread more fairly over time 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 are not fixed. 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.

Because CIHI has been collecting and publishing data on provincial healthcare spending by age since 1998, we have evidence that such changes may have occurred in Newfoundland and Labrador. A comparison of the age-profile of spending in 1998 and 2010 (see Figure 2) shows that provincial healthcare budgets became less strongly geared to age over the period. A 1998 projection of the impact of demography on Newfoundland and Labrador's healthcare spending by 2010 would have overestimated somewhat the impact of aging. That is the good news: the bad news is that – in the context of a relatively fast-growing provincial healthcare budget – the changes in the age-profile of spending in Newfoundland and Labrador might be more straightforwardly interpreted as relative increases in spending on other age groups than more efficient care for the elderly. We underline that our projections for the future assume that this less-age-sensitive profile of spending will persist in a more frugal future.[7]

How might Newfoundland and Labrador get more bang for its healthcare generally, while insulating its budget from potentially deleterious effects of population aging? Among the areas that commentators have identified as promising are:

- more coordinated team-based primary care that gives patients comprehensive non-acute services through an organized group of practitioners from different specialties;

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6   Busby and Robson (2010) explore some prefunding possibilities, and their mechanics, in more detail.

7   One objection to projecting healthcare costs on the basis of current age-specific service use is that the higher costs associated with older people reflect higher mortality among older people, which means that these projections overstate cost increases in a future where people are living longer before they incur those mortality-related costs. As Brown and Suresh (2004) demonstrate, however, projections that distinguish spending on people who survive from spending on people who die at various ages produce cost estimates that are only marginally lower than estimates that make no such distinction.

Figure 2: Average Per Person Health Spending By Age Group, Newfoundland and Labrador, 1998 and 2010
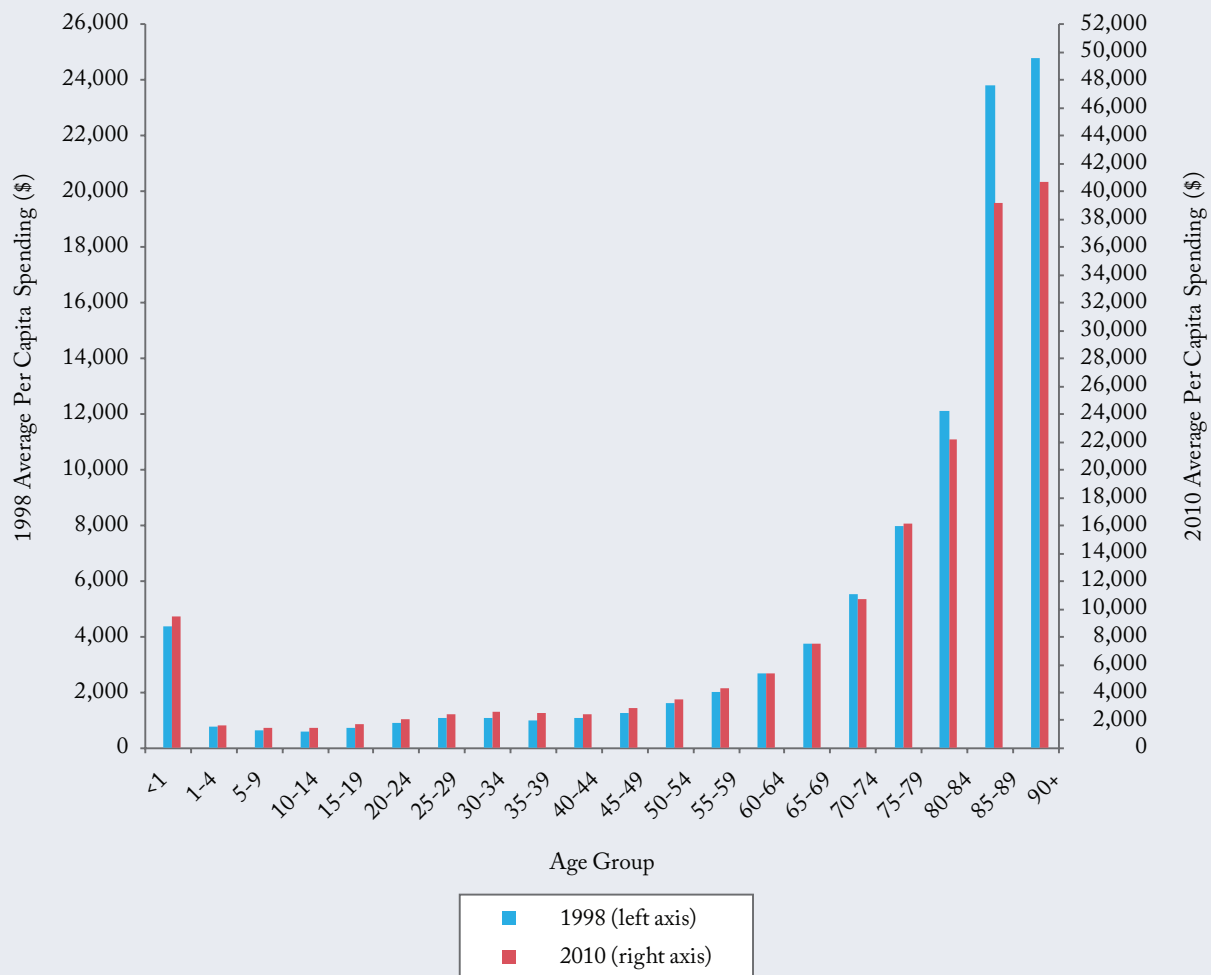
Note: The vertical axes show nominal dollars for transparency's sake: these are the actual dollar figures from CIHI. We could have used constant dollars from either – or, indeed, any – year, or index numbers, because the focus of this figure is the *relative* distribution of health spending by age in 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.

- better coordinated care for patients after they leave hospitals;
- better home and community support for seniors – a key focus of the 2012 Budget Speech; and,
- scope-of-practice changes to substitute less expensive services of comparable quality from different specialties – as, for example, when nurse practitioners perform some functions traditionally performed by physicians.

Turning to different delivery vehicles, Canada's provinces exhibit large differences in spending by category that may yield insights (see Table 2). Newfoundland and Labrador spends less than most provinces on "other professionals," which includes dental, vision, chiropractic and other therapist costs. But Newfoundland and Labrador spends more on hospitals and "other institutions," which includes expenditures for nursing homes and residential care facilities.

These differences are large. Focusing only on costs, if Newfoundland and Labrador brought its hospital costs in line with the national average, it would spend some $410 million less annually. The quality side of these differences is clearly critical to deciding among priorities – whether to reallocate spending within the healthcare budget, or between healthcare and other fiscal priorities – but we do not currently have good knowledge on which to base these decisions. More inter-provincial benchmarking should help Newfoundland and Labrador, and all provinces, do a better job over time.

Closing Comments

Because its population is set to age faster than most provinces, Newfoundland and Labrador should be concerned about the impact demographic change on its fiscal situation. The province has had a good run. Now, however, Newfoundland and Labrador faces an implicit liability related to demographically sensitive programs that is larger than provincial GDP, and raises the prospect of the province doubling the share of provincial income it raises in revenue. 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 Newfoundland and Labrador deliver high-quality healthcare in a sustainable fiscal framework for years to come.

Table 2: Real Per-Person Health Spending, By Use of Funds, Newfoundland and Labrador vs. Other Provinces, 2010									
	Hospitals	Other Institutions	Physicians	Other Professionals	Drugs	Capital	Public Health	Admin	Other Health Spending	Total
Per Capita (in 2012 $)										
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	1,392	531	653	24	316	220	122	59	150	3,468
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
Real Per Capita Growth Rate 1991 to 2010 (percent)										
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	0.2	5.5	2.0	-3.5	5.2	5.3	3.0	-0.5	4.5	1.9
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										
NL: Ranking Among Provinces (10 being the lowest; 1 being the highest)										
Per Capita Spending	5	3	7	9	2	8	9	2	8	7
Growth Rate	5	1	2	10	6	7	9	2	1	2

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 the two years prior to, and including, 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).

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