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HEALTH POLICY

Delivering Healthcare to an Aging Population: Nova Scotia's Fiscal Glacier

by

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"Other governments have tried to control health spending... the problem with their approach, however, was that it simply squeezed an already over-burdened system, resulting in reductions that have proven unsustainable over the longer term... we must be innovative and creative in tackling these issues – not just for today, but also for the future." (2014-2015 Budget Address, p. 2.)

In Nova Scotia, the healthcare costs associated with looming demographic change threaten to create serious fiscal stress. As a result, the province's ability to restrain the growth of its health budget requires lasting – not just short-term – reforms.

Whether or not providing publicly funded healthcare to an aging population poses a serious financial threat has been debated for years. One camp has emphasized that aging itself has but a glacial impact, adding no more than one percentage point to annual increases in health costs. Therefore, it argues there is no urgency for reforms to healthcare treatment or financing (Barer et al. 1995; Evans et al. 2001). If taxes are allowed to rise and provider compensation can be curbed, so goes the argument, the system is as sustainable as Canadians want it to be.

The other camp has emphasized that a one-percentage-point annual increase is substantial, especially when it compounds over many years. Moreover, aging will slow the growth of the tax base (Robson 2001, 2007, 2010; Drummond and Burleton 2010; Dodge and Dion 2011; and

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Emery et al. 2012). While this camp might concede that glaciers move slowly, it emphasizes their formidable impact when they arrive. So it tends to urge major reforms to healthcare delivery and financing to mitigate an otherwise painful looming collision between demographically sensitive programs and other fiscal priorities.

While the debate has raged, the cost of publicly funded healthcare in Nova Scotia has risen from 7.6 percent of provincial GDP in 1991 to about 10.2 percent in 2014. Over the same time, it has risen from 35 percent of provincial program spending to about 48 percent. Meanwhile, its share of Nova Scotia's own-source revenue – that is, revenues from provincial taxes and other sources Nova Scotia controls rather than funds transferred from Ottawa – has jumped from 54 percent to about 77 percent.

Whatever the precise impact of aging and its interactions with changes in treatment, publicly funded healthcare's claim on provincial resources has increased. The above quotation from Nova Scotia's 2014 Budget Address highlights the ongoing challenge of curbing healthcare spending. How bad might things get?

Mapping Today's Spending onto Tomorrow's Population

We address Nova Scotia's challenge over the next 50 years based on a well-known, straightforward approach. We project the province's population growth using the following middle-of-the-road assumptions: a fertility rate stable at the 2012 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 immigration continuing at a rate equivalent to the 1997-2013 average.

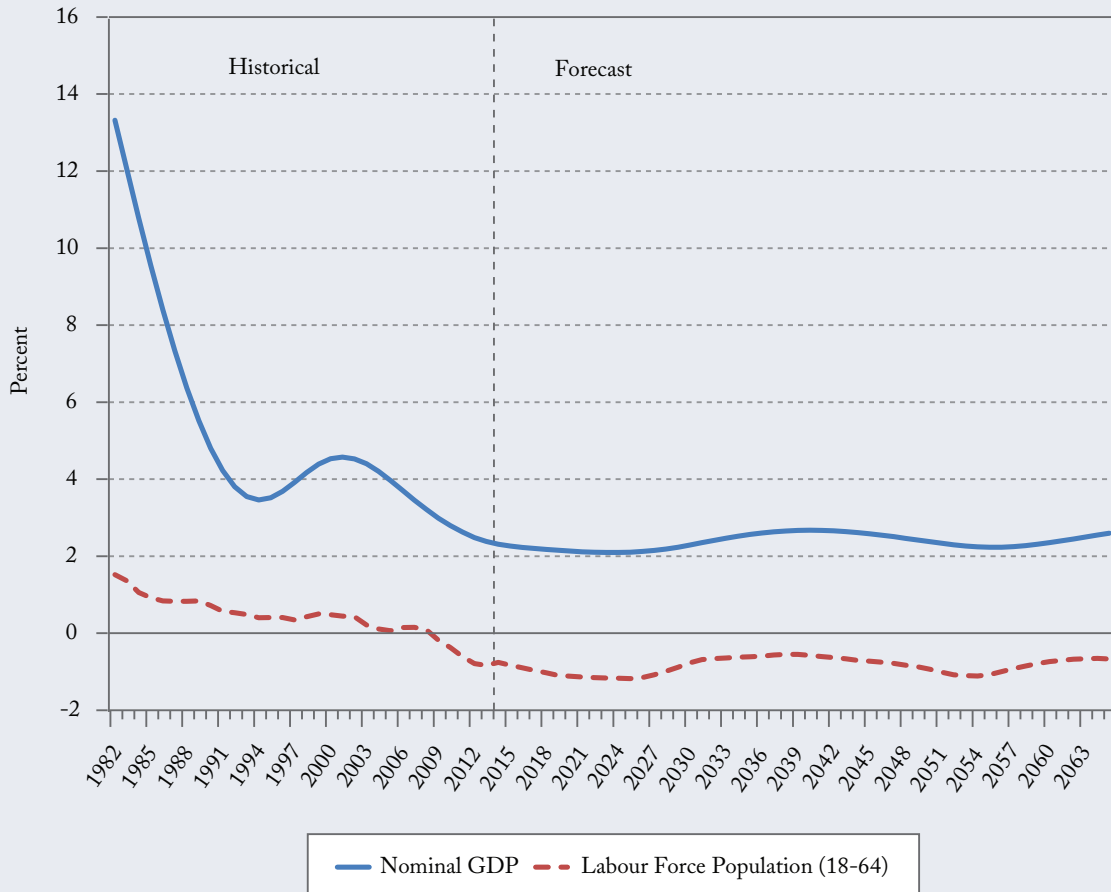
We then multiply the potential workforce, which we define as Nova Scotians aged 18 to 64, by an index of output per potential worker. This index increases by 1.2 percent annually, the rate recorded by the equivalent national measure from 1997 to 2013. These calculations provide our model with projections of Nova Scotia's real gross domestic product (GDP), which we convert into nominal dollars. (Nominal provincial GDP is real GDP times the same 2 percent inflation rate we assume will prevail nationally.)

The impact of aging on future workforce growth and GDP often gets little attention in the healthcare spending debate. But they are set to grow much more slowly than they have over the past few decades (Figure 1). Hence, Nova Scotia's tax base will grow more slowly than in prior years and reduce the ability of provincial finances to accommodate the growth in healthcare costs.

Turning to healthcare spending, we project expenditures for each sex in 20 age groups across six types of spending. Per-person expenditure for each of these groups grows 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) for 2012, pro-rated to match recent actual totals.¹

1 For our projections, we use CIHI data for spending by age group from 2010-2012 to compute the three-year average share of the total spending for each group. We then use CIHI's 2013 and 2014 provincial spending forecasts and Statistics Canada's population data to compute per capita costs by age group, assuming that the relative spending on each group will be similar.

Figure 1: Annual Growth in Nova Scotia's Labour Force and GDP, 1982-2064



Note: GDP and Labour Force Population data have been smoothed to reduce the effects of short-term fluctuations in the historical data.

Source: Authors' calculations as described in text.

Looking forward, we assume that service intensity per person will rise at the same rate as real output per potential worker – 1.2 percent annually (see Box 1 for more detail). In terms of cost increases, the government consumption price index nationwide from 1991 to 2012 recorded annual growth at 2.5 percent annually – 0.5 of a percentage point above overall inflation.

The last few years have seen a decline in health-cost inflation, along with lower increases in overall health spending. We hesitate to project more recent moderate rates indefinitely, recalling the 1990s when a period of restraint was followed by resumed rapid growth. So we project healthcare cost inflation at 1.3 percent through 2020, followed by a slow return to the historical margin over economy-wide inflation.

Because demography also 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

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. These are labour-intensive activities: 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 projection 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 cost inflation in government consumption compared to inflation elsewhere.

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. 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. 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 follow:

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.

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 provide estimates for other provincial programs.

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

populations and price indexes to project future spending in these areas (Box 1 also spells out our approaches for health and these other programs in more detail). In this way, we can see whether these programs offset, or exacerbate, any fiscal challenge presented by healthcare.

Nova Scotia's Outlook: Trends and Implicit Liability

Our projections show Nova Scotia's healthcare spending rising from 10.2 percent of provincial GDP this year to 16.5 percent in 2035 and to 22.9 percent in 2064. Taking account of other demographically sensitive programs does not change the prospect of fiscal stress. Provincial spending on child and family programs is not large enough to affect the results materially.

While smaller numbers of students will dampen growth in education spending in the next decade, we project a later slight rebound. As a result, the GDP share of all these programs rises from 18.6 percent to 33.6 percent over the next half-century (Figure 2). For the province to meet these demands from its own revenue sources would require an increase of more than 70 percent in the tax bite taken from Nova Scotians' incomes.

While the Nova Scotia government may advertise its success in restraining the growth of health spending, it is not promising service cuts. And it is certainly not promising to increase its aggregate tax take to maintain the provincial health system. This political understanding creates an implicit liability on the government's balance sheet, because meeting its healthcare commitment will eventually require the government to tax a higher share of provincial income.²

One way to quantify this looming liability is to calculate the present value of changes in these programs' claims on GDP over the next half-century. Discounting the cumulative increase in the province's average tax take from its current level by the yield on provincial long-term bonds,³ Nova Scotia's implicit liability amounts to \$98 billion – more than 90 percent of which (\$89 billion) is for healthcare (see Table 1).⁴ In other words, to cover the additional 50-year cost of these programs, the province would need more than \$98 billion in assets yielding income at the same rate as its long-term bonds. This required amount is more than double the provincial GDP – amounting to some \$105,000 per Nova Scotian.

Policy Pressures and Responses

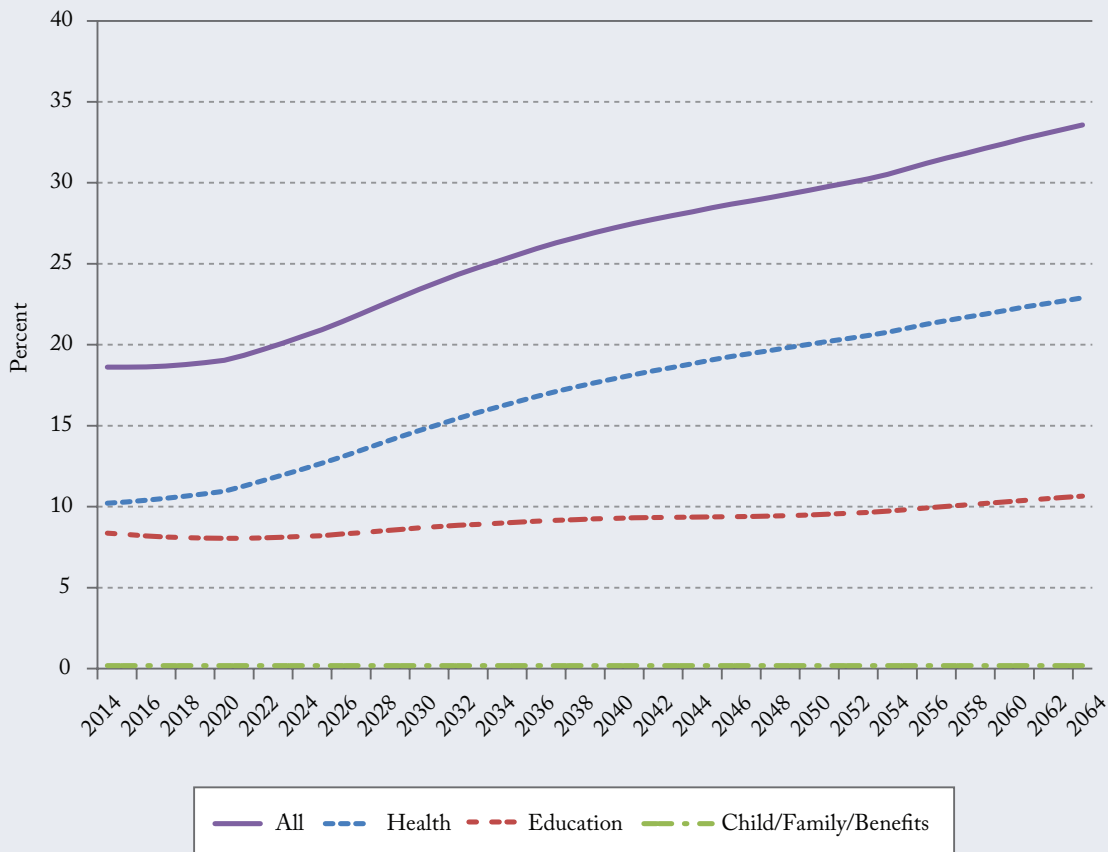
We see a funding gap this large, with its implications of a massive increase in provincial taxation, as strengthening the case for continuing reforms to Nova Scotia's healthcare system. What kinds of changes make sense?

2 The parallel with explicit liabilities is straightforward: if Nova Scotia decides 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.

3 We use a nominal discount rate of 3.5 percent to discount future nominal costs.

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 Nova Scotia manage to constrain growth in service intensity to 0.7 percent annually, instead of 1.2 percent as assumed, demographically sensitive spending would be 29.8 percent of GDP in 2064 and the unfunded liability would be \$83 billion. Historically, service intensity has tended to outpace productivity: if Nova Scotia let it grow 0.5 percentage points faster than productivity – 1.7 percent annually – demographically sensitive spending would be 42.4 percent of GDP in 2064 and the unfunded liability would be \$151 billion.

Figure 2: Nova Scotia's Demographically Sensitive Programs as a Share of GDP, 2014-2064



Source: Authors' calculations as described in text.

The False Hope of a Federal Bailout

A regular theme in discussions of fiscal pressures affecting Canada's provinces is the role the federal government could – and, especially when the conversation is with premiers and other provincial officials, should – play in helping them out.

This prescription is suspect in principle. The provinces and territories tax essentially the same revenue bases as Ottawa: personal incomes, corporate profits and consumption spending. Much of the money the federal government already transfers to the provinces simply reflects differences in the degree to which the two levels of government tax these bases – which are a matter of history and politics, not logic or economics. If the federal government increased its transfers further, the fiscal imbalance – the degree to which Ottawa is a tax-and-transfer machine supplying the provinces with the revenues they could raise themselves to perform their constitutional functions – would simply get larger. Nova Scotians, like Canadians in other provinces, will be better able to hold their provincial government to account for the performance of publicly funded healthcare if the province is raising, and is seen to be raising, more of the necessary funds itself.

Table 1: Nova Scotia's Implicit Liabilities in a National Context

Demographically Sensitive Programs							
Region	Health	Education	Elderly Benefits	Child/ Family Benefits	All Programs	All Programs Relative to GDP (2014)	All Programs per Person
	<i>\$ Billions</i>					<i>Percent</i>	<i>\$</i>
BC	383.6	18.3	0.7	-1.2	401.4	171	87,029
AB	580.1	108.3	16.5	-0.6	704.3	204	171,999
SK	79.3	30.5	0.5	–	110.3	130	99,069
MB	90.6	27.4	0.0	0.0	118.0	189	92,775
ON	1,194.2	194.0	1.5	-6.4	1,383.3	195	101,265
QC	681.9	139.6	–	-14.7	806.8	218	98,373
NB	67.7	8.3	0.0	0.0	76.0	233	100,678
NS	89.1	9.3	–	0.0	98.4	247	104,814
PE	13.0	2.5	–	–	15.5	263	106,538
NL	65.1	7.4	0.0	0.9	73.4	201	140,209
YT	9.0	1.0	–	–	10.0	387	274,687
NWT	13.9	2.8	–	–	16.7	370	380,070
NU	13.9	3.1	–	–	17.0	681	464,111
Provincial	3,244.6	545.6	19.2	-22.0	3,787.4	196	106,886
Federal	0.0	-12.1	461.0	-21.1	427.8	22	12,100
Canada	3,281.4	540.4	480.2	-43.1	4,258.9	298	164,700

Source: Authors' calculations as described in text.

The lure of more federal funds is also open to a practical objection. Despite the premiers' complaints, the federal government's major continuing program transfers to the provinces – principally the Canada Health and Canada Social Transfer, and Equalization – have grown prodigiously over the past decade and a half. In dollar terms, they have more than tripled since the end of federal restraint in 1997/98, growing relative to the economy and even more when compared to other federal government programs. Ottawa's cash transfers to Nova Scotia have almost doubled over that period.

If more federal transfers were the answer to provincial fiscal woes, this money should have eased their plight. Yet aggregate provincial deficits are larger now than they were following the federal restraint of the late 1990s. In Nova Scotia's case, federal cash transfers were \$1.9 billion in 1997/98 when the province ran a deficit of \$400 million. In 2013/14, federal transfers were \$3.3 billion – up almost 75 percent – yet the provincial deficit had nearly doubled to \$700 million. A reasonable interpretation of that experience would be that the provinces, including Nova Scotia, responded to increases in federal money mainly by spending more, rather than by undertaking reforms that would let them provide more bang for the buck in their services, including healthcare, over the long term. The pressure of healthcare spending on other programs and taxes is a problem Nova Scotia should tackle on its own.

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, which converted them from pay-as-you-go to plans in which a portion of premiums collected from people today prefund their future needs. Some drug programs, and potentially long-term care as well, are like social security programs in that many people will need, and can prepare for, predictable expenses by building a provident fund during their younger years.

Nova Scotia could selectively convert pay-as-you-go programs so that the babyboomers, rather than their declining number of children and grandchildren, pay some of the higher costs that loom. Prefunding does not make sense for all programs with threatened cost increases, but can spread more fairly some of the tax increases necessary for those health services that, like pensions, are related to age.⁵

Reducing Healthcare Spending's Sensitivity to Aging

One key difference between pensions and healthcare is that pensions are a promise to pay money, whereas the implicit promise in healthcare relates to 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).

To the degree that healthcare spending is related to the end of life, the tendency of people to live longer, healthier lives could mean that future Nova Scotians will incur inevitable higher healthcare costs at a later age than today's, which would delay the demographic effects in our model.

5 Robson (2002) and Stabile and Greenblatt (2010) elaborate this idea; Busby and Robson (2011) explore the mechanics of prefunding in more detail.

Clearly, this is not a simple subject. As Felder (2013) points out, decisions to spend are at least partly driven by the life expectancy of the patient, so it is possible that a population that is living longer, healthier lives might encourage more spending on the “young elderly.” Given the difficulty of making firm judgments in this area, we are driven to look for any changes to the age-profile of provincial healthcare spending in Nova Scotia since CIHI’s first data in 1998. A comparison of CIHI’s 1998 to 2012 data shows some variations by age group, but little change in the overall spending profile (Figure 3). A 1998 projection of the demographic impact on Nova Scotia’s healthcare spending by 2012 would have been almost spot on.

Two aspects of Nova Scotia’s healthcare bundle are particularly sensitive to the pressures of aging: the province’s senior-based drug program and long-term care for the elderly. Nova Scotia offers public drug benefits mainly to individuals age 65 and up. As a result, most individuals with employment-related or voluntary coverage drop their private insurance at 65 and join the public plan. Combined with the tendency for drug use to rise after age 65, there is likely to be demographic pressure on the fiscal sustainability of Nova Scotia’s drug plan. One option to reduce that pressure would be to extend public drug benefits to all individuals (without private insurance) according to income, regardless of age. British Columbia, for instance, has done so in a way that has dramatically reduced the sensitivity of public drug costs to aging. Other provinces also offer lessons on how to design income-tested drug benefits (Busby and Pedde 2014).

Well over one-half the population will need continuing care support at one point in their lives – a proportion that jumps to almost three-quarters after age 65. But many citizens mistakenly believe that governments are going to cover most of their future long-term care costs. This is because public subsidies to long-term care in institutions or at home are generally opaque and misunderstood. The ambiguity of current public-private responsibilities for financing long-term care dampens private savings and pressures the public sphere to pick up the slack.

But an expanded public role here would heighten intergenerational equity concerns, which is why provincial authorities must clearly define the extent to which the province will cover future costs. To reduce the connection between public health spending and aging, public subsidies for long-term care must be targeted to those without the means to pay for it. At the same time, the government should require that those who can afford it to absorb a meaningful share of the costs. Doing so means setting, and publicizing, government subsidies clearly so that private options – increased savings and insurance – grow to complement public subsidies (Blomqvist and Busby 2014).

Accessible Reforms and Benchmarking Best Practices

Where might Nova Scotia look in its search for yet more bang per healthcare buck? As in other provinces, areas that experts have identified as promising include:

- establishment and expanded use of electronic health records;
- more coordinated team-based primary care, giving patients comprehensive non-acute services from practitioners such as doctors, nurses, dietitians and physiotherapists;
- scope-of-practice changes to substitute services from providers such as pharmacists and nurse practitioners for similar services provided by more expensive physicians;
- integration of follow-up care for patients once they are discharged from hospital;
- improvements in, and more use of, non-institutional care for seniors with chronic conditions;

Figure 3: Average Per Capita Health Spending by Age Group in Nova Scotia, 1998 and 2012



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 this 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 (2014).

- incentives for patients to take greater responsibility for maintaining their own health; and
- more use of clinical evidence to reduce variation in diagnostics and therapeutics use.

As well, Canada's provinces exhibit large differences in spending in major categories that may yield further insights (Table 2 and Table 3). At one end of the cost scale, Nova Scotia spends less per capita than most provinces on capital and “public health,” which includes health promotion activities. At the other end, Nova Scotia spends more on drugs. It also has a relatively high budget for “other institutions” such as nursing and residential care homes. Nova Scotia's administrative spending is also relatively high, and has grown remarkably quickly since the early 1990s (Table 3).

These differences are large. Putting nursing and residential home costs in line with the national average, for example, would save Nova Scotia some \$180 million annually. Perhaps Nova Scotians get appropriately greater

Table 2: Real Per Capita Health Spending, by Use of Funds, Nova Scotia vs. Other Provinces, 2012

Region	Hospitals	Other Institutions	Physicians	Other Professionals	Drugs	Capital	Public Health	Admin	Other Health Spending	Total
<i>Per Capita Spending 2012 (in 2014 dollars)</i>										
BC	1,745	218	901	39	227	184	379	46	285	4,024
AB	2,101	395	952	59	341	217	265	39	178	4,546
SK	1,706	618	874	32	308	226	425	47	305	4,541
MB	1,950	638	832	28	271	234	292	47	363	4,654
ON	1,457	405	953	32	343	169	264	32	171	3,826
QC	1,409	537	707	29	321	289	117	48	160	3,617
NB	1,993	549	813	9	277	267	174	41	274	4,399
NS	1,790	681	813	14	300	334	119	105	182	4,340
PE	1,907	551	694	18	270	566	232	114	214	4,566
NL	2,350	781	867	21	299	359	189	72	364	5,302
CAN	1,627	446	876	34	316	222	245	44	203	4,013
<i>10 = lowest</i>										
NS's Rank	6	2	7	9	5	3	9	2	7	7

Notes: Spending figures from 2012 have been inflated using CIHI's Government Expenditure Implicit Price Index to their 2014 values. "Other professionals" include care primarily provided by dental and vision care professionals; "Other institutions" include 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: Canadian Institute for Health Information, 2014.

value from their nursing and residential expenditures than other provinces do, but without knowing, it is hard to ensure that dollars devoted to each area of healthcare are effectively deployed.

Closing Comments

A casual attitude toward the impact of demographic change on government budgets is unwarranted. Statements about rising healthcare spending such as those in the 2014 budget will be a staple of fiscal commentary in Nova Scotia for years to come. The current configuration of demographically sensitive spending threatens to require large increases in the province's aggregate tax take over time. As well, Nova Scotia's implicit future liability related to future costs is much larger than the provincial debt, which receives much more attention. In the face of these challenges, selective prefunding and benchmarking against other provinces that allocate their healthcare budgets differently are two steps that should help Nova Scotia deliver high-quality healthcare in a sustainable fiscal framework.

Table 3: Real Annual Per Capita Spending Growth Rate (1991-2013), Nova Scotia vs. Other Provinces.

Region	Hospitals	Other Institutions	Physicians	Other Professionals	Drugs	Capital	Public Health	Admin	Other Health Spending	Total
<i>Real Annual Per Capita Spending Growth Rate (Percent)</i>										
BC	1.7	-2.1	1.3	-1.9	2.4	3.0	6.6	-1.7	4.3	1.7
AB	1.5	3.1	2.3	-3.5	4.1	2.8	2.7	0.4	0.9	1.9
SK	1.2	1.3	2.8	-3.5	2.6	-1.7	4.3	0.8	4.7	1.7
MB	1.2	2.0	3.3	-0.6	5.6	3.2	4.6	0.5	4.1	2.3
ON	0.6	2.3	1.4	-0.1	4.0	4.6	5.5	0.0	1.3	1.6
QC	1.0	1.3	2.7	-1.6	4.4	5.8	1.4	-1.3	1.6	1.8
NB	1.6	3.5	2.8	-2.8	2.7	-0.8	4.0	0.2	6.1	2.2
NS	0.8	6.3	3.5	-4.4	3.0	4.3	2.3	5.7	6.4	2.5
PE	2.1	2.5	3.0	-1.7	5.5	7.9	3.9	5.8	6.1	3.0
NL	2.3	3.7	4.1	0.6	4.7	10.5	4.9	2.8	7.4	3.5
CAN	1.1	1.6	2.0	-1.4	3.9	4.0	4.4	-0.3	2.5	1.8
<i>10 = lowest</i>										
NS's Rank	9	1	2	10	7	5	9	2	2	3

Notes: The growth rate is computed as a compound annual growth rate from three-year averages of expenditure around 1991 and 2013, where these expenditures have been inflated using CIHI's Government Expenditure Implicit Price Index. "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: Canadian Institute for Health Information, 2014.

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