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HEALTH POLICY

## Managing Healthcare for an Aging Population: Some Good News and Some Bad News for Saskatchewan

by

Colin Busby and William B.P. Robson

“Spending on healthcare in the western provinces and Canada has increased over time, outpacing growth in other government program spending. Further, the trend is expected to continue given the aging population and an increase in demand for new technology and treatments, which is a concern for the sustainability of the healthcare system in the near future.”

*Saskatchewan 2010/11 Ministry of Health Strategic Plan* (Saskatchewan 2010, 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 formulation made familiar by a former Saskatchewan premier, as sustainable as Canadians want it to be.<sup>1</sup>

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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.

1 CFHCC (2002), p. xvi.

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

While the debate has raged, provincial spending on healthcare in the province widely regarded as the birthplace of medicare, Saskatchewan, has fallen from 7.8 percent of provincial GDP in 1991 to about 6.6 percent in 2012. While it has risen from 38 percent of the provincial government's program spending in 1991 to about 44 percent in 2012 over the same period, its share of provincial own-source revenue – that is, revenues that Saskatchewan raises itself rather than funds transferred from Ottawa – has fallen from 59 percent to about 50 percent.

The good news, then, is that Saskatchewan has bucked the trend evident in most of the rest of the country, where the claim of healthcare spending on provincial resources has tended to rise. Even in Saskatchewan, however, its share of provincial program spending is up – and as the above quotation from the 2010/11 Strategic Plan for the Ministry of Health indicates, ongoing cost pressures are a long-term concern. Saskatchewan is a relatively young province now: does it face important pressures from aging in the future?

## Mapping Today's Spending onto Tomorrow's Population

We come at that question with a well-known, straightforward approach. We project Saskatchewan'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; 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 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 real provincial gross domestic product (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 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 the Canadian Institute of Health Information (CIHI) figures for 2010, pro-rated to match recent actual totals.<sup>2</sup> 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

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2 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 method yields a slightly larger increase in spending for 2011, and 2012, than the CIHI estimates.

government consumption price index nationwide from 1997 to 2011 – 2.4 percent annually.<sup>3</sup>

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 seniors' benefits (Saskatchewan does not have significant child/family-specific transfers, so we do not model them) – 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.

## Saskatchewan's Outlook: Trends and Implicit Liability

Our projections show the claim of Saskatchewan's public healthcare spending on provincial GDP rising from 6.6 percent this year to 8.9 percent in 2035 and to 11.1 percent in 2062. Taking account of other demographically sensitive programs does not dramatically change the picture. Saskatchewan's transfers to seniors are small. In education, rising service intensity and a rising population of students results in projections for a rising share of GDP for this part of the budget as well. So the share of all demographically sensitive programs in GDP rises from 11.9 to 17.5 percent over the period (see Figure 1). For Saskatchewan to meet these demands from its own revenue sources would require the share of provincial income it collects to rise by 1.7 times the current level.

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 emphasizes maintaining them – perhaps enhancing, but certainly not cutting. And the Saskatchewan government is not promising 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.<sup>4</sup>

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 – roughly the average life expectancy of the average Saskatchewanite. 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 \$98 billion, nearly all of which (\$82 billion) relates to

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3 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.

4 The parallel with explicit liabilities is straightforward: if Saskatchewan 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.

## 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.

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 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. 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 Saskatchewan 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:

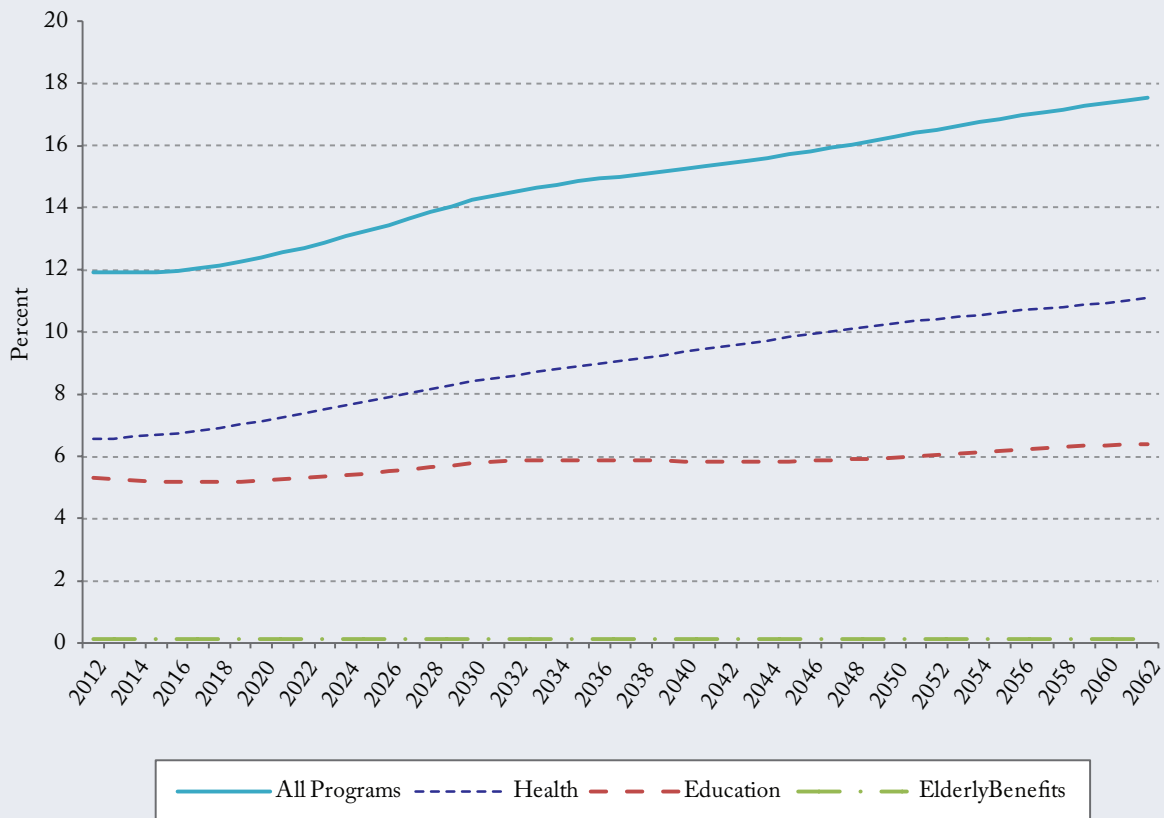
*Education:* Base-year provincial/local spending on elementary and secondary education is calculated using data from Statistics Canada's Summary of Public School Indicators for the Provinces and Territories, 2005/06 to 2009/10. Base-year spending on postsecondary education comes from Statistics Canada (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 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; 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 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. SPSP/M simulations suggest that Saskatchewan does not have any major, provincially-determined child/family benefits; hence, these are not included in the provincial level forecasts.

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

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



Source: Authors' calculations as described in text.

healthcare (see Table 1).<sup>5,6</sup> In other words, to cover the additional cost of these programs, the province would need more than \$95 billion in assets yielding what its long-term bonds do – about 130 percent of provincial GDP, or some \$92,000 per Saskatchewanite.

- 5 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 the province 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 13.5 percent of GDP in 2062 and the unfunded liability would be \$33 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 16.0 percent of GDP in 2062 and the unfunded liability would be \$165 billion.
- 6 This exceeds the \$69 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.

**Table 1: Saskatchewan'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
<b>SK</b>	<b>82.0</b>	<b>15.3</b>	<b>0.3</b>	-	<b>97.6</b>	<b>131</b>	<b>91,897</b>
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
<b>CANADA</b>	<b>3,681.3</b>	<b>273.8</b>	<b>443.0</b>	<b>(49.6)</b>	<b>4,348.5</b>	<b>244</b>	<b>125,040</b>

Source: Authors' calculations as described in text.

## 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. The good news for Saskatchewan is that the fiscal stresses it faces appear to be less than those faced by the rest of the country. Against this encouraging fact, however, there is some bad news.

Most obviously, healthcare spending in Saskatchewan does appear likely to rise. Because the pressures will be worse elsewhere, moreover, one historically important reaction to provincial pressure – increased transfers from the federal government – is not likely: any net increase in federal efforts to redistribute would likely result in a net loss for Saskatchewan. Finally, and potentially highly significant, Saskatchewan's relatively young population has a higher share of people of aboriginal background than other provinces. Our projections make no allowance for the fact that a growing share of the province's future workforce will come from a part of the population that has a much lower propensity to participate in the mainstream economy and contribute to government revenues than other Saskatchewanites – which means that we may understate a key source of demographic pressure on the provincial budget (Guillemette and Robson 2007).

### The Case for Prefunding

Turning to healthcare spending particularly, 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, Saskatchewan 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.<sup>8</sup>

### Reducing Healthcare Spending's Sensitivity to Aging

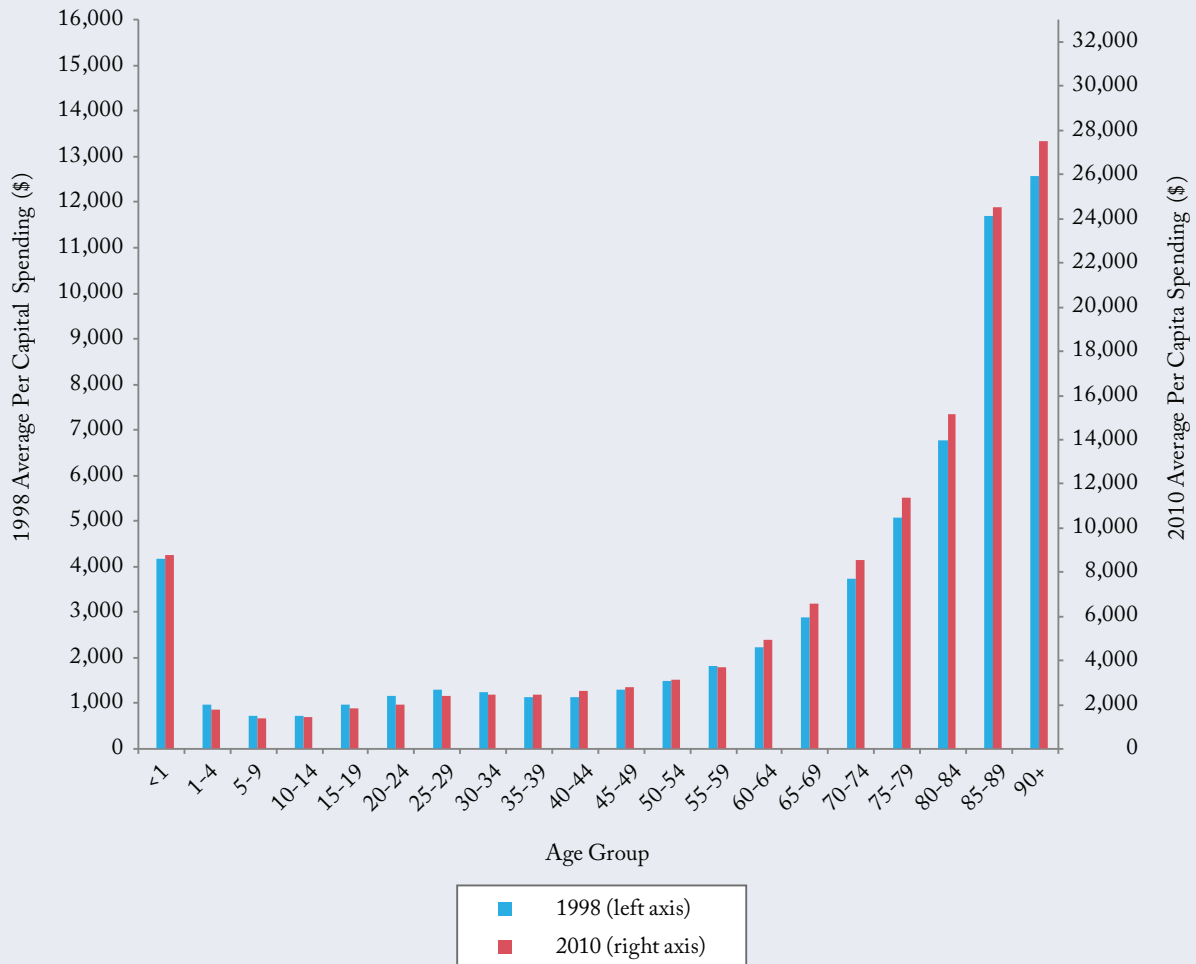
Unlike pensions, which are promises to pay dollars, healthcare promises services, the cost and quality of which are not fixed. The camp that says aging by itself is not a major problem has tended to emphasize that some factors that make per capita healthcare spending so strongly associated with age, 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.

Compared to other provinces, Saskatchewan has historically spent relatively less on its older population – which could be seen as good news in that it might reflect a greater ability to deliver services to older

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

**Figure 2: Average Per Person Health Spending By Age Group, Saskatchewan, 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.

Saskatchewanites efficiently. The bad news on this front, however, is that between 1998, the first year CIHI published data on provincial healthcare spending by age, and the most recent figures in 2010, the age-profile of Saskatchewan's provincial healthcare spending appears to have become more strongly geared to age (see Figure 2). In other words, a 1998 projection of the influence of demography on Saskatchewan's healthcare spending by 2010 would have understated the impact of aging. Looking past the recent boom in the provincial economy and in Saskatchewan's government revenues, mitigating this impact will become more of a priority.

Areas where Saskatchewanites might get more bang per healthcare buck are numerous. Areas that commentators have identified as promising, in Saskatchewan as elsewhere, include:



- more coordinated team-based primary care models where patients can get comprehensive non-acute services from an organized group of practitioners such as doctors, nurses, dieticians, and physiotherapists;
- scope-of-practice changes to get more services from such specialties as pharmacists and nurse practitioners instead of the more expensive services of physicians;
- improvements in, and more use of, non-institutional care for seniors with chronic conditions; and,
- the establishment and expanded use of electronic health records.

Turning to different delivery vehicles, Canada's provinces exhibit large differences in spending by category that may yield insights. Saskatchewan spends less than most provinces on capital and administrative costs (see Table 2). But Saskatchewan spends more on "public health" which includes expenditures for items such as food and drug safety, health inspections, health promotion activities, community mental health programs, etc., than other provinces. We are inclined to think that the province's priorities, as revealed by these comparisons, make sense for its circumstances – and Saskatchewan's relatively low health costs per capita overall would support the arguments for making public health a greater priority everywhere. Without more systematic efforts to compare bang for buck across the country, however, such observations are mainly speculative, and a thin basis for reallocating within the healthcare budget or between it and other fiscal priorities.

## Closing Comments

Though it is still a relatively young and fast growing province, Saskatchewan should be concerned about the impact of demographic change on its future fiscal situation. In spite of its current budget surplus, Saskatchewan faces an implicit liability related to demographically sensitive programs that is larger than provincial GDP. Selective prefunding and benchmarking against other provinces that get better bang for their bucks in some areas can help Saskatchewan deliver high-quality healthcare in a sustainable fiscal framework for years to come.

Table 2: Real Per-Person Health Spending, By Use of Funds, Saskatchewan vs. Other 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
<b>SK</b>	<b>1,657</b>	<b><u>638</u></b>	<b>793</b>	<b>24</b>	<b>301</b>	<b><u>146</u></b>	<b><u>379</u></b>	<b><u>27</u></b>	<b><u>274</u></b>	<b>4,239</b>
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
<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
<b>SK</b>	<b>1.4</b>	<b><u>2.0</u></b>	<b>3.0</b>	<b><u>-4.2</u></b>	<b><u>3.7</u></b>	<b><u>-1.4</u></b>	<b><u>5.9</u></b>	<b><u>-1.1</u></b>	<b><u>5.1</u></b>	<b>2.1</b>
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
<b>Blue</b> (with underline): among lowest third; <b>Red</b> (with double underline): among highest third										
Ranking Among Provinces (10 being the lowest; 1 being the highest)										
Per Capita Spending	7	2	5	6	5	9	1	10	3	4
Growth Rate	6	9	6	9	8	10	3	9	3	7

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).

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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.

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