

Analytical Note

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Health-care Spending: Prospect and Retrospect

by

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Abstract

In recent years, there has been mounting concern that Canada's health-care system will be unable to meet the future demands posed by population ageing. This study sheds light on the sustainability question by providing a detailed decomposition of historical health spending growth and long-term projections of future health spending. The projections show sizeable increases in total health-care spending as a share of GDP over the next forty years. However, scenarios believed to be most plausible appear manageable from a fiscal standpoint.

Résumé

Au cours des dernières années, la capacité du régime de soins de santé du Canada à faire face au vieillissement de la population a suscité de plus en plus des préoccupations. La présente étude contribue à élucider la question de la viabilité du régime en fournissant une décomposition détaillée de la croissance historique et des projections à long terme des dépenses en santé. Ces projections révèlent une hausse appréciable des dépenses totales en soins de santé en pourcentage du PIB d'ici 2040. Cependant, les scénarios qu'on croit les plus plausibles semblent abordables d'un point de vue fiscal.

Overview

In recent years, there has been mounting concern that Canada's health-care system is unaffordable. Critics contend that cost increases have become unmanageable and are increasingly crowding out other government priorities. However, despite the concerns and discussions of sustainability, there is no generally accepted definition of the term, and researchers have defined the concept differently depending on the focus of their study. Commissions at federal and provincial levels have examined the state of the current health system and have made recommendations for reforms aimed at maintaining confidence in the public system and preparing the system to meet future demands posed by population ageing.

One of the key tools for assessing the sustainability of the health-care system is the use of long-term expenditure projections. In this note, we gauge sustainability by analysing the ability of the economy to support future growth in health spending using projections of health spending as a share of GDP.

Several recent studies project nominal health spending at the national (public and private spending), or the provincial/territorial level. In this note, we examine health spending at a greater level of detail, by decomposing historical health spending by category of

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expenditure and by source of funds (public/private). We then use the historical relationship between real per capita, age-adjusted health spending in each category and real per capita, age-adjusted growth in GDP to project health spending from 2001 to 2040 for each category of spending.

Our note begins with an outline of general spending trends and a discussion of the concept of sustainability. We then show the results of a decomposition of historical health spending into various categories of expenditure, based on the contributions of inflation, population growth and demographic change to the overall growth rate. We also discuss the residual rate of health spending growth and how it could be interpreted.

Based upon this decomposition, we project health spending by category of expenditure over the next four decades under a variety of economic and fiscal assumptions. We also compare the results of our projections against other countries' national projections to demonstrate that Canada is not alone in facing projected increases in public health spending. The final section offers some conclusions.

HEALTH SPENDING: RETROSPECT

Total spending on health care in Canada, which includes both the public and private sectors, has grown from 7.0% of GDP in 1975 to 9.8% of GDP in 2002 (Figure 1). The share of private spending in total health care has increased by about 5.5 percentage points over the 27-year period (Table 1).

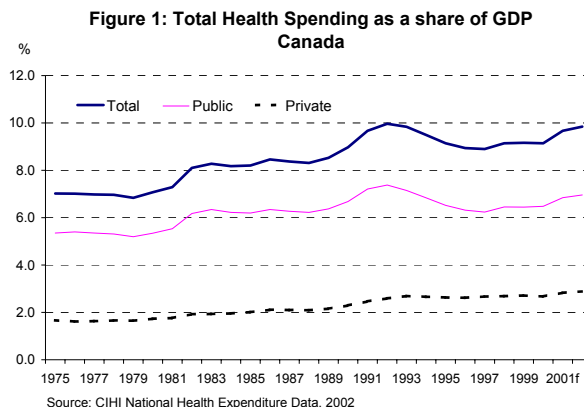


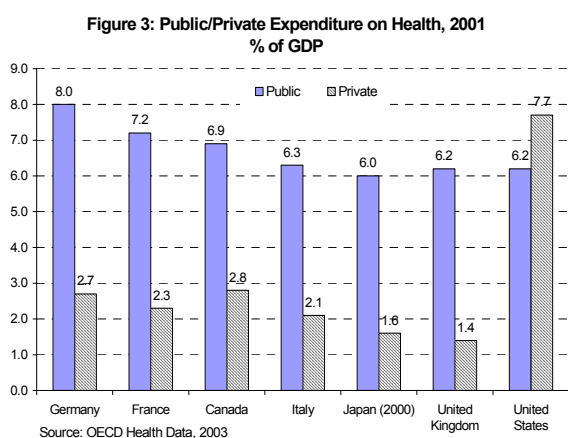
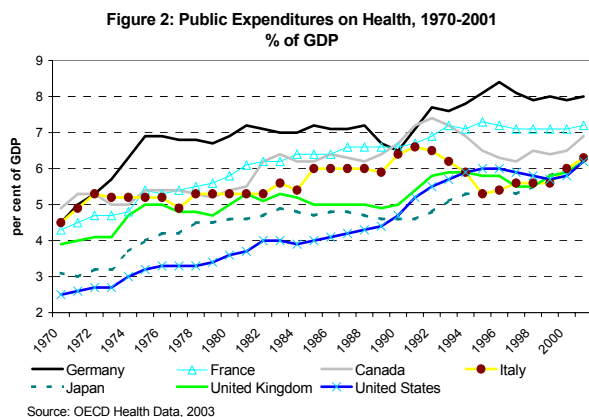
Table 1: Public/Private Shares of Health Spending (%)

	public	private
1975	76.2	23.8
1980	75.5	24.5
1990	74.5	25.5
2000	70.8	29.2
2002	70.7	29.3

Source: CIHI National Health Expenditure Data, 2002

Canada's experience is not unusual. Over the past three decades all G7 countries show steady increases in public health spending. Canada briefly led the G7 in public health spending as a share of GDP in the early 1990s, during a period of relatively rapid growth. However, by 1994, several years of spending restraint reduced Canada's rank to third, behind that of Germany and France (Figure 2). The UK, where public spending stood at 6.5% of GDP in 1999, has been in the process of implementing far reaching reforms that have the effect of raising public health spending as a share of GDP to the European average.¹

¹ The reforms follow recommendations outlined in the final report by Derek Wanless (2002).



Canada’s private health-care spending as a share of GDP is second among G7 countries, behind that of the United States (Figure 3). Though at 2.8% of GDP in 2002, Canada’s share is on par with that in Germany (2.7%), and France (2.3%), and well below the U.S. share (7.7%).

SUSTAINABILITY²

In 2002, nominal health spending was estimated at \$112.2 billion, up 6.3% from the previous year. Between 1975 and 2002, total nominal health spending grew at an average annual rate of 8.3%. These trends have spurred a great deal of debate over the affordability of Canada’s public health-care system. To some, this increase in nominal spending over time is a sign that the health

system is unsustainable. To address the issue of sustainability, however, it is important to look beyond trends in nominal national health spending, which provide only a partial picture of the evolution of the health-care system.

First, spending trends must be considered in context. For example, growth in health expenditures will often coincide with growth in the economy’s ability to support a more extensive health sector. Growth in spending on health care relative to other areas or to income may also reflect changes in relative priorities, changes in the quality and quantity of health-care services consumed, and changes in the costs of alternative expenditures. In short, nominal measures of health spending on their own provide very limited information about the sustainability of Canada’s public health care system as a whole.

Second, the path of total health spending may conceal important changes in components of the health budget. Total health spending comprises public and private spending in a variety of categories, ranging from hospitals (which are covered mainly by public insurance) to other professionals (which are covered mainly by private insurance or out-of-pocket expenditures). The relative growth rates of these categories will affect the pace of overall spending growth and the share of financing occupied by the public and private sectors. Rapid growth in spending on other professionals relative to that on hospitals will, for example, increase the share of private funds in total health spending, barring other changes in the structure of the system.

Third, spending on health varies considerably by province so that aggregate trends may not reflect individual provincial experiences.

² See Pollock (2002) for an interesting discussion of sustainability.

Therefore, projections of health spending based on national, nominal trends alone may prove misleading. An examination of component-specific trends in health spending by province and funding sector (public/private) relative to the economy's ability to finance this spending may serve to improve our understanding and our projections of health-care spending.

Finally, it should be noted that even the most accurate spending projections are not sufficient to answer adequately the question of sustainability. As Ruggeri (2002) notes, "evaluating sustainability is a difficult task because there is no unique definition of sustainability and no generally accepted index that can help identify when health-care spending is becoming unsustainable". So while we have selected the ratio of health spending to GDP as one possible benchmark of sustainability, the conclusions we draw from this exercise may depend, to some degree, on this definition.

DECOMPOSING HEALTH SPENDING, 1975-2001

Based on the discussion above, we decompose health spending in several ways. First, we separate public from private health spending. We then divide public spending by province into six major categories: hospitals, other institutions, physicians, other professionals, pharmaceuticals and other spending.³ Private health-care expenditures are also analysed according to their use of funds; however, data are available on a national basis only.

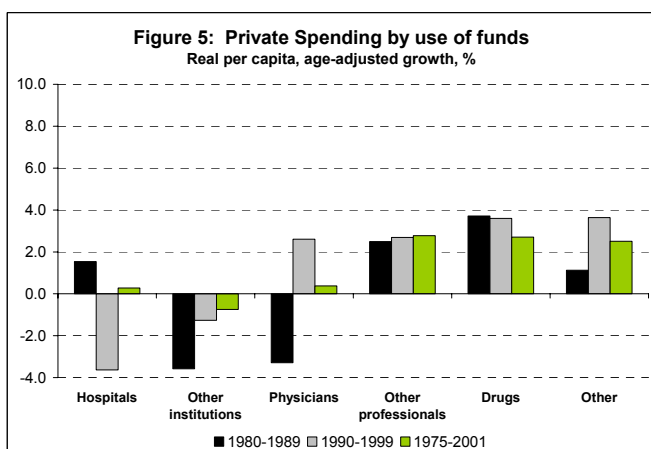
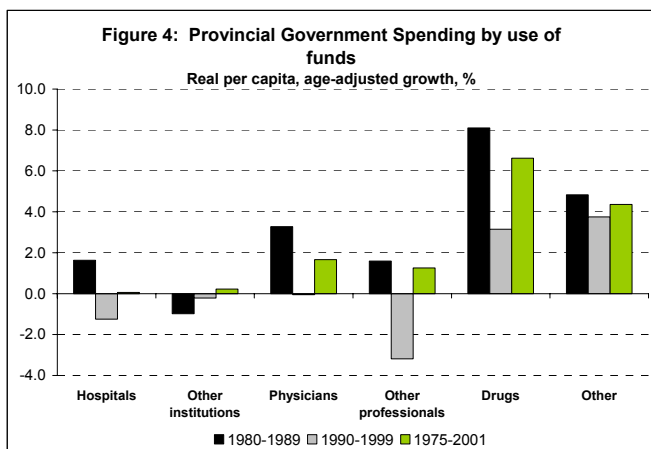
³ Other institutions include residential care facilities that are approved, funded or licensed by provincial/territorial departments of health and/or social services. Other professionals includes spending on disciplines such as dentistry, vision care, physiotherapy, chiropractic. Other health spending includes spending on: public health and administration, capital, health research, medical transportation, home care, training of health workers and occupational health and safety. (The Canadian Institute of Health Information groups spending into eight major categories by use of funds. The two smallest were combined into 'other' for the purposes of our study.)

Next, we remove the effects of inflation, population growth and demographic change from total growth in health spending to isolate growth due to real utilisation/enrichment⁴ of health services per age-adjusted person.

The charts below show the average annual rate of real per capita, age-adjusted growth in health spending (i.e., the rate of enrichment) by category of spending for selected periods between 1975 and 2001. Enrichment rates vary considerably over time and across categories of expenditure. Public enrichment in drug expenditure has been consistently high while hospital spending has remained virtually constant on a real per capita, age-adjusted basis (Figure 4). Since many projections of health spending use historical trends to assess sustainability⁵, this chart shows how important the choice of period is to the projection framework.

⁴ Growth in enrichment reflects changes in the value of health-care services provided per person on an age-adjusted basis, excluding price effects. Such changes could stem from a combination of changes in the quality, quantity, and mix of services provided. (Age-adjustment is performed by removing the expenditure growth that would have occurred as a result of changes in the age structure alone – this is calculated based on the simplifying assumption that age spending profiles have remained constant over time.)

⁵ See for example, Jackson and Matier (2002), the Conference Board of Canada (2002), Robson (2001) and Provincial and Territorial Ministers of Health (2000).

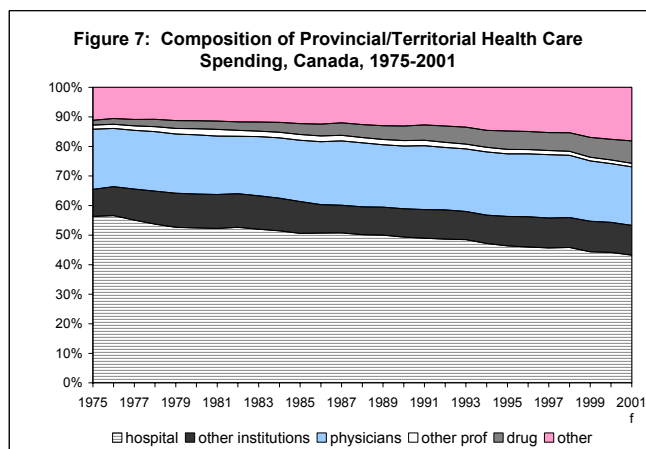
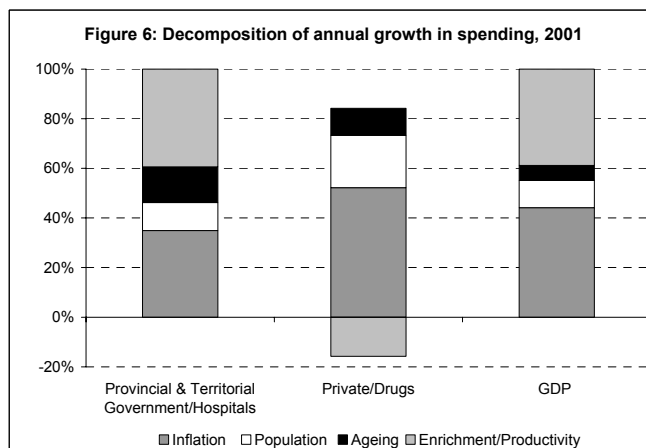


Real per capita, age-adjusted growth rates in private spending on drugs and other professionals have been consistently within the 2-4% range over the past 26 years. Enrichment in hospitals, other institutions, and physicians has been flat or negative (Figure 5).

The spending increases discussed above need to be measured against the economy's ability to support a higher level of spending. Accordingly, real per capita, age-adjusted growth in health spending is considered in relation to the real per capita, growth of GDP (adjusted for age). This is done both for private health-care spending and for public health-care spending. This ratio essentially compares the enrichment of health-care spending to productivity growth (broadly defined) and thus provides an indication of changes in affordability, all else being equal. However, ageing and inflation may, for example, have differential

impacts on health spending and GDP growth. The advantage of decomposition analysis is that it allows us to isolate the contribution of each factor to spending growth.

To illustrate, Figure 6 shows that in 2001, real per capita, age-adjusted growth in hospital spending by provincial/territorial governments exactly matched real per capita, age-adjusted growth in GDP. On the other hand, enrichment in, or the change in utilisation of, private spending on drugs was negative in 2001.

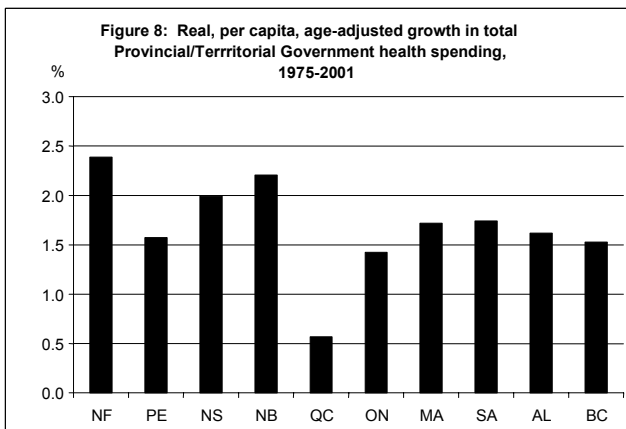
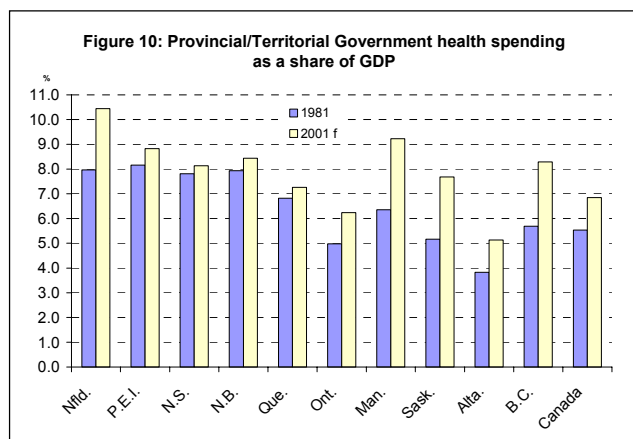
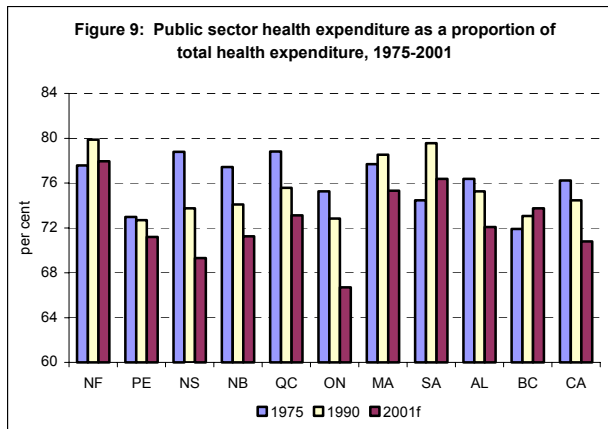


As a result of these different growth rates, we see that the composition of the health budget has changed over time. The share of hospital spending in total provincial/territorial spending fell by over 20%, while the share of drug expenditure tripled over the 26-year period (Figure 7).

BY-PROVINCE RESULTS

As expected, results differ widely across provinces. Average annual growth in provincial government health-care spending between 1975 and 2001 ranged from 2.4% on a real per capita, age-adjusted basis in Newfoundland to 0.6% in Quebec. It is interesting to note that only Newfoundland and Nova Scotia show average enrichment rates greater than 2% per year over the past 26 years (Figure 8).⁶

Figure 9 looks at the evolution of the share of public spending in total health spending by province. With the exception of Newfoundland and Saskatchewan, the public share of total health spending has fallen in all provinces. The share of public spending is lowest in Ontario, at 68.8% of total health spending, compared to a national average of 72.6%. Finally, Figure 10 shows provincial health spending as a share of GDP by province. While all provinces have increased the share of provincial GDP devoted to health care between 1981 and 2001, there is substantial variation among provinces.



PROJECTING HEALTH SPENDING

To provide insight into the sustainability of health spending over the long term, provincial/territorial and private health-care spending is projected from the year 2001, using the historical relationship of spending enrichment to productivity rates that prevailed over three different time periods. Of course, this is only one of many ways that health spending could be projected and recent studies have employed a variety of different methods.⁷ As province-specific rates were subject to considerable historical fluctuation, an unweighted average of provincial enrichment rates is employed in the projection.

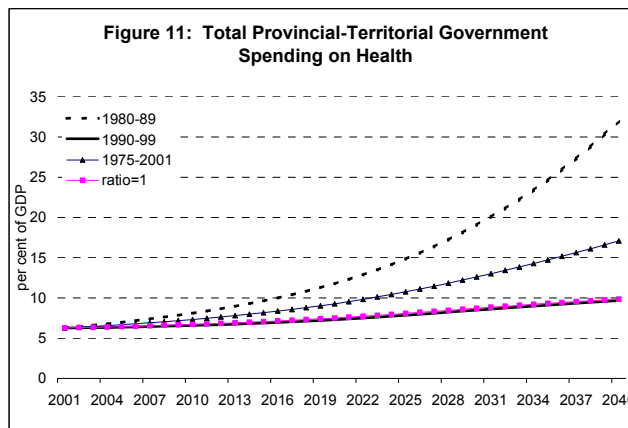
⁶ Most projections of health spending use an annual enrichment rate of between 1% and 2%, and historical trends suggest that for 8 out of 10 provinces, this is a reasonable assumption.

⁷ See for example, Jackson and Matier (2002) and Brimacombe et al. (2001).

The projections of health spending as a share of GDP are driven by four factors, two of which have no impact on the resulting ratio, and two of which may change the ratio over time. Inflation and population growth are assumed to have parallel effects on GDP and health spending; therefore, these factors will affect the numerator and denominator of the calculation to the same degree, leaving the path of health spending as a share of GDP unaltered.

However, population ageing tends to increase health spending and reduce GDP growth, resulting in an increase in the ratio of health spending to GDP, all else equal. Figure 11 shows a projection of health spending as a share of GDP, assuming a ratio of enrichment to productivity of one. The consequent increase in health spending as a share of GDP reflects only the differing impact of ageing on health spending and GDP. The projection shows a 3.5-percentage-point increase in health spending as a percent of GDP (from 6.3% to 9.8%). This is similar to the historical rate of increase that took place in Alberta and Newfoundland since 1981, and less than rate of increase recorded by Manitoba, British Columbia and Saskatchewan.

Finally, to the extent that enrichment rates to health spending exceed productivity growth, health spending as a share of GDP will increase. The remaining scenarios in Figure 11 show health expenditures based on the relationship between enrichment and productivity (i.e. GDP enrichment) that prevailed over various periods. It is interesting to note that over the 1990s the enrichment-to-productivity ratio was very close to one.



While all four scenarios show expenditures rising as a share of GDP, the scenario based on the 1980s ratio results in the most dramatic increase in spending. As Figure 12 demonstrates, much of this increase stems from a sharp increase in spending on pharmaceuticals, reflecting the increase that took place over the 1980s as provincial governments expanded pharmacare programs. Such growth thus results partly from the low starting point (pharmaceuticals represented less than 3% of provincial/territorial health-care spending in 1980).

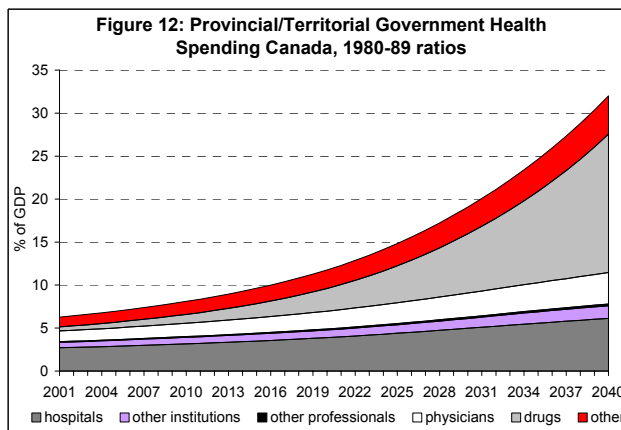
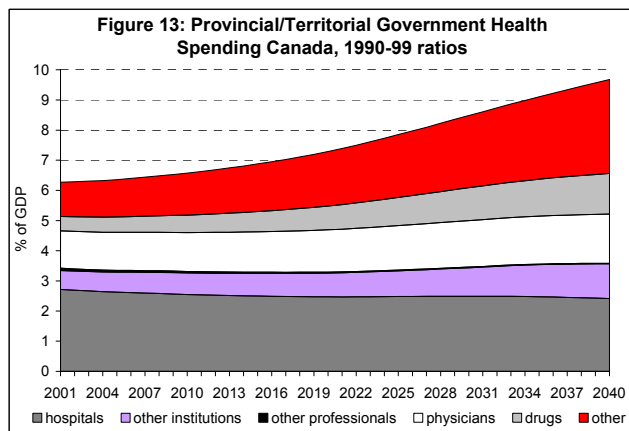
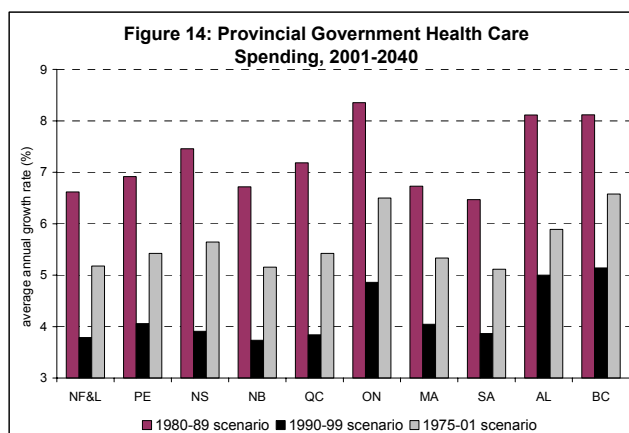


Figure 13 presents the breakdown by category of projected increases under the 1990s scenario, a decade that witnessed substantial growth in the ‘other’ category and a slight decline in spending on hospitals. As these trends are projected forward, the composition of provincial/ territorial spending looks considerably different from

that generated using enrichment ratios from the 1980s.

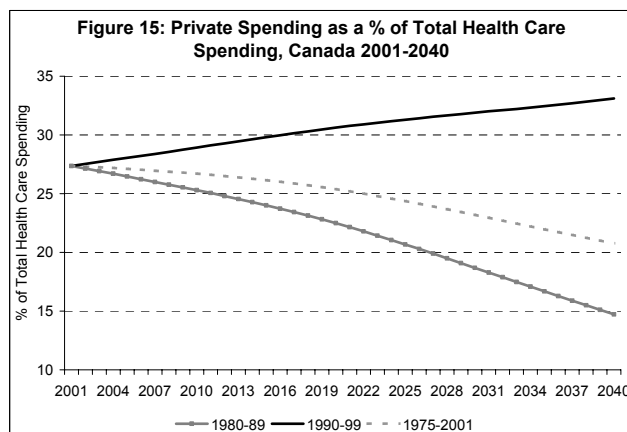


At the provincial level, growth in spending on health care varies substantially between provinces (Figure 14). Ontario, British Columbia, and Alberta are projected to experience the largest average annual growth in spending between 2001 and 2040 under most scenarios, while New Brunswick and Saskatchewan are projected to grow the least. These differences stem largely from demographic factors: differences in population growth and changes in age composition.



Of the scenarios considered, we believe the 1990s projection for provincial/territorial government health spending provides a reasonable baseline. While spending as a share of GDP in this projection is the lowest of all those considered, the projection

incorporates both a period of spending restraint, during the early 1990s, and one of considerable expansion, at the end of the decade. In contrast, the projection based on the 1980s encapsulates rapid expansion of the health-care system throughout the period, reflecting in part the growth of drug expenditures from a very low starting point during this period; it seems unreasonable to suggest that such rapid expansion could continue indefinitely. Rapid increases in health spending also dominate the projection based on enrichment ratios observed between 1975 and 2001 – the periods of expansion wholly outweighing those of spending restraint.



Private sector health-care spending was also projected, using historical enrichment/productivity ratios. Projections show expenditures growing from 2.6% of GDP in 2001 to between 4.9% by 2040 (using the 1975-2001 ratio) and 5.8% (using the 1980-89 ratio). As a share of total spending, private spending may either increase or decrease, depending on the scenario chosen (Figure 15).⁸

⁸ Note that while private spending as a share of total health spending falls using enrichment rates observed during the 1980s, this is largely because public health spending rose more rapidly than private spending. The reverse is true for the projection based on rates observed during the 1990s; public spending increased more slowly than private spending.

As Table 2 shows, while total (public and private) health spending as a share of GDP rises rapidly under the 1980s enrichment ratios, the majority of the growth stems from the public sector, and as a result, private spending as a share of total health spending falls over 12 percentage points (figure 15). On the other hand, based upon 1990s enrichment rates, private health spending grows more quickly than spending in the public sector, which increases the share of private spending in total health spending.

Table 2: Total health spending (% of GDP)

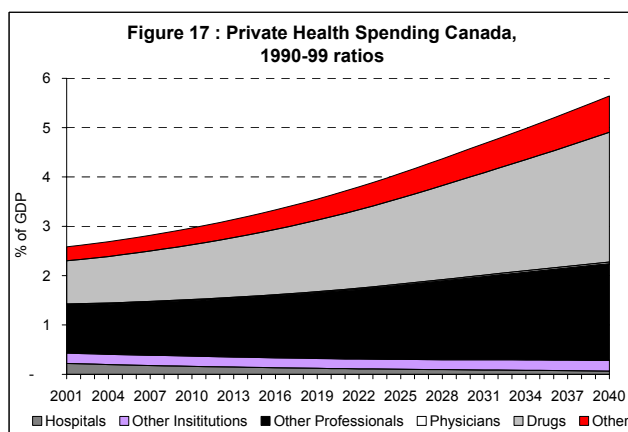
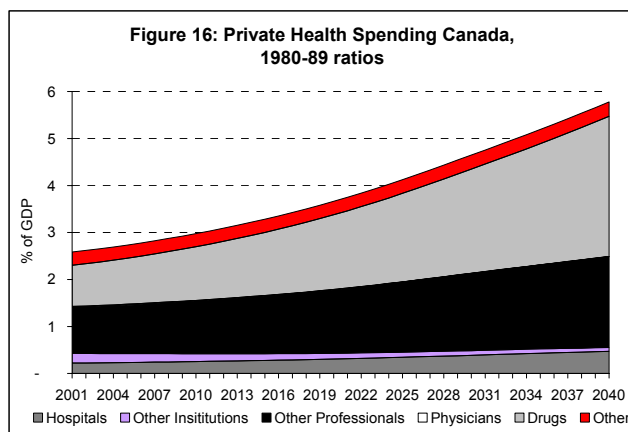
	2001	2020	2040
1980-89	9.4	16.3	39.3
1990-99	9.4	11.9	17.0
1975-2001	9.4	13.6	23.5
ratio=1	9.4	11.0	13.9

Under the ratio=1 scenario, health care enrichment is set equal to productivity growth (i.e. GDP enrichment).

The composition of private health expenditures is very different from that of public expenditures, with drugs and other professionals occupying the largest shares of expenditures. In our projections, spending on drugs increased at the expense of other institutions according to both the 1980 and 1990s scenarios (see Figures 16 and 17), with spending on the ‘other’ category declining in the 1980s scenario, but growing slightly in the 1990s scenario at the expense of hospital spending. In the 1975-01 scenario, spending on drugs and other professionals increases at the expense of all other categories.

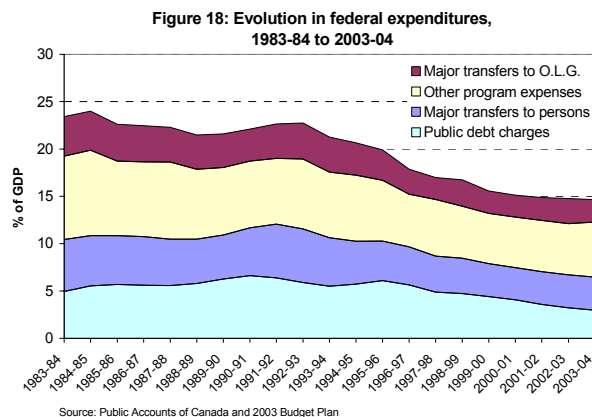
Again, the 1990s scenario provides a reasonable baseline for projection of future growth in total private health spending, given the balanced nature of growth that took place over this time period. Of course, in practice, the composition of future growth in private spending will be highly dependent on public policy developments. An expansion of pharma-care coverage, for

example, could have a very strong impact on the growth of private spending on drugs.



What conclusion can be drawn then about the sustainability of health spending? Again, it depends on how sustainability is defined. Some suggest that any category of spending that grows faster than GDP is problematic, since it could require reductions in the share of GDP devoted to other areas of spending. However, the structure of public spending has always evolved over time, and these changes have been affordable. For example, total health spending as a share of GDP increased from 7% to 9.4% between 1975 and 2001. At the same time, federal public debt charges came down from 6.6% of GDP in 1990-91 to

3.2% of GDP in 2002-03 (Figure 18). Future reductions in debt charges may be expected to create additional fiscal room.



The spending increases projected under 1990s enrichment ratios thus appear to be within the limits of sustainability from both fiscal and political perspectives. However, this could change with a swing in public opinion. Given the wide range of spending options that are fiscal feasible, discussions of sustainability ultimately become a question of public choice. Even very large increases in health spending as a share of GDP are technically feasible, provided citizens choose to devote an ever increasing portion of GDP to the health-care system and are willing to pay for its cost.

However, our projections also show that under different assumptions, overall spending totals could be substantially larger than those assumed under the 1990s baseline scenario.

While our projections thus suggest that there is a wide band of uncertainty surrounding any long-term forecast of health spending, the uncertainty derives from the enrichment component, suggesting that future increases in health care spending due to ageing alone are likely to be moderate.

OTHER CONSIDERATIONS

The projections of health spending discussed in this note capture the direct impact of population ageing given current utilisation rates and the historical relationship between the real per capita, age-adjusted growth rates of health spending and GDP. However, the projections presented here do not explicitly incorporate changes in the relative age-profile of spending. In other words, the age adjustments we employ imply that the age-profile that prevailed in 2001 existed throughout our decomposition period and will be maintained in relative terms throughout our projection period.

While the constant relative age profile is an assumption, it is the most neutral approach to making forward projections. While it would be possible to decompose historical changes in relative age-profiles, future changes would be very difficult to model with any accuracy. In addition, it is not clear that this assumption results in biased projections. To the extent that there have been changes in the relative profile over time, these would have been captured in the enrichment rate and thus incorporated into the projection framework. The only possible source of bias would be the existence of a significant shift in the phenomenon between the decomposition period and the projection period.⁹

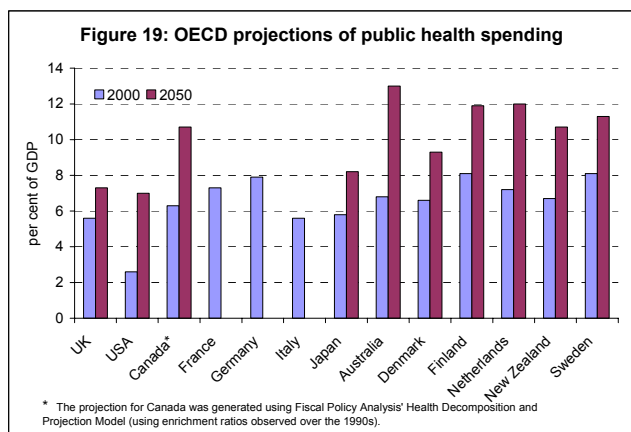
INTERNATIONAL PERSPECTIVE¹⁰

To put our 1990s baseline results in an international context, OECD projections of health spending (Figure 19) suggest that Canada is not alone in facing rapid growth in public health expenditures. Canada, New

⁹ At this point, we have little evidence of such a shift having occurred, or as to the direction and magnitude of the shift.

¹⁰ See annex for data sources.

Zealand, the US and the Netherlands are all projected to face increases in public health spending as a share of GDP greater than 60%. However, international comparisons such as these must be interpreted with caution. Since the projections focus on public spending, only a fraction of health spending in the United States is accounted for. Furthermore, as previously mentioned, the U.K. has recently embarked upon a program of health-care reform involving rapid increases in public spending, such that health spending as a share of GDP will catch up with the European average.



Our projections show sizeable increases in total (public/private) health-care spending as a share of GDP. However, total provincial-territorial government spending on health remains under 10% of GDP by 2040 under the scenario we consider to be a reasonable baseline. While it is impossible to predict the level of health spending increase that can be successfully absorbed, the increases projected under this baseline scenario may be considered likely to be sustainable on a couple of bases:

- historical perspective – the projected increase is well within the range of historical increases over the last 20 years;
- inter-provincial comparisons – figure 10 showed that the projected increase is within the range of existing provincial variation in spending.

It should be emphasized, however, that these projections alone provide only one measure of the sustainability of health spending i.e. the health spending-to-GDP ratio.

A more complete analysis could place the projections shown in this note in a broader fiscal framework that includes all government revenue and spending. Such a framework could be used to evaluate the long-term impact of increases in health spending on government budget balances and debt-to-GDP ratios by taking into account potential offsetting changes in other components of spending.

CONCLUSION

Trends in total nominal health spending alone are insufficient for evaluating the sustainability of health-care spending. Changes in spending vary by province and territory and also by category of health expenditure. Furthermore, increases in health spending may be matched by increases in ability to pay for an expanded health care system. Decomposition analysis of historical trends in spending (relative to GDP) gives a more complete picture of the evolution of the health system across Canada, and is useful in constructing more detailed projections of spending over the next decades.

ANNEX -- NOTES

International projections: Data for all countries, except Canada, are from national projections reported in Fiscal Implications of Ageing: Projections of Age-Related Spending, *OECD Economics Department Working Papers No. 305* (the paper was released in September of 2001, but the projections are based on data available early in 2000). For the sake of consistency with other results presented in the memo, the projection of health spending in Canada is not taken from the OECD working paper, but from Fiscal Policy's current work on a health projection model. The OECD working paper projects a public health-to-GDP ratio of 10.5% for Canada in 2050. The projection for Canada in Figure 17 assumes that real, per capita, age-adjusted growth experienced during the 1990s will continue, resulting in a spending-to-GDP ratio of 10.7%.

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