



C.D. Howe Institute
Institut C.D. Howe

C.D. Howe Institute COMMENTARY

THE HEALTH PAPERS

Chronic Healthcare Spending Disease:

A Macro Diagnosis and Prognosis

DAVID A. DODGE
RICHARD DION



In this issue...

Based on their projections of the rising costs of healthcare over the next two decades, the authors set out four difficult choices for Canadians in the face of this “spending disease.”

THE STUDY IN BRIEF

THE AUTHORS OF THIS ISSUE

DAVID A. DODGE is Senior Advisor at Bennett Jones LLP and is a former Governor of the Bank of Canada.

RICHARD DION is a Senior Business Advisor at Bennett Jones LLP and formerly an economist with the Bank of Canada.

Rigorous external review of every major policy study, undertaken by academics and outside experts, helps ensure the quality, integrity and objectivity of the Institute's research.

This *Commentary* examines from a macroeconomic perspective the trajectory of total – public and private – healthcare spending in Canada over the next two decades. The purpose is to estimate the extent to which healthcare spending is going to absorb a greater fraction of income than Canadians have experienced to date under two scenarios: i) a “baseline” one calculated from parameters estimated from historical experience, and ii) an “optimistic” one calculated from parameters that assume an unprecedented improvement in the efficiency and effectiveness of the healthcare system and large improvement in the capacity for economic growth.

Should policy reforms be incredibly successful in improving the efficiency and effectiveness of the healthcare system, Canadians would still face rising healthcare costs and necessary choices as to how governments and individuals will finance these costs.

In addition to increased spending by individuals and employers for health services currently uninsured by provinces, some combination of increased taxes, reduced public services other than healthcare, increased individual spending on current publicly insured services, or a degradation of publicly insured healthcare standards – longer queues, services of poorer quality – is necessary to manage the growth in healthcare spending. None of these options is appealing; Canadians have no easy way to manage the chronic healthcare spending rise.

ABOUT THE INSTITUTE

The *C.D. Howe Institute* is a leading independent, economic and social policy research institution. The Institute promotes sound policies in these fields for all Canadians through its research and communications. Its nationwide activities include regular policy roundtables and presentations by policy staff in major regional centres, as well as before parliamentary committees. The Institute's individual and corporate members are drawn from business, universities and the professions across the country.

INDEPENDENT • REASONED • RELEVANT

\$12.00

ISBN 978-0-88806-836-1

ISSN 0824-8001 (print);

ISSN 1703-0765 (online)

The expansion of the scope and quality of healthcare services, coupled with apparent low rates of productivity growth in the healthcare sector, has meant that the share of national income devoted to healthcare has increased substantially over the last decades.¹

In the United States this share has doubled since 1975, in the United Kingdom it has increased by over 60 percent, and in Canada it has risen by over 70 percent, from 7 to 12 percent. In other words, over the last 35 years or so in Canada, we have collectively devoted, on average, roughly an additional 0.15 percent of national income each and every year to the consumption of healthcare services.

The growth of real per capita expenditures on healthcare has far exceeded that of personal income per capita (Figure 1).² Expressed differently, we have chosen to spend, on average, 13 percent of the increase in our per capita national income, from 1976 to 2009, on healthcare services. Note that this collective decision has still left plenty of additional income each year to be devoted to consumption of other goods and services, to investment, and to other public services.

Our demonstrated public and private decisions to allocate a considerable fraction of rising per capita national income to healthcare services over the last 35 years broadly reflects the choice of Canadians given: a) the rate of growth of national income; b) the demographic structure of Canada; c) the relative price of healthcare services;³ and

d) the net effect of the expansion of the possible scope and quality of healthcare services less the cost-reducing impact of new technologies. Were these four factors to continue over the next two decades in the same way as they have over the past few decades, then there is no reason to think that it would be unsustainable for the share of national income devoted to healthcare to continue to rise, on average, at about 0.15 percentage points per year.⁴ Indeed, that is what we might expect given the demonstrated choices that Canadians – and European and Americans – have made over the last few decades.⁵

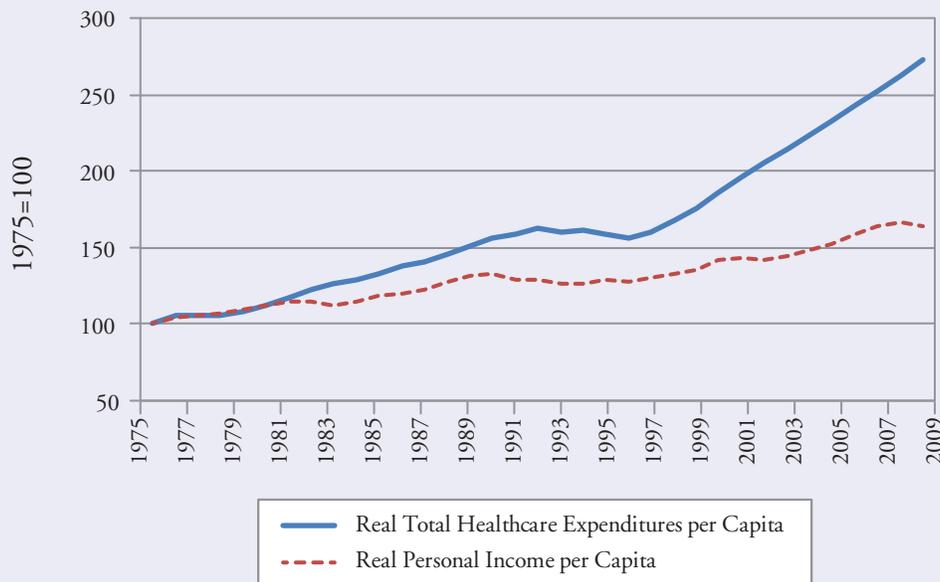
Our goal in this paper is twofold: first, to project the evolution over the next two decades of healthcare expenditures under a base-case scenario and an optimistic-case scenario;⁶ and, second to estimate the consequences of the projected growth rates of healthcare expenditures for private and public financing, thereby illuminating the difficult choices that Canadians will have to make, even in an optimistic scenario.

Our strategy for projecting healthcare expenditures consists in combining separate projections of nominal GDP and the ratio of healthcare spending to nominal GDP. We begin by constructing base-case and optimistic-case projections of nominal GDP growth. The base case reflects business-as-usual assumptions whereas the optimistic projection incorporates the assumed effects of new policy initiatives and structural changes. We then generate a base-case projection of Canadian total healthcare spending, both public and private, as a ratio of GDP to 2031 by

We would like to thank those who reviewed this paper for their enormously helpful suggestions.

- 1 Labour productivity in the healthcare sector is subject to considerable mis-measurement because of the difficulty of adequately measuring quality changes, prices and quantities in this sector. For instance, any failure to differentiate between true price increases and improvement in efficacy and quality would lead to overestimation of the true price of healthcare. See, for instance, Sharpe, Bradley and Messinger (2007).
- 2 Both healthcare expenditures per capita and personal income per capita are deflated by the price of personal consumption expenditures.
- 3 This relative price is not the result of purely competitive forces. In part, it reflects the desires and power of providers in a healthcare system in which political bargaining power and negotiations over administered prices prevail.
- 4 But “sustainable” does not necessarily imply “optimal” if the delivery system is increasingly inefficient or ineffective.
- 5 Hall and Jones (2007) shows that if the marginal utility of non-health consumption falls sufficiently rapidly and, as income increases, healthcare consumption becomes the most valuable channel for spending as it can buy additional years of good life. In this context, a rising share of income devoted to healthcare spending is a choice of Canadians and not necessarily unsustainable.
- 6 The model-based methodology underpinning the projections of the healthcare spending-to-GDP ratio and the assumptions underlying the base case and the optimistic case are explained in Dodge and Dion (2011).

Figure 1: Index of Total Healthcare Spending and Personal Income



Source: CIHI (2010) and authors' calculations.

simulating the response of the ratio to the four drivers mentioned earlier.⁷ We also construct an optimistic projection of the total healthcare spending-to-GDP ratio by evaluating the plausible effects of new policies and economic developments as they impart:

- a smaller net contribution to expenditure growth related to the expansion of the scope of services, less technology-enabled cost reductions;
- a reduction in the relative price of healthcare services; and,
- a smaller effect of population aging on healthcare spending.

Combining the projected total healthcare spending-to-GDP ratio and nominal GDP, each under a base case and an optimistic case, then results in two projected paths for total healthcare spending in Canada over the next two decades. Each represents one possible path: the base case is more or less the result of business-as-usual assumptions while the optimistic

case assumes unprecedented policy initiatives and structural change.

Income Growth Projections

Over the longer term, nominal GDP grows at about the rate of real economic growth, with the economy operating at full capacity, adjusted for general inflation and changes in export and import prices – the terms of trade – as shown in Table 1. In turn, the rate of economic growth at full capacity – a concept known as real potential economic growth – is roughly the sum of the rates of growth of total hours worked and labour productivity, at prevailing trends. Under our base-case scenario, nominal GDP growth decelerates from 4.8 percent over the period 2012 to 2016 down to 3.8 percent in the 2020s, largely as a result of a 0.8 percentage point decline in real potential growth to 1.8 percent.⁸ The latter essentially stems from the aging of the population,

⁷ Our analysis is akin to a macro “decomposition-of-growth” type of analysis, not one built up from complex micro-foundations. It represents a generalization of empirical results on the determinants of aggregate healthcare spending over past decades in advanced countries.

⁸ In this paper, our projections of income and total healthcare spending are broken up in 2016 to allow for a transition between the short term and the long term in view of the fact that both adjustment to policy changes and the unwinding of short-term shocks take time.

Table 1: Canada's Annual Potential Growth – 2009 to 2031

	2009-2012	2012-2016	2016-2021	2021-2031
	<i>Growth in Percent</i>			
Cyclical Component of GDP	0.8	0.0	0.0	0.0
Population 15+	1.19	1.06	0.95	0.99
Trend Total Hours	1.0	1.1	0.8	0.5
<i>Optimistic Case</i>	1.0	1.1	0.9	0.7
Trend Labour Productivity	1.0	1.5	1.25	1.25
<i>Optimistic Case</i>	1.0	1.5	1.75	1.75
Real Potential Growth	2.0	2.5	2.0	1.75
<i>Optimistic Case</i>	2.0	2.6	2.7	2.5
Domestic Inflation	2.0	2.0	2.0	2.0
Contribution of Terms of Trade	0.5	0.25	0.0	0.0
Nominal GDP Growth	5.25	4.75	4.0	3.75
<i>Optimistic Case</i>	5.25	4.9	4.7	4.5

Source: Authors' calculations.

which cuts growth in total hours worked by nearly half between the 2012 to 2016 and 2021 to 2031 periods, via a decline in the aggregate labour force participation rate (Figure 2).⁹ Further, a slight deceleration of GDP price inflation via slower terms-of-trade gains contributes to the slowing of nominal GDP growth, up to 2016.

Under the optimistic case, potential economic growth barely slows between the 2012 to 2016 and 2021 to 2031 periods, both because of an assumed larger increase in the participation rate of the 55 and over population as a result of policy initiatives and other factors, and because of higher trend productivity growth as a result of renewed attempts by the private sector to catch up with a much higher level of productivity in the United States. As a result, nominal GDP growth decelerates much less than in the base case, from about 5 percent over the 2012-2016 period to 4.5 percent per year in the 2020s.

Projections of the Total Healthcare Spending-to-GDP Ratio

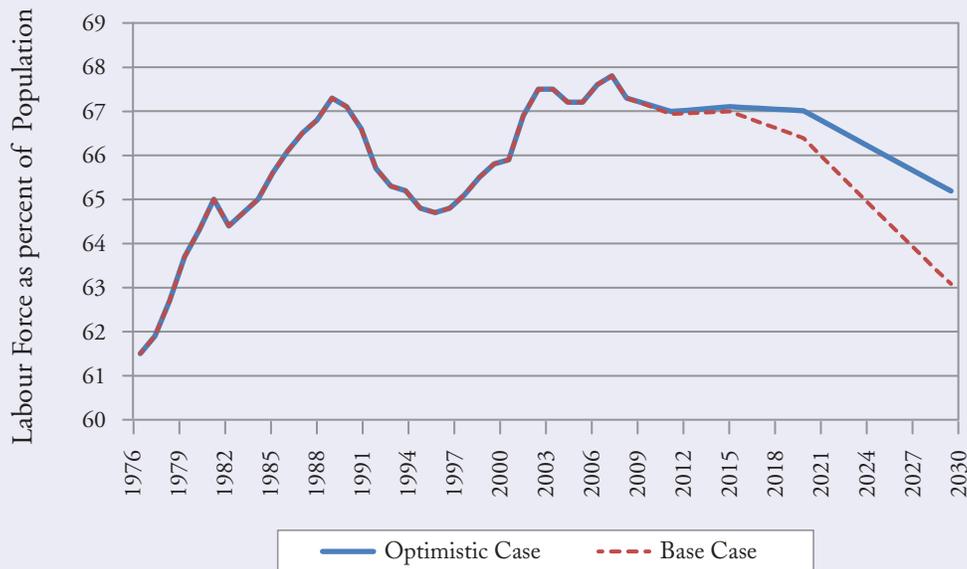
Total healthcare spending, combining public and private expenditures, has tended to rise as a proportion of GDP since at least the late 1970s.¹⁰ It more or less stabilized from 1983 to 1988 and declined from 1993 to 1997 as a result of fiscal retrenchment, but then sprang back to reach a new high for the whole period in 2009 (Figure 3). Since 1975, healthcare expenditures on average have grown faster than nominal GDP by 1.7 percentage points per year, or 8.3 vs. 6.6 percent.

What drives changes in the total healthcare spending-to-GDP ratio over time in our framework are the following four factors: i) changes in the age/gender structure of the population; ii) changes in the relative price of healthcare to GDP; iii) changes in the quality and scope of medical services; and iv) the evolution of real personal

9 A slowdown in the growth rate of the population 15+ also contributes to lower growth in trend total hours, but to a much lesser extent than the decline in trend labour force participation from the mid-2010s onwards as Table 1 shows.

10 Healthcare expenditures data are from the Canadian Institute for Health Information (2010). These expenditures cover spending related to hospitals, other institutions, physicians, dental services, vision care services, other professional (health) services, drugs, capital, public health, administration, health research and other miscellaneous expenditures.

Figure 2 : Aggregate Labour Force Participation Rate



Source: Authors' calculations.

income relative to real GDP.¹¹ On the assumption that growth in real per capita healthcare expenditures responds one-for-one to a given percentage growth in inflation-adjusted per capita income,¹² changes in real income growth have no impact on the evolution of the healthcare spending-to-GDP ratio.¹³ What an increase (decrease) in the rate of potential output or income growth would do, however, is to make more (less) resources available for the production and consumption of all public and private goods and services in the economy. For a given path of healthcare spending-to-GDP over time, faster

potential economic growth allows faster growth in public and private spending on non-healthcare goods and services without increasing private or public debt relative to GDP.¹⁴

Demographics

Changes in the age-gender structure of the population affect aggregate real healthcare expenditures per capita because average healthcare spending per capita increases rapidly with the age of the persons beyond a mid-40s age threshold, as illustrated in Figure 4.¹⁵

11 See Dodge and Dion (2011) for a derivation of this framework.

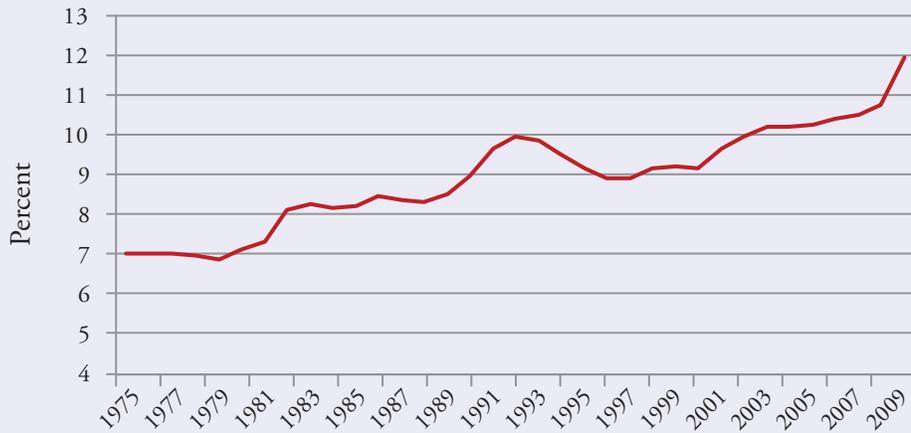
12 A unit income elasticity of real per capita healthcare expenditures is in the range of empirical estimates based on aggregate data. See, for instance, Ginsburg (2008) and Smith, Newhouse and Freeland (2009).

13 Except through possible indirect effects on the growth of the relative price of healthcare to GDP, changes in the quality and scope of medical services, or the growth of real personal income to GDP. Our projections ignore such possible indirect effects for lack of empirical evidence on these relationships.

14 On the assumption of a non-unitary income elasticity, the projected fall in real potential growth would have an impact on the growth rate of the healthcare spending-to-GDP ratio. With an elasticity lower than one, the projected fall in real potential growth would give rise to faster growth in both real per capita healthcare spending and the healthcare spending-to-GDP ratio, *ceteris paribus*. Over history, the contribution of the residually-determined technology factor to the rise in the healthcare spending-to-GDP ratio would be larger than with a unitary income elasticity. If this larger contribution was maintained over the projection horizon, the paths of real per capital healthcare spending and healthcare spending-to-GDP ratio would be higher over the next 20 years than under the assumption of a unitary income elasticity. The converse would hold with an income elasticity greater than one. For more detail, see Dodge and Dion (2011).

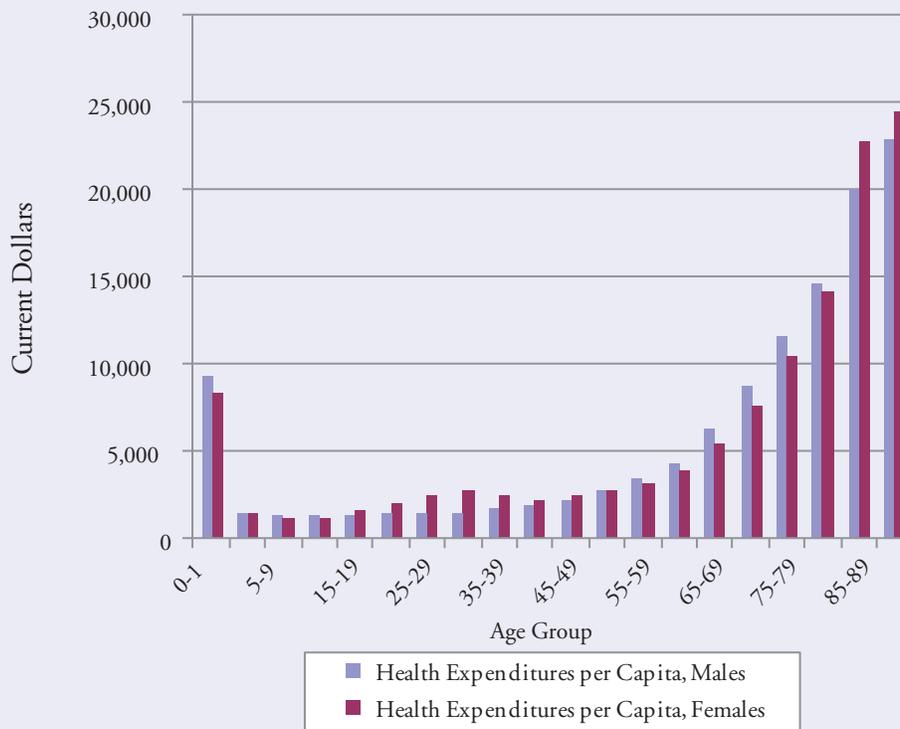
15 The projections of population by age and gender groups are from Scenario M1 (medium-growth) of Statistics Canada. See Statistics Canada (2010).

Figure 3 : Healthcare Expenditures as Percent of GDP – 1975 to 2009



Source: Authors' calculations.

Figure 4: Healthcare Spending per Capita, by Age Group – 2008



Source: CIHI (2010).

Moreover it does so more slowly for women than for men up to old age. For example, healthcare spending per capita associated with the 65-74 age group is larger than that associated with the 0-44 age group by a factor of 4.6 for males and 3.2 for females (Table 2). A considerable

share of lifetime healthcare expenditures are incurred not long before a person dies, so an exponentially rising mortality rate as age increases beyond a mid-life threshold is a very significant driver of the age-spending gradient. In our base case, the 2008 profile of spending by age group is

Table 2: Total Healthcare Expenditures per Capita by Age Group – 2008

Age Group	Current Dollars		Index, Age 0-44 = 1.00	
	Males	Females	Males	Females
0-44	1,590	2,030	1.00	1.00
45-64	2,990	2,890	1.88	1.42
65-74	7,330	6,400	4.61	3.15
75-84	12,690	12,080	7.98	5.95
85+	20,730	23,360	13.04	11.51

Source: CIHI (2010) and authors' calculations.

assumed to hold throughout the next two decades. In our optimistic case, the health cost indexes for the 65-74 and 75-84 age groups relative to the benchmark 0-44 age group are smaller on average by 8 percent over 2016 to 2021, and by 15 percent over 2021 to 2031.¹⁶ This is consistent with the assumption that the current 44-65 cohort is in better health than was the former 44-65 cohort of 20 years ago, leading to less healthcare spending per person than is the case at present when the current cohort reaches 65-84 years of age over the next 20 years.¹⁷ Note that this works through a lower morbidity rate rather than a lower mortality rate.

Relative Price of Health

A change in the relative price of healthcare can affect total healthcare spending through demand

and supply channels. In this exercise, an increase (decrease) has no negative (positive) effect on demand because the latter is assumed to respond little to changes in relative prices, consistent with empirical evidence (Smith, Newhouse and Freeland 2009). In percentage terms, changes in relative healthcare prices are expected instead to be positively reflected on a one-for-one basis¹⁸ in changes in per capita inflation-adjusted healthcare spending and the healthcare spending-to-GDP ratio.

The price of healthcare services is proxied by the National Accounts price of health service consumption.¹⁹ This price index is essentially driven by the evolution of wage and salaries in the healthcare sector and drug prices. Growth in the measured productivity of healthcare workers is by assumption close, if not equal, to zero. Relative to the implicit price of GDP in the National Accounts, the price of healthcare consumption

16 This is the outcome of lowering the (2008) health cost indexes by 15% in 2021 until 2031 relative to 2016. As a result, the contribution of changes in the age-gender structure of population to growth in the healthcare spending-to-GDP ratio is reduced in the optimistic case relative to the base case over 2016-2021 but remains unchanged from the base case over 2021-2031, as Table 3 shows.

17 Work by Sanderson and Scherbov (2010) suggests that when forecasting the impact of aging, policymakers need to adjust for increases in longevity and health, which they estimate have the effect of cutting the effective speed of aging considerably. Note that the lower morbidity rates for older groups implied by the optimistic case can be seen as contributing to the higher participation rates of older workers in our optimistic case for income growth relative to our base case.

18 In more technical economics parlance, this assumes unit elasticities. It is worth noting that real spending is driven by the price of healthcare consumption relative to the price of total consumption, whereas the healthcare spending-to-GDP ratio is driven by the price of healthcare consumption relative to the price of GDP (Dodge and Dion 2011).

19 An alternative measure of price change in the healthcare sector would reflect a weighted average of the growth rates of the various input prices net of the growth of total factor productivity in the healthcare sector. Data constraints prevent the estimation of such a measure.

rose by 0.7 percent per year from 1991 to 2001, but edged down on average between 2001 and 2009 because of gains in the terms of trade, which boosted the price of GDP relative to the price of consumption, including consumption of healthcare services.

In our base case, fiscal austerity and terms-of-trade gains are projected to further reduce the relative price of healthcare to GDP by 0.9 percent per year over the 2010 to 2012 period. This measure moves to zero percent per year from 2013 to 2016 and returns to its 1991 to 2009 average of 0.2 percent per year thereafter. By implication, the relative price of healthcare to total consumption rises by 0.5 percent per year from 2012 to 2016, and 0.7 percent per year from 2016 to 2031.

In our optimistic case, the price of healthcare consumption relative to GDP declines by 0.5 percent per year over 2013 to 2016 and 0.3 percent per year over 2016 to 2031 as a result of efficiency gains and possibly slower wage growth in the healthcare sector relative to the rest of the economy due to fiscal pressures. By implication, the price of healthcare relative to total consumption remains flat over the 2012 to 2016 period and rises by 0.2 percent per year over the years 2016 to 2031.

Technology

Changes in medical technology and practices are expected to have a material impact on healthcare spending. For instance, introducing a more effective but more expensive diagnostic tool for treatment of a particular disease would generate increased demand for healthcare services and boost healthcare costs. This technology factor is next to impossible to measure directly at the aggregate level, so its contribution to the growth rates of both real per capita healthcare spending and the healthcare spending-to-GDP ratio is estimated residually instead. After accounting for growth in per capita personal income, changes in

the age/gender structure of population, and changes in the relative price of healthcare consumption to total consumption, the actual growth rate of real per capita healthcare spending over 1996 to 2009 leaves a residual of 1.1 percent per year, which is ascribed to “technology.”²⁰ This factor thus accounts for fully one-quarter of the growth in real per capita healthcare spending over 1996 to 2009. By comparison, technology is estimated to account for as much as 27 to 48 percent of the growth in inflation-adjusted, per capita healthcare spending in the United States over the 1960 to 2007 period (Smith, Newhouse and Freeland 2009).²¹

Being a residual, technology could reflect the net impact of a variety of factors such as changes in the scope and quality of healthcare services, technological improvements in services delivery, changes in the wellness of the population, changes in the physician specialty mix, and the potentially stimulating effect of increased supply of healthcare resources on the use of healthcare services. However, we concur with the widespread view that changes in the scope and quality of the healthcare services, which are importantly influenced by changes in medical technology, are the most fundamental factor underlying the residual.

In our base projection, the contribution of technology is assumed to be the same as over 1996 to 2009 – or each of the 1996-2001 and 2001-2009 periods for that matter – accounting for about 1.1 percentage points of the annual growth rates of the healthcare spending-to-GDP ratio. In our optimistic case, however, such a contribution is smaller by 25 percent from 2016 to 2021, and 50 percent over 2021 to 2031. These reductions, which are substantial in view of the stable contribution of technology over the 1996 to 2009 period, reflect our judgment that three factors: i) better price incentives and bottom-up accountability measures leading to more cost-effective treatments and practices; ii) a slower

20 It is worth noting that the importance of the technology factor and the nature of its drivers may differ significantly between the public and private sectors of the healthcare system. This interesting issue is beyond the scope of this paper.

21 Note, however, that the model used by Smith, Newhouse and Freeland (2009) to extract a technology residual is not identical to the one used in this study.

rate of increase in new procedures and drugs; or
 iii) faster creation and diffusion of cost-reducing technology – could result in a major reduction in the rate of growth of costs, provided that very significant efforts are deployed.

Projection Results

In the base case, aging and technology each account for about half of the annual growth in the total healthcare spending-to-GDP ratio from 2013 onwards (Table 3). An increase in real personal income relative to GDP makes an appreciable contribution over 2001 to 2009, but its subsequent flat profile has no effect on the ratio over the projection horizon.²² Changes in the relative price of healthcare consumption boost the ratio by 0.2 percent per year from 2017 onwards. The healthcare spending-to-GDP ratio rises from close to 12.0 percent in 2009 to 18.7 percent in 2031 (Figure 5).

In the optimistic case, the rise in the healthcare spending-to-GDP ratio is more limited than in the base case but quite significant nonetheless, since it brings the ratio to 15.4 percent by 2031. Demographics, relative prices and technology, all contribute to the lower escalation of the ratio than in the base case (Table 3).²³

From a policy perspective, one important outcome of these projections is the very important role played by technology in driving the healthcare spending-to-GDP ratio. This makes it a key area for health-policy initiatives aimed at improving the efficiency of the delivery system and the incentives for more cost-effective healthcare intervention, in contrast with aging, which is equally important but will be little influenced by healthy-living and healthcare policies over the next 20 years.

Implications For Non-Healthcare Spending

Our projections of the healthcare spending-to-GDP ratio and nominal GDP allow us to extract the trajectory of healthcare expenditures over the next two decades. In our base case, the annual increase in nominal healthcare spending per capita is set to rise from about \$250 in the last decade to \$675 in the 2020s. This would bring total annual spending per capita after inflation to about \$7,400 in 2021 and \$10,700 in 2031, up from nearly \$4,900 in 2009. Even in our optimistic case the annual increase in current dollars is set to rise to about \$600 in the 2020s. At the same time, the annual increase in GDP per capita in our base case climbs from about \$1,200 in the last decade to about \$2,200 in the 2020s and in our optimistic policy-induced case to about \$2,900. The implication of our base case is that in the 2020s, Canadians will be spending 31 cents of every dollar of increase in their nominal incomes on healthcare, thus bringing the average share of healthcare spending in GDP up to nearly 17 percent. Even in our optimistic case, 20 cents of every additional dollar of income will be directed to healthcare. These figures contrast with an average of about 11 cents between 1976 and 2001, but do not wildly differ from the roughly 20 cents in the first decade of this century.

In our base case the amount of real additional per capita income, expressed in constant 2009 dollars, that would be left over each year to be spent on all other goods and services would fall over the next two decades from over \$1,500 on average in the years 2010 to 2012, to \$1,000 on average in the years 2021 to 2031, while in our optimistic case it would rise to \$1,600 (Figure 6). Clearly, this optimistic case is preferable to the base case but in neither case does the increased spending on healthcare “eat up” all, or even a majority of the gains in income.

22 Except for temporary declines in 2010 and 2011, which show up in Figure 5. The assumed flat profile beyond 2011 ignores the possibility that shifts in the labour share of income or movements in the terms of trade steer real personal income growth away from real GDP growth.

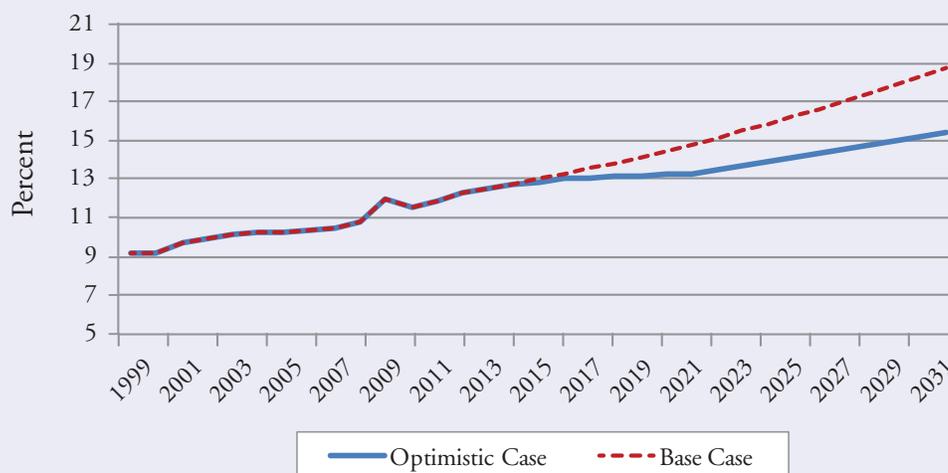
23 Note that a positive “interaction effect” is tentatively introduced in the projection to mitigate the risk of triple-counting the effect of faster improvement in cost-reducing technology when adding the three stand-alone cost shocks to generate the optimistic case (see Dodge and Dion 2011).

Table 3: Annual Growth In the Healthcare Spending-to-GDP Ratio

	2001-2009	2009-2012	2012-2016	2016-2021	2021-2031
	Growth in Percent				
Healthcare Spending/GDP Ratio (Base Case)	2.7	1.1	1.9	2.2	2.4
<i>Optimistic Case</i>	2.7	1.1	1.5	0.4	1.5
Contributions From:					
Age-Gender Structure of Population	0.7	0.9	0.8	0.9	1.1
<i>Optimistic Case</i>	0.7	0.9	0.8	-0.3	1.1
Technology	1.1	1.1	1.1	1.1	1.1
<i>Optimistic Case</i>	1.1	1.1	1.1	0.8	0.5
Relative Price of Health Care	-0.1	-0.9	0.0	0.2	0.2
<i>Optimistic Case</i>	-0.1	-0.9	-0.5	-0.3	-0.3
Real Personal Income/Real GDP	1.0	0.0	0.0	0.0	0.0
<i>Optimistic Case</i>	1.0	0.0	0.0	0.0	0.0
Interaction Effect (Optimistic Case)	0	0.0	0.1	0.2	0.2

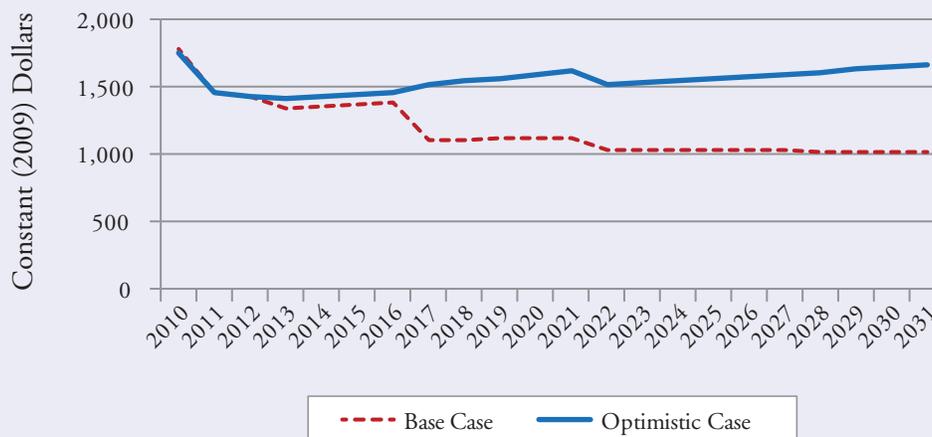
Source: Authors' calculations.

Figure 5 : Projected Healthcare Spending-to-GDP Ratio



Source: Authors' calculations.

Figure 6 : Annual Increase in Real GDP per Capita Available for Non-Health Expenditures



Note: Author's calculations (see explanations in text).

Even though rising healthcare costs will not eat up the preponderance of national income increases over the next two decades, there will nonetheless be very difficult choices ahead – especially for Canadian governments who will be held responsible for providing most of these services, and for any offloading of costs onto individuals or employers.

Implications For Healthcare Finance ²⁴

From 2012 to 2031, the annual growth of healthcare expenditures averages 6.4 percent in the base case and 5.8 percent in the optimistic case. This compares with 4.0 and 4.6 percent, respectively, for nominal GDP growth. Public and private spending as shares of additional income are thus expected to rise substantially in the base case and quite significantly in the optimistic case.

Even under an optimistic scenario when healthcare spending rises by 3.5 percentage points of GDP over the next two decades, private citizens will have to devote an increasing share of additional income to private healthcare insurance, direct out-of-pocket expenses on healthcare services, and long-term care, assuming no change in the private-sector share of total healthcare financing.

In the base case, to prevent the rise in the total healthcare spending-to-GDP ratio from pushing up the public debt-to-GDP ratio over the next two decades, governments will have to increase their revenues or reduce their non-healthcare expenditures by the equivalent of about 4.8 percentage points of GDP if they continue to finance about 70 percent of total healthcare spending.²⁵ Even in the optimistic case they will have to find revenue enhancements or expenditure constraints equivalent to about 2.5 percentage points of GDP. At the same time, in this optimistic case they will have to both carry out a

²⁴ See also Ragan (2010).

²⁵ Government revenues would increase only slightly faster than nominal GDP on the assumption that the elasticity of revenues to GDP continues to modestly exceed one. This implies that, other things equal, tax rates would have to increase to prevent a rise in the debt/GDP ratio in the face of an escalation in the healthcare spending/GDP ratio. On the expenditure side, spending on other programs would have to increase less rapidly than GDP through cuts in services, increase in labour productivity in the public sector, or compression of public-sector wages relative to private-sector wages.

major overhaul of the healthcare delivery system and pursue structural policies to increase productivity and labour force participation, neither of which will be politically popular.²⁶

If, after 2014, health-related federal transfers to the provinces increase at the same rate as Canadian nominal GDP, then the overall budgetary position of provincial governments could deteriorate significantly over the next decades, *ceteris paribus*. For example, the Ontario government would see its healthcare spending rise from about \$43.5 billion in 2009 to \$154 billion in 2031 if this spending was to grow at the same rate as total Canadian healthcare expenditures in the optimistic case, or 5.9 percent per annum. If at the same time health-related federal transfers to Ontario were to increase at the same pace as Canadian GDP in the optimistic case, or 4.7 percent per annum, then the Ontario government would need to generate additional own-source revenues or compress non-healthcare program spending by a substantial amount each year over 2010 to 2031 in order to prevent the rise in the healthcare spending-to-GDP ratio from pushing up its debt-to-GDP ratio. Alternatively, Ontario would have to reduce the scope of insured services.

Conclusion

Even if we in Canada are incredibly successful in improving the productivity, efficiency and effectiveness of the healthcare system – our optimistic case – we face difficult but necessary choices as to how we finance the rising costs of healthcare and manage the rising share of additional income devoted to it.

In addition to increased spending by individuals – and employers – for services currently uninsured by provinces, some combination of the following actions will be necessary to manage the “spending disease:”

- 1) a sharp reduction in public services, other than healthcare, provided by governments, especially provincial governments;
- 2) increased taxes to finance the public share of healthcare spending;
- 3) increased spending by individuals on healthcare services that are currently insured by provinces, through some form of co-payment or through delisting of services that are currently publicly financed;
- 4) a major degradation of publicly insured healthcare standards – longer queues, services of poorer quality – and the development of a privately funded system to provide better-quality care for those willing to pay for it, as in the UK and many European countries. This “two-tier” option would not have much effect on the rate of growth of total spending but, like option 3 above, would alter the public-private split and have distributional implications.

None of these options is appealing; there is no easy way to manage the chronic healthcare spending rise. In this paper we have attempted to provide a diagnostic of the spending disease and a prognosis of its evolution. The prognosis is not good, even if we are incredibly successful in improving the efficiency and effectiveness of healthcare delivery. But the spending disease must be managed. It is now up to Canadians to have an adult discussion about how to manage it.

²⁶ To compound the problem, global population aging may well put upward pressure on long-term interest rates and hence intensify debt service costs over the next 40 years (Takats 2010). The rationale is “that house prices are determined jointly with financial asset prices. Hence, if house prices face headwinds, so should financial asset prices” (Takats 2010, p.3). With aging, the proportion of the population that dissaves or saves relatively little and thereby sells assets (housing and financial) to finance retirement increases.

References

- Canadian Institute for Health Information (CIHI). 2010. *National Health Expenditure Trends, 1975 to 2010*. Ottawa: CIHI.
- Dodge, D.A., and R. Dion. 2011. "Chronic Healthcare Spending Disease: Background and Methodology." C.D. Howe Institute Working Paper.
- Ginsburg, P.B. 2008. "High and Rising Healthcare Costs: Demystifying U.S. Healthcare Spending." Robert Wood Johnson Foundation, Research Synthesis Report No. 16.
- Hall, R.E., and C.I. Jones. 2007. "The Value of Life and the Rise in Health Spending." *The Quarterly Journal of Economics* (February), 39-72.
- Ragan, Chris. 2010. "Two Policy Challenges Driven by Population Aging." *Policy Options* . Vol 31. No. 09. October.
- Sanderson, W.C., and S. Scherbov. "Remeasuring Aging." *Science* (10 September 2010): 1287-1288.
- Sharpe, A., C. Bradley and H. Messinger. 2007. "The Measurement of Output and Productivity in the Healthcare Sector in Canada: An Overview." Centre for the Study of Living Standards Research Report 2007-06 (December).
- Smith, S., J.P. Newhouse and M.S. Freeland. 2009. "Income, Insurance, and Technology: Why Does Health Spending Outpace Economic Growth?" *Health Affairs* 28 (5), 1276-1284.
- Statistics Canada. 2010. "Population Projections for Canada, Provinces and Territories, 2009 to 2036." Cat. 91-520-XIE.
- Takats, E. 2010. "Ageing and Asset Prices." BIS Working Papers No. 318 (August).

C.D. Howe Institute Commentary© is a periodic analysis of, and commentary on, current public policy issues. James Fleming edited the manuscript; Yang Zhao prepared it for publication. As with all Institute publications, the views expressed here are those of the author and do not necessarily reflect the opinions of the Institute's members or Board of Directors. Quotation with appropriate credit is permissible.

To order this publication please contact: Renouf Publishing Company Limited, 5369 Canotek Road, Ottawa, Ontario K1J 9J3; or the C.D. Howe Institute, 67 Yonge St., Suite 300, Toronto, Ontario M5E 1J8. The full text of this publication is also available on the Institute's website at www.cdhowe.org.

- March 2011 Laurin, Alexandre, Finn Poschmann and William B.P. Robson. “When Striking an Awkward Balance Means Striking Out: Budget 2011.” C.D.Howe Institute e-brief.
- March 2011 Fortin, Pierre. *Staying the Course: Quebec’s Fiscal Balance Challenge*. C.D. Howe Institute Commentary 325.
- March 2011 Fortin, Pierre. *Garder le Cap: le défi de l’équilibre budgétaire du Québec*. C.D. Howe Institut Commentaire 325
- March 2011 Ferede, Ergete, and Bev Dahlby. *The Marginal Cost of Public Funds for Provincial Governments*. C.D. Howe Institute Commentary 324.
- March 2011 Ragan, Christopher. “Fixing Canada’s CPI: A Simple and Sensible Policy Change for Minister Flaherty.” C.D.Howe Institute e-brief.
- February 2011 Hrudey, Steve E. *Safe Drinking Water Policy for Canada – Turning Hindsight into Foresight*. C.D. Howe Institute Commentary 323.
- February 2011 Bergevin, Philippe, and William B.P. Robson. *The Costs of Inflexible Indexing: Avoiding the Adverse Fiscal Impacts of Lower Inflation*. C.D. Howe Institute Commentary 322.
- February 2011 Ragan, Christopher. *Precision Targeting: The Economics – and Politics – of Improving Canada’s Inflation-Targeting Framework*. C.D. Howe Institute Commentary 321.
- February 2011 Bruce, James P. “Protecting Groundwater: The Invisible but Vital Resource.” C.D. Howe Institute Backgrounder 136.
- February 2011 Laurin, Alexandre, and William B.P. Robson. *A Faster Track to Fiscal Balance: The 2011 Shadow Budget*. C.D. Howe Institute Commentary 320.
- January 2011 Melino, Angelo. *Moving Monetary Policy Forward: Why Small Steps – and a Lower Inflation Target – Make Sense for the Bank of Canada*. C.D. Howe Institute Commentary 319.
- January 2011 Poschmann, Finn. *What Governments Should Do in Mortgage Markets*. C.D. Howe Institute Commentary 318.
- January 2011 Calmes, Christian, and Raymond Theoret. “Lifting the Veil: Regulation and Shadow Banking.” C.D. Howe Institute e-brief.
- January 2011 Richards, John. “School Dropouts: Who Are They and What Can Be Done?” C.D. Howe Institute e-brief.
- December 2010 Longworth, David. “Warding Off Financial Market Failure: How to Avoid Squeezed Margins and Bad Haircuts.” C.D. Howe Institute Backgrounder 135.
- December 2010 Moore, Kevin D., William Robson and Alexandre Laurin. *Canada’s Looming Retirement Challenge: Will Future Retirees Be Able to Maintain Their Living Standards upon Retirement?* C.D. Howe Institute Commentary 317.
- December 2010 Green, Andrew, and Michael Trebilcock. *The Eco-Fee Imbroglia: Lessons from Ontario’s Troubled Experiment in Charging for Waste Management*. C.D. Howe Institute Commentary 316.
- November 2010 Allan, David C., and Philippe Bergevin. *The Canadian ABS Market: Where Do We Go From Here?* C.D. Howe Institute Commentary 315.
- November 2010 Peters, Jotham, Chris Bataille. Nic Rivers and Mark Jaccard. *Taxing Emissions, Not Income: How to Moderate the Regional Impact of Federal Environment Policy*. C.D. Howe Institute Commentary 314.
- November 2010 Bliss, Michael. *Critical Condition: A Historian’s Prognosis on Canada’s Aging Healthcare System*. C.D. Howe Institute 2010 Benefactors Lecture.

SUPPORT THE INSTITUTE

For more information on supporting the C.D. Howe Institute’s vital policy work, through charitable giving or membership, please go to www.cdhowe.org or call 416-865-1904. Learn more about the Institute’s activities and how to make a donation at the same time. You will receive a tax receipt for your gift.

A REPUTATION FOR INDEPENDENT, NONPARTISAN RESEARCH

The C.D. Howe Institute’s reputation for independent, reasoned and relevant public policy research of the highest quality is its chief asset, and underpins the credibility and effectiveness of its work. Independence and nonpartisanship are core Institute values that inform its approach to research, guide the actions of its professional staff and limit the types of financial contributions that the Institute will accept.

For our full Independence and Nonpartisanship Policy go to www.cdhowe.org.

C.D. Howe Institute
67 Yonge Street
Toronto, Ontario
M5E 1J8

Canadian Publication Mail Sales
Product Agreement #40008848