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The Unfunded Liability of Canada's Health Care System

by Milagros Palacios and Nadeem Esmail

This Alert analyzes the unfunded liability of Canada's health care system (Medicare). A program has an unfunded liability when it has a shortfall between the expected future stream of funding and future benefit obligations.

The size and complexity of the unfunded liability associated with Medicare warrants special attention. At its inception, this program was based on the assumption that demographics, economic growth rates, and wage increases prevalent in the 1960s would persist. These assumptions have proven false. Birth rates have declined, income growth has slowed, and mortality rates have decreased. Demographic changes will continue to undermine the ability of this plan to provide the intended level of benefits at the current level of taxation.

Using Statistics Canada's microsimulation model (the Social Policy Simulation Database and Model or SPSPD/M) and detailed data from Statistics Canada and the Canadian Institute for Health Information, the authors have generated estimates of the unfunded liability of Medicare from 2006 to 2010.

Main Conclusions

- **The unfunded liability of Medicare (Canada's health-care system) is rarely discussed and few Canadians are aware of it.**
- **A program has an unfunded liability when it has a shortfall between the expected future stream of funding and future benefit obligations.**
- **Between 2006 and 2010, Medicare's unfunded liability has increased by 2.1% from \$526.7 billion to \$537.7 billion.**
- **For 2010, Medicare's unfunded liability is \$15,756 for each Canadian citizen, or \$32,834 for each Canadian taxpayer.**

Funding structure

Medicare is thought of as an insurance plan: individuals contribute to a pool of funds when they are healthy and younger, and are able to receive benefits from that pool in later years or in times of need. The reality is that this program is funded on a “pay-as-you-go” basis. That is, rather than accumulate funds in individual or even collective accounts for future payment, current contributions (taxes) are used to pay the benefits of current recipients.

Medicare is a provincial responsibility and is funded by both the provincial and federal levels of government, though the provinces pay for the bulk of health care spending. Medicare is paid for out of general revenue, and Canada’s provincial and federal governments have neither assets nor specific funding sources reserved to pay for its promised benefits.

Analysis of unfunded liabilities

The foundation of the analysis of unfunded liabilities is an actuarial valuation that assesses the ability of a program to finance promised benefits for a specific time given contribution rates, expected investment returns, and certain economic and demographic assumptions. The purpose of the valuation is to determine the current long-term deficit or surplus of the program obligations.

Unfunded liability estimates for Medicare are calculated using a model developed by researchers at the Fraser Institute. This model was

constructed because previous estimates of “unfunded liabilities” for Medicare by the Office of the Superintendent of Financial Institutions (OSFI) considered only the stream of benefits to be paid out and, therefore, greatly exaggerated Canada’s liabilities from this program. To be accurate, these previous estimates are best described as “estimates of future liabilities.”

Calculating the present value of the future stream of benefits tells only part of the story. The other part is funding for the program. Although there is no explicit revenue stream attached to it, Medicare has a payment stream associated with it through general revenue. In order to complete a true analysis of the unfunded liability for Medicare, both the discounted stream of future benefits and the discounted stream of future contributions must be calculated. A methodology section included at the end of this Alert explains in detail how the unfunded liability model is constructed.

Actuarial valuations are extremely sensitive to their underlying assumptions. The estimates here for Medicare use the same basic assumptions the federal government uses in the compilation of the estimated unfunded liability for the Canada Pension Plan (Office of the Superintendent of Financial Institutions, 2010); namely, a discount rate of 6.2%, price increases (measured by the Consumer Price Index) of

2.3%, and a nominal rate of wage growth of 3.6%. Changes in these underlying assumptions can cause significant changes in the results. Actuaries normally conduct valuations every three years and modify assumptions, if warranted, based on new economic conditions. All past

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and current unfunded liability figures in this report make use of consistent assumptions.

At its inception, Medicare was based on the assumption that the mix of

About the authors



Milagros Palacios is a senior economist with the Fiscal Studies Department of the Fraser Institute.



Nadeem Esmail is a Fraser Institute Senior Fellow and former Director of Health Care Studies at the Institute.

Table 1: Summary of Health Care's Unfunded Liability (\$ billions)

Fiscal Year	
2006	526.7
2007	532.4
2008	533.3
2009	533.4
2010	537.7
% change 2006–2010	2.1%

Source: The Fraser Institute's Unfunded Liabilities Model.

ages in the population, the rate of economic growth, and the wage increases of the 1960s would continue indefinitely. These assumptions were entirely wrong. Birth rates have declined, income growth has slowed, and mortality rates have decreased. In 1956, the proportion of the Canadian population that was under 20 years of age was 39.7%, while the proportion of those 65 years old and over was 7.7% (Statistics Canada, 2000). By 2010, the ratio of those under 20 years old to the total population had decreased to 23.0% and the ratio of those over 65 had increased to 14.1% (Statistics Canada, 2011a). Estimates of these ratios for Canada predict that those under 20 will account for 21.1% of the total population by 2061, while those 65 years and over will account for 25.4% (Statistics Canada, 2010).

Table 1 presents the estimates of the unfunded liability of Medicare from 2006 to 2010.

Spending on Medicare is the largest expenditure category in all of the

provinces' budgets and, although difficult to determine exactly, a large expenditure in the federal budget. According to the Canadian Institute for Health Information (CIHI), Medicare spending was \$126.4 billion in 2010 and has grown by 30.6% between 2006 and 2010 (CIHI, 2011). Medicare's unfunded liability has grown by 2.1% between 2006 and 2010, from \$526.7 billion to \$537.7 billion.

This represents \$15,756 for each Canadian citizen, or \$32,834 for each Canadian taxpayer (Statistics Canada, 2011a; Canada Revenue Agency, 2012; calculations by authors). The unfunded liability of the health care system is currently estimated at 33.1% of Canadian GDP (Statistics Canada, 2011b; calculations by authors).

Funding for health care largely comes from general revenue and there is no easily established link between the payment into, and the benefits received from, health care. Lengthy waiting lists for a wide

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range of procedures persist in every province and an aging population will place tremendous pressures on the health care system (Esmail et al., 2008; Barua et al., 2011). Unless governments make changes soon, these pressures will likely lead to higher

general tax rates or a further reduction in services.

The Canadian public has generally accepted that there are adverse consequences from government deficits and debt. However, this realization is only the first step in what must be a larger movement towards fiscal balance. Canadians must encourage all levels of government to assess the viability of the various programs that currently maintain unfunded liabilities. Generational accounting calculated by the Fraser Institute shows that, at least in Medicare, the total obligations resulting from the promises we have made to ourselves are not sustainable and must be restructured to take into account the impact of future demographic change in Canada.

Methodology

Estimates of the unfunded liability for Medicare for the cohort aged 18 and older as of December 31 for the year shown are included in this study.

The unfunded liability estimates for Medicare are from a model developed by Fraser Institute researchers. Previous estimates of the unfunded liability of Medicare by the Office of the Superintendent of Financial Institutions (OSFI) covered costs only and, therefore, greatly exaggerated the liabilities associated with this program. The model we present in this report generates true unfunded liabilities by adding a funding source to the readily available cost data. The estimates use the same basic assumptions as those used in the compilation of the CPP unfunded liability estimate: a discount rate of 6.2%, CPI increases of 2.3%, and nominal wage growth of 3.6%.

Cost data for the estimates come from the Canadian Institute for Health Information (2011). Total spending on health care by the government sector, broken down by five-year age intervals (except for infants and the group aged 85 and older) is used. Spending on health care for those aged zero to 17 years is distributed equally among those aged 18 and older. The bulk of government health care spending in Canada is provincial. The funding source for the provincial portion of health care spending in this model is provincial personal income tax revenue. In every year analyzed, government sector health expenditures exceeded provincial personal income tax revenues. The funding source for the federal portion of health care spending in this model is a revenue neutral surtax on basic federal tax. In other words, it is assumed that a portion of basic federal tax is assigned to pay for Medicare benefits. Operationally, a surtax on basic federal tax sufficient to fund Medicare benefits is created in the SPSPD/M. Basic federal tax rates are reduced so that the change is revenue neutral. Federal revenue from the new basic federal tax rates plus the surtax on basic federal tax equals federal revenue from the original basic federal tax. Note that the federal contribution to health spending is a residual number from total government-sector health expenditures less provincial personal income-tax revenue. Federal health spending is treated this way because of the complexities associated with estimating the value of federal contributions to health care under the Canada Health Transfer (CHT) and other equalization payments.

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General

Age-specific revenue sources are adjusted to remove errors introduced into the model by rounding. There is a small (approximately 0.05%) negative impact on the unfunded liability estimates relative to the estimates without the correction.

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