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Communiqué

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Ottawa could cut taxes by almost \$23 billion over next five years, says C.D. Howe Institute study

The federal government's fiscal health has improved so much that it could cut taxes by some \$4.6 billion annually for the next five years, says a C.D. Howe Institute Commentary released today. The good news for taxpayers, and for Ottawa's bottom line, is that the government can afford these tax cuts at the same time as it pursues prudent debt repayment and modest spending increases.

The study, *Payback Time: Assessing the Room for Federal Tax Cuts*, was written by William B.P. Robson, a Senior Policy Analyst at the Institute. Robson argues that if federal spending on programs grows in line with population and inflation, Finance Minister Paul Martin can cut taxes by \$22.9 billion by fiscal year 2003/04, yet have a 90 percent chance of running surpluses at least equal to the \$3 billion contingency reserve established in recent budgets. Robson notes that even if federal spending grows faster, in line with the economy, Canadians could still look forward to \$16.5 billion, or some \$3.3 billion annually, in tax cuts by 2003/04.

The turnaround in federal finances — Ottawa's surplus in the current fiscal year is on track to top \$10 billion — offers a hope of reducing Canadians' high tax burden. The government's challenge now, Robson argues, is to chart a course that ensures a continued improvement in fiscal health and buffers its bottom line against unforeseen setbacks, such as a recession or spikes in interest rates. Robson uses an economic model that builds in such shocks to determine how far the finance minister should aim to overachieve fiscal targets if he wants a 90 percent chance of hitting them.

Robson estimates that, depending on both the future path of federal spending and the fiscal targets the government chooses, tax cuts over the next five years could range anywhere from \$16.5 billion if program spending rises with gross domestic product (GDP) and Ottawa aims not to use the traditional \$3 billion contingency reserve, to as much as \$43.2 billion if spending is frozen and Ottawa aims merely to prevent the debt-to-GDP ratio from rising in any year.

Robson advocates letting program spending rise no faster than population growth and prices and aiming for annual surpluses of at least \$3 billion. This package, he says, would allow Ottawa, in its spring budget, to launch tax cuts totaling \$22.9 billion, or \$3,000 for an average family of four, over the next five years. But even if Ottawa is less thrifty, and federal spending

grows as fast as the economy, Robson says a feasible package aiming at the same target surplus would allow tax cuts totaling \$16.5 billion, or \$2,200 per family of four, over the five years.

Either plan, Robson notes, would allow lower tax rates, significantly higher personal exemptions, and full indexation of personal income taxes. Further, he says, these tax cuts are prudent, offering a solid chance of further improvement in federal finances and a corresponding promise that the tax cuts will be permanent.

This is the third in a new C.D. Howe Institute Commentary series called “The Taxation Papers.” The series deals with the tax policy opportunities presented by Canada’s rapidly changing fiscal environment — in particular, ways to reform personal income tax policy within a sound economic framework, rather than allowing policy to be driven by short-term political considerations. Papers in the series seek to identify specific problems with past choices about the taxes used to finance government (the tax mix); define the best way of taxing families; show how personal income taxes have been or should be adjusted for inflation; estimate the impact of high tax rates on people and on economic efficiency; show how taxes interact with federal and provincial social support programs; and synthesize these issues within a rational framework for tax reform and tax reduction.

The series editors are Jack M. Mintz, who is Arthur Andersen Professor of Taxation at the Joseph L. Rotman School of Management, University of Toronto, and Finn Poschmann, a Policy Analyst at the C.D. Howe Institute.

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Ottawa pourrait réduire les impôts de près de 23 milliards de dollars au cours des cinq prochaines années, affirme une étude de l'Institut C.D. Howe

La santé financière du gouvernement fédéral s'est tellement améliorée que ce dernier pourrait réduire les impôts de 4,6 milliards de dollars par année pendant les cinq prochaines années, affirme un Commentaire de l'Institut C.D. Howe publié aujourd'hui. Et la bonne nouvelle, tant pour les contribuables que pour les résultats financiers du gouvernement fédéral, c'est qu'il peut se permettre d'effectuer ces réductions d'impôt tout en poursuivant un remboursement prudent de la dette et des hausses modestes de ses dépenses.

L'étude, intitulée *Payback Time: Assessing the Room for Federal Tax Cuts (Le temps de rembourser : évaluation de la marge fiscale de réduction de l'impôt)*, est rédigée par William B. P. Robson, analyste de politique principal à l'Institut C.D. Howe. Celui-ci soutient que si les dépenses fédérales des programmes se maintiennent au même niveau que la croissance démographique et le taux d'inflation, le ministre des Finances, Paul Martin, pourra réduire les impôts de 22,9 milliards de dollars d'ici l'exercice financier 2003-2004, tout en ayant 90 % de chances de produire des excédents au moins équivalents à la réserve pour éventualités de 3 milliards de dollars établie lors des derniers budgets. M. Robson souligne que même si les dépenses fédérales augmentent plus rapidement et suivent la croissance économique, la population canadienne pourrait quand même profiter de réductions d'impôts de l'ordre de 3,3 milliards de dollars par an, soit 16,5 milliards de dollars d'ici l'exercice 2003-2004.

Le volte-face qui a marqué les finances du gouvernement fédéral — l'excédent que produira Ottawa au cours du présent exercice devrait dépasser 10 milliards de dollars — offre l'espoir de réduire le fardeau fiscal élevé des Canadiennes et Canadiens. Le défi qui se pose maintenant au gouvernement fédéral, soutient l'auteur, est de planifier un cours qui veillera à une amélioration permanente de sa santé financière et qui protégera ses résultats financiers contre les impondérables, comme une récession ou un bond des taux d'intérêt. M. Robson se sert d'un modèle économique qui tient compte de tels chocs pour établir de combien le ministre des Finances doit viser à dépasser ses objectifs financiers pour être assuré à 90 % de les atteindre.

L'auteur estime que selon la voie que suivront les dépenses fédérales dans l'avenir et les objectifs financiers que se choisira le gouvernement, les réductions d'impôt pourraient se situer entre 16,5 milliards de dollars, si les dépenses de programmes suivent la hausse du produit intérieur brut (PIB) et Ottawa décide de ne pas avoir recours à la réserve traditionnelle pour éventualités de 3 milliards de dollars, et 43,2 milliards de dollars, si les dépenses sont bloquées et Ottawa se borne à empêcher tout accroissement du ratio de la dette par rapport au PIB.

M. Robson propose que les dépenses de programmes n'augmentent pas plus rapidement que la croissance démographique et les prix, et de viser un excédent annuel de 3 milliards de dollars au moins. Un tel plan permettrait à Ottawa, dans son budget du printemps prochain, d'amorcer des réductions d'impôt de l'ordre de 22,9 milliards de dollars, soit 3 000 \$ pour une famille moyenne de quatre personnes, au cours des cinq prochaines années. Mais même si Ottawa ne se montre pas aussi économe et que les hausses des dépenses marchent de pair avec la croissance économique, l'auteur soutient qu'une solution réalisable visant le même excédent, permettrait d'apporter des réductions d'impôts atteignant 16,5 milliards de dollars, soit 2 200 \$ pour une famille de quatre personnes, sur cinq ans.

L'un ou l'autre plan permettrait des réductions d'impôt, des exemptions personnelles bien plus élevées et une pleine indexation de l'impôt sur le revenu des particuliers. De plus, affirme M. Robson, ces réductions d'impôt sont prudentes, offrent de solides possibilités d'améliorer davantage les finances fédérales et une promesse correspondante que les réductions d'impôt seront permanentes.

Ce document marque le troisième volet d'une nouvelle série de Commentaires de l'Institut C.D. Howe intitulée « Les cahiers de la fiscalité ». Elle traite des possibilités de politiques fiscales qu'offre la situation fiscale en évolution rapide au Canada — et plus particulièrement, des moyens de réformer les politiques de l'impôt sur le revenu des particuliers dans un cadre économique rationnel, plutôt que de laisser des raisons politiques à court terme dicter ces politiques. Les documents qui font partie de cette série cherchent notamment à cerner les problèmes exacts qu'ont posé les choix de taxes et d'impôt pour financer le gouvernement dans le passé (soit la composition des recettes fiscales), établir la meilleure façon d'imposer les familles, démontrer comment l'impôt sur le revenu des particuliers aurait dû ou devrait être redressé pour tenir compte de l'inflation, établir les répercussions des taux d'impôt élevés sur les particuliers et sur l'efficacité économique, démontrer l'interaction des taxes et des programmes d'aide sociale provinciaux et fédéraux, et mettre en rapport tous ces problèmes dans un cadre rationnel pour la réforme fiscale et la réduction des impôts.

La série est dirigée par Jack M. Mintz, professeur Arthur Andersen de fiscalité à l'École de gestion Joseph L. Rotman de l'Université de Toronto et Finn Poschmann, un analyste de politique auprès de l'Institut C.D. Howe.

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Payback Time: Assessing the Room for Federal Tax Cuts

by

William B.P. Robson

The improved state of federal finances offers hope for big tax cuts in upcoming budgets. How big depends on program spending, the government's targets for the budget balance, and the economy.

Laying various spending paths and fiscal targets over a standard economic forecast yields estimates of total room for tax cuts over the next five years ranging from \$19.7 billion when spending rises with gross domestic product (GDP) and the government targets surpluses of \$3 billion or better, to \$59.2 billion with frozen spending and a target that the debt-to-GDP ratio never rise.

A fiscal strategy based on a realistic base-case forecast, however, offers a 50 percent chance of either overachieving the target or missing it. Multiple runs of an

economic model incorporating key uncertainties about the future and the economy make it possible to estimate the cushion that would raise the chances of hitting or bettering a target to a more prudent 90 percent. These prudence cushions reduce the five-year room for tax cuts to a range between \$16.5 and \$43.2 billion.

What is most likely? Fiscal targets of surpluses of \$3 billion or more over the next five years seem both likely and desirable. With such targets, spending that rises with GDP would leave room for \$16.5 billion in tax cuts over the period. Spending that rises with population and prices would leave room for \$22.9 billion in cuts. Either amount would permit key tax reforms. And either is prudent, offering a solid chance that the cuts will last.

Main Findings of the Commentary

- Ottawa's finances have improved sharply: the public debt burden and interest payments are declining as a share of gross domestic product (GDP), and the fiscal 1998/99 surplus is on track to top \$10 billion. The prospect for much-needed tax cuts is improving apace.
- How big these tax cuts can be depends on future federal spending, on the government's targets for the budget balance, and on the economy. Because spending and the fiscal targets are matters of debate, this *Commentary* examines several possibilities:
 - Over the next five years, program spending may, for example: grow with the economy; stay the same in real dollars per person (growing with population and prices); or stay the same in dollar terms.
 - Possible fiscal targets for the five-year period include: ensuring that the debt-to-GDP ratio never rises; ensuring that the debt-to-GDP ratio finishes fiscal year 2003/04 below 53 percent; avoiding deficits; and recording a surplus at least equal to the \$3 billion contingency reserve every year.
- Setting the various spending paths and fiscal targets against an economic forecast yields estimates of the room for tax cuts. (For simplicity, the cuts are envisioned as equal shares of GDP each year.)
- Like spending and fiscal targets, however, the economy is uncertain, and a range of outcomes is likely. A model of the Canadian economy that incorporates both future surprises and ranges of values for key economic relationships allows us to estimate how "spread out" the distributions of key outcomes are. With a forecast that is realistic in an "expected value" sense — the sum of all possible outcomes times the likelihood of each occurring — the chances that things will turn out either better or worse than expected are 50 percent either way.
- The distribution of these outcomes determines the prudence cushion — the amount by which the federal government should aim to overachieve its base-case fiscal plan — that would raise to 90 percent the odds of hitting or bettering a fiscal target. Such a cushion reduces the room for tax cuts over the next five years, to a low of \$16.5 billion under the richest spending path and the most demanding fiscal target, and to a high of \$43.2 with frozen spending and less demanding targets.
- If Ottawa raises spending with population growth and inflation while aiming at surpluses no smaller than \$3 billion, the room for tax cuts is \$22.9 billion — an average of \$4.6 billion, or \$600 per family, each year.
- If, less desirably, Ottawa instead raises spending with GDP growth and aims at surpluses of at least \$3 billion, there is room for tax cuts totaling \$16.5 billion over the next five years — an average of \$3.3 billion, or \$440 for every family of four, each year.
- Either plan would permit cuts in tax rates, redefinition of tax bases, and full indexation of personal income taxes. And, being based on prudent fiscal targets, either plan offers a solid chance of further improvement in federal finances, and a corresponding promise that the tax cuts will be permanent.

The turnaround in the federal government's finances over the past five years has been stunning. In the early 1990s, with Ottawa's debt and interest payments mounting faster than the economy was growing, many observers expected fiscal excess to continue dragging Canadian living standards down indefinitely, and more than a few predicted a debt crisis. Five years later, the federal budget balance has shifted from a deficit of over \$40 billion in fiscal year 1993/94 to a surplus in the current fiscal year (1998/99) that is likely (barring last-minute cooking of the books) to come in over \$10 billion and the burden of debt and interest relative to gross domestic product (GDP) is declining.¹ The prospects for "good news" budgets that would herald an economic payoff from the fiscal turn-around are improving apace.

Thinking about Tax Cuts

A lowering of the tax burden would be a welcome piece of such good news. Back in the late 1970s, before chronic borrowing began to push Ottawa's debt-to-GDP ratio relentlessly upward, the average Canadian family of four paid about \$13,000 (in 1998 dollars) in taxes to Ottawa; now the figure stands over \$21,000. Economy-wide, increases in taxes since the late 1970s have doubled the gap between Canada's tax-to-GDP ratio and a weighted average of the ratios of its major trading partners (Mintz and Poschmann forthcoming), and pushed the marginal tax rate faced by the average person up by about five percentage points (Davies 1998, 6).

This increase in the total tax burden and in average and marginal tax rates has been blamed for a variety of the nation's ills. It is a plausible candidate for explaining declines in the labor force participation of several demographic groups, the growth of the underground economy, the outmigration of skilled labor, the greater acceptance of cheating on taxes and social benefits, the escalation of compliance costs,

and the declining respect for public institutions. The nature and strength of the link between the tax burden and these problems is obviously open for debate. But the fact that the growth of output and incomes in Canada has slowed as the tax burden has risen gives grounds for hope that bringing taxes down again might boost both the level and the growth rate of Canadian living standards in the future.

Needed: A Fiscal Framework

One obstacle facing would-be tax cutters is the decidedly short-term focus of recent federal budgets. Although long-term approaches have proved useful in evaluating the health of the Canada Pension Plan, and have been urged by the Auditor General for federal fiscal planning (Auditor General 1998), budgets since 1994 have presented fiscal plans only for the two following years. This approach may have helped rein in the federal deficit, but it is not so well suited to the task of framing priorities for the post-deficit era, since it by definition neglects the longer-term implications of decisions made today.

Other C.D. Howe Institute publications (Robson and Scarth 1997; Oreopoulos and Vaillancourt 1998; Robson and Scarth forthcoming) shed light on the possible evolution of government balance sheets over the next several decades. They point to energetic debt reduction as a way to limit the impact of current fiscal policy and the looming retirement of the baby boomers on the living standards of today's youngsters — and, depending on the reaction of today's youngsters to that situation, on the living standards of the boomers themselves.

In this *Commentary*, I take a medium-term perspective: the five-year window that was once traditional in federal budget forecasts and that the finance minister hinted at in the fall 1998 update when he discussed the evolution of the debt-to-GDP ratio (Martin 1998, 15). I try to determine how much room there is in the federal budget for tax cuts after taking into

account both the possible future path of program spending and the need to keep the burden of federal debt on a downward track.

The future course of federal spending on programs is, of course, a matter of considerable uncertainty. Even after allowing for the understatement of spending that arises from the federal government's practice of netting several programs against revenue rather than showing them in the budget, the past few years have seen cuts in federal program spending (excluding interest costs) beyond anything Canadians have experienced since the demobilization of the early postwar years.² At about \$15,500 per family of four, gross spending on programs is back to a level comparable, after allowing for inflation and population growth, to that of the mid-1970s. On the one hand, this state of affairs might appear to justify higher future spending; on the other, it might be taken as evidence that a smaller federal government is just fine. A further complicating factor is that Parliament's control of public finances has eroded badly, as formula-driven programs and court decisions have come to overshadow MPs' votes in allocating spending. So, in this *Commentary*, I evaluate the room for tax cuts under several different scenarios for spending:

- program spending grows at the same rate as the economy;
- program spending grows in line with population growth and inflation; and
- program spending stays constant in dollar terms.

The rationale for each of these possibilities is elaborated below.

Because there is also no consensus about the appropriate benchmark to use for assessing longer-term fiscal health, I also use several possible fiscal targets (also explained further below) for judging the prudence of various-sized tax cuts. Ranging from least to most demanding, these targets are that, over the next five years,

- there should be no year in which the debt-to-GDP ratio rises;
- the debt-to-GDP ratio should fall below 53 percent by fiscal year 2003/04;
- there should be no deficits; and
- there should be a surplus each year at least equal to the \$3 billion contingency fund.

Prudence and Payoffs

It is straightforward to apply these spending paths and fiscal targets to an unremarkable economic forecast, and to estimate the excess revenue that unchanged policy would produce, thus obtaining a set of figures for potential tax cuts over the next five years. Even constraining each year's tax cut to be an equal percentage point of GDP, an approach that precludes opportunistic bigger cuts when times are especially good but that seems reasonable in framing a multiyear plan, such an exercise yields impressive numbers. The lowest is \$19.7 billion by 2003/04, for the case where spending rises in line with GDP growth and the federal government aims for the most demanding fiscal target: that each year's surplus be at least equal to the \$3 billion contingency fund. The highest is \$59.2 billion, for the case where spending stays constant in dollar terms and the government aims for the least demanding target: that the debt-to-GDP ratio not rise.

Such estimates, however, neglect the economy's capacity to surprise. Output and interest rates will fluctuate in the future as they have in the past. While it is possible to make educated guesses about the size of the fluctuations we may see, it is foolish to pretend to be able to predict them exactly. Furthermore, the quantification of many of the underlying relationships that are important to understanding the economy continues to elude economists. A prudent fiscal plan needs to take these uncertainties into account.

Accordingly, in this *Commentary*, I proceed beyond simple "point" estimates of the room

for tax cuts under various spending scenarios and fiscal targets. If Ottawa aims right at the targets formulated in its base-case forecast, and the forecast is a reasonable one, it will have an equal chance — 50 percent either way — of over- or underachieving its goals, depending on whether the economy turns out better or worse than in the base-case projection that underlies the budget plan. I use a model that incorporates unforeseen shocks and variations in underlying relationships to investigate the amount of extra “room” Ottawa needs to raise its chances of hitting or bettering various targets from 50 percent to a more prudent 90 percent. Adding such a cushion for prudence trims the estimates of the room for tax cuts to a range of \$16.5 billion to \$43.2 billion, depending on the spending and target scenarios used.

Picking a figure for likely tax cuts over the next five years out of this range involves making some choices among the various options for spending and fiscal targets. If, as I advocate here, federal program spending stays constant in real per person terms, growing in line with population and prices, and if Ottawa adopts an ambitious target for the bottom line, seeking to ensure that the \$3 billion contingency reserve will go unused, Canadians can look forward, over the next five years, to some \$22.9 billion in tax cuts — an average of \$4.6 billion or \$600 per family of four each year. If, as is perhaps more likely, federal program spending grows at the same rate as the economy and Ottawa observes the same fiscal target, the cumulative room for tax cuts over the next five years would be \$16.5 billion — an average of \$3.3 billion or \$440 per family each year. Either amount is large enough to permit some important reductions in rates, reindexation, and redefinition of bases. And either offers a solid chance of continuing improvements in Ottawa’s fiscal health and a corresponding promise that these tax cuts will be permanent.

A Framework for Tax Cuts: The Base Case

Any annual budget is an equation with three key aggregates: revenue, spending, and the balance between the two — the bottom line. Tax cuts, of course, affect the revenue part of the equation, so an investigation into what room for cuts might open up in the coming years can logically start with a look at the constraints that will operate on the other two parts of the budget: spending and the bottom line.

The Spending Outlook

To state the obvious, the future course of federal spending is the single most critical influence on the room for future tax cuts. Actual political debates over spending do not, of course, typically focus on aggregate amounts; they are much likelier to involve battles between advocates of more money for a particular program or groups of recipients. To keep the discussion manageable, however, a broader outlook is necessary.

If those who have been frustrated in their desire to have the federal government play a more visible and intrusive role in national life have their way, federal program spending per person will begin rising again, faster than inflation. In some sense, especially in view of the growing role of the judiciary in determining spending, there is no limit to how much it might rise. In today’s more skeptical, fiscally weary environment, it seems likely that Ottawa will focus more on items widely seen as necessities — such as payments to the elderly and transfers related to health care — than on luxuries, such as fancy new subsidies to businesses and labor market programs. Accordingly, this more expansive role for Ottawa might involve program spending that grows in line with average nominal GDP growth over the next five years. (As I discuss later, program spending that rises, even slightly, as a share of GDP

every year preempts the room for any tax cuts so completely as to abort this investigation at the start.)

Casting back not just to the big-spending years of the late 1980s and early 1990s but further, to the 1970s, yields a different perspective on federal spending. Today, even after the cuts of recent years, gross program spending stands at around \$15,500 per family of four. This amount is similar to the level of the mid-1970s — an era not remembered for the small scale and low cost of the federal government. Especially in view of the premium that interest payments now add to the price tag of federal goods and services, it might seem more appropriate to maintain Ottawa's real spending per person at that level, increasing spending only in line with average population growth and inflation. This approach would permit, for example, expansion of transfers to the provinces in line with growth in these most fundamental indicators of need, but leave expansion of the real per person value of health and education programs to the provinces themselves. If thinking along these lines prevails, and parliamentarians control extra-parliamentary attempts to raise spending, then federal programs that grow in line with average population growth and inflation would leave more room for tax cuts than would a more expansive spending path.

It is also possible, if a bit more difficult, to imagine Ottawa holding its spending constant in nominal terms. Some expensive programs have built-in growth that is politically very difficult to control, such as elderly benefits and payments to aboriginals. But increases in these areas could still be balanced by cuts in others. Even after the restraint of the past few years, Ottawa still spends sizable amounts of money to questionable purpose; there is still room to cut many existing business subsidies and apparently fruitless labor market programs. A nominal-dollar spending freeze would offer the greatest scope for tax cuts.

The Fiscal Targets

The very familiarity of the term “debt-to-GDP ratio” shows how recently Canada's public finances seemed to be deteriorating relentlessly. Charts showing net federal debt relative to the size of the economy were a staple of federal budgets and fiscal commentary throughout the 1980s, with each rise in the ratio heralded as an ominous sign for the future and successive governments promising a leveling off, then a decline, in the figure after just a few more responsible budgets.

Now that the debt-to-GDP ratio has started falling (it peaked over 71 percent in fiscal year 1995/96 and seems likely to be close to 64 percent by the end of 1998/99), a sensible tenet of Canada's fiscal strategy could be to ensure that the debt ratio not turn upward again at least for the next five years. For the debt ratio to rise again would require a deficit large enough to increase the debt faster than the economy grows. For example, if nominal GDP grows at 4 percent and the debt-to-GDP ratio starts at 64 percent in the next fiscal year, the deficit would have to be 2.56 percent of GDP (4 percent times 64 percent) or almost \$23 billion in today's money. In the absence of a major unpleasant surprise, therefore, this target does not appear to be a very stringent one.

In view of the rewards that would flow from a more sizable slide in Ottawa's debt burden over the longer term, it might seem better to adopt a debt-ratio target that is more ambitious than simply avoiding an upturn. The finance minister indicated as much in his fall 1998 statement when he predicted that balanced budgets and nominal growth between 3.5 and 4 percent would reduce the debt ratio to around 55 percent in five years (Martin 1998, 15). Although a credible plan to cushion the impact of the baby boomers' retirement on future living standards would require budget surpluses rather than mere balancing of the books (Robson and Scarth 1997), a specific goal

for the debt ratio constitutes another worthwhile type of fiscal target. In this spirit, the debt target that five years of balanced budgets, following an estimated budget surplus surplus of \$10.7 billion this year, would produce in an environment of 4 percent average nominal growth — a target of 53 percent of GDP by fiscal year 2003/04 — could also serve as a benchmark against which to measure Ottawa's bottom line.

The finance minister's reference to the effects of balanced budgets brings us to a third target that could guide fiscal decisions. The federal government's fiscal credibility, though higher than it was, is still vulnerable to a setback; a return to deficits would frighten many investors, and many Canadians generally, into thinking that a return to the deficit-and-debt treadmill of the early 1990s was imminent. This is one of the principal reasons for Ottawa's inclusion of a \$3 billion contingency fund in each year's budget. Insisting on a fiscal track that avoids a deficit in any single year would constitute a further, more stringent, constraint on the bottom line.

The government's inclusion of a contingency fund in the budget suggests a final way of thinking about targets for the bottom line. Rather than aiming to avoid deficits, Ottawa could continue its more prudent recent course and aim for surpluses that are at least large as the contingency fund, thus trying to ensure that its full amount will be applied against the debt. On the face of it, such a policy still falls short of the sort of program that would move convincingly toward a far lower debt ratio by the time the baby boomers retire (although, as discussed below, adding a cushion to the target to buffer against unexpected events moves it much closer to the surpluses such a program might involve). This target — that the budget should show an annual surplus of at least \$3 billion — is more demanding yet.

A Middle-of-the-Road Economic Forecast

The final ingredient necessary for a preliminary "point" forecast of the room for federal tax cuts is, of course, a prediction of how the Canadian economy will behave over the next few years. There is at least as much room for disagreement about the outlook for the economy and interest rates as there is for disagreement about Ottawa's preferred debt-repayment schedules and spending paths — a point explored at length in the next section. However, a middle-of-the-road scenario will do as a starting point.

The projection I use here, which is consistent with other forecasts (McIntyre 1998; OECD 1998, 107), involves a slower-growth period in late 1998 and early 1999. After this soft period, growth resumes at a pace sufficient to eliminate the economy's current excess capacity during 2000. A further period of weaker growth ensues, as the economy returns from a state of excess demand to one where growth is consistent with its longer-term capacity, so the economy goes through virtually a complete cycle during the projection period. Inflation, as measured by the GDP deflator, is initially very subdued under this scenario, only rising above 2 percent (on an annual average basis) in 2002. Ottawa's effective debt-servicing costs (annual net interest charges divided by average net debt) stay correspondingly quite low; although interest rates rise as the economy returns to full capacity and inflation returns to the Bank of Canada's target, their impact on the government's average interest burden is muted by refinancing lags. Table 1 summarizes the key growth, inflation, and interest-rate numbers assumed in this scenario.

Even this middling scenario for nominal GDP (3.8 percent average growth over the five-year period) promises considerable revenue growth. Once the impact of the partial indexation of the tax system, which raises federal

Table 1: *A Base-Case Economic Scenario, 1998–2003*

	1998	1999	2000	2001	2002	2003
Real GDP (% change)	2.8	2.2	3.4	2.9	1.4	0.8
Prices (% change)	-0.4	0.6	1.1	1.7	2.3	2.3
Nominal GDP (% change)	2.3	2.8	4.6	4.7	3.7	3.1
Effective debt-servicing cost (%)	6.4	6.5	6.6	6.8	6.9	7.0

revenue by about 0.05 of 1 percent of GDP for every percentage point of inflation (Poschmann 1998) is added to the one-to-one responsiveness of federal revenues to increases in nominal GDP normally assumed by forecasters (Wilson, Dungan, and Murphy 1998, 2; Boothe and Reid 1988, 248), it therefore appears to offer a lot of room for tax cuts. Starting from an estimate that the 1998/99 budgetary surplus will come in at \$10.7 billion — before any accounting tricks that make it look smaller (see Box 1) — the surpluses that arise with unchanged policy under the three spending paths outlined above range from large to colossal, as Table 2 shows.

Some Preliminary Numbers

Projections of prodigious surpluses like these have become familiar ever since the prospect of a balanced federal budget started to get serious attention (McCallum 1996). They are of limited use, however, in assessing how much room there actually is for federal tax cuts.

These projections produce a numerical optical illusion: the impression of a succession of “good news” budgets with tax cuts and spending increases equal to the projected surplus each year, with the total amount of good news being addable across the years. In fact, of course, it is only the *increase* in the surplus from the year before that represents the room for tax cuts or spending hikes in any one year. Only if Ottawa actually ran surpluses equal to the amount shown each and every year would the

cumulative amounts in 2003/04 actually be available for tax cuts at the end of the period.

A related exaggeration of the room for tax cuts implied by Table 2 arises from the fact that the increase in the surplus each year depends in large part on interest savings arising from the paying down of debt with the previous year’s surplus. If Ottawa were to apply the misleading term “fiscal dividend” to the projected surplus for 1999/2000, for example, and “distribute” it in a mixture of tax cuts and spending hikes, the true fiscal dividend of lower interest costs from paid-down debt in 2000/01 and beyond would shrink, and the yearly increases in surpluses would drop further below the optimistic numbers shown in Table 2.

A somewhat more useful approach that avoids these problems is to examine not the projected surplus, but the annual *increase* in the budget surplus, excluding the impact of lower interest costs (Table 3). This set of figures represents the room for tax cuts if the budget is exactly balanced every year from now on, and can be added across the years.

Thus, under this base-case economic scenario, if program spending rises with GDP, and the government aims at, and hits, a budget balance of exactly zero every year, the annual extra room in the budget for tax cuts will sum to \$21.1 billion from fiscal year 1999/2000 to 2003/04. Limiting the pace of average annual program spending increases to match growth in population and prices, while balancing the budget each year, would yield a cumulative \$27.5 billion in room for tax cuts from 1999/2000 to 2003/04. Actually freezing program

Table 2: *No-Tax-Change Surpluses under the Base-Case Economic Scenario, fiscal years 1998/99 to 2003/04*

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04
	(\$ billions)					
<i>Spending policy</i>						
Spending rises with GDP	10.7	11.1	14.9	19.6	23.3	26.9
Spending rises with prices and population	10.7	12.2	17.4	23.6	29.0	34.5
Spending is frozen	10.7	15.2	23.6	33.4	42.8	52.6

spending and running balanced budgets would yield room for a cumulative \$42.7 billion in tax cuts by 2003/04.

This sort of calculation based on an obviously artificial situation in which the government cuts taxes by an amount that exactly balances the budget every year provides a basis for exploring what might happen under other, more realistic combinations of tax cuts and fiscal targets. Not surprisingly, different combinations lead to quite different answers

to the question of how much room there is for tax cuts over the next few years.

As with spending, there is an enormous variety of possible annual changes in taxation; keeping the discussion manageable requires some simplification. Thinking of the total federal tax load in relation to the economy as an average tax rate suggests a straightforward investigation: for each spending path, what kind of percentage-point cut in the federal tax-to-GDP ratio from the rate that would prevail un-

Box 1: *Distorting Financial Results with Prebooked Charges*

Governments can — and do — exaggerate deficits or hide surpluses by booking spending before it happens. This allows them to show exaggerated improvements in subsequent years, when the spending that actually occurs does not appear in budgets or financial statements.

In fiscal year 1996/97, the federal government booked an \$800 million transfer to the Canada Foundation for Innovation, even though Parliament did not authorize the expenditure in that fiscal year and, indeed, the Foundation did not even exist. The Auditor General condemned this move in the 1997 Public Accounts (Receiver General 1997, 25–27). In 1997/98, Ottawa booked \$2.5 billion in spending for the Canada Millennium Scholarship Foundation, even though, again, Parliament did not authorize the expenditure during that fiscal year and the receiving body did not yet exist. The Auditor General condemned this move, too (Receiver General 1998, 29–32).

Misstating the government's financial position in this way has proved helpful in suppressing, or at least postponing, demands for new spending and tax cuts. It therefore seems likely that Ottawa will seek to use similar tricks to shrink the apparently sizable surplus developing for 1998/99.

Booking charges retroactively raises a number of issues, among them the possibility that governments will favor programs that lend themselves to this type of treatment — in particular, spending rather than tax cuts, which are less plausible candidates for prebooking. The key point here, however, is that this practice misstates the government's financial position. For the sake of using numbers that are broadly familiar, I have not tried to adjust the budget figures for past distortions. There seems little point, however, in trying to modify the surplus for the current year to anticipate any as yet unknown accounting distortions that may affect it.

Table 3: *Cumulative Room for Tax Cuts if the Budget Is Balanced Every Year, Base-Case Scenario, fiscal years 1999/2000 to 2003/04*

	1999/2000	2000/01	2001/02	2002/03	2003/04	Total
	<i>(Billions)</i>					
<i>Spending policy</i>						
Spending rises with GDP	10.7	3.0	3.5	2.1	1.8	21.1
Spending rises with prices and population	11.8	4.2	4.8	3.5	3.2	27.5
Spending is frozen	14.7	7.1	7.8	6.6	6.4	42.7

der current taxation policy would leave Ottawa on-side with regard to each of the four possible fiscal targets — that is, avoiding rises in the debt ratio, aiming for a debt ratio of 53 percent by the end of the period, avoiding deficits, or aiming for an annual budget surplus of \$3 billion? (Again, for simplicity, I have assumed equal percentage-point cuts in each of the next five years, rather than concentrated cuts in the first year, as in Table 3.)³

Assuming that the economic world unfolds as in the base-case scenario, the answer ranges from a whopping tax cut of a bit more than one percentage point of GDP annually (nearly \$10 billion in today's money) if Ottawa freezes program spending and aims only to prevent the debt-to-GDP ratio from rising in any single year, to a less impressive cut of a little over one-third of a percentage point of GDP annually (around \$3.3 billion in today's money) if average increases in program spending are in line with GDP growth and Ottawa aims to ensure that the annual surplus never falls below \$3 billion.

The total room for tax cuts over the five-year period under the various combinations of spending paths and fiscal targets is shown in Table 4. The range is considerable: from \$59.2 billion in total — nearly \$12 billion annually on average, with the annual dollar amount rising slightly each year as GDP grows — in tax cuts over the next five years if spending is frozen and Ottawa seeks to avoid a rise in the debt ratio, to \$19.7 billion — a little less than \$4 billion

annually on average — if spending rises with GDP and the government aims for a surplus no smaller than \$3 billion.

Clearly, the more weight Ottawa attaches to addressing its debt problem by adopting a more demanding target for the budget balance, the less room there is for tax cuts: the gap between the least demanding target (keeping the debt ratio from rising in any year) and the most demanding one (ensuring the surplus never comes in below \$3 billion) is in the neighborhood of \$18 billion over the period — some \$3.6 billion annually. Even more striking, however, is the difference that the spending paths make: a spending freeze yields over \$22 billion more than does allowing spending to rise with GDP — \$22 billion that could represent some \$4.4 billion in tax cuts annually.

Expecting the Unexpected

If future events and the behavior of Canada's households, businesses, and other levels of government were predictable, the above calculations would be the end of the story. Having selected a spending path and a fiscal target, Ottawa could proceed to map out the next five years' tax cuts in the 1999 budget. But one lesson of the later 1980s and early 1990s is that planning according to middle-of-the-road forecasts leaves no room to cope with unexpected setbacks (see Robson 1994). A more prudent, and much more successful, approach to the

Table 4: *Cumulative Room for Tax Cuts, Base-Case Scenario*

	Fiscal Target			
	No Rise in Debt Ratio	53% Debt Ratio by fiscal year 2003/04	No Deficits	No Surplus Less than \$3 Billion
	(\$ billions)			
<i>Spending policy</i>				
Spending rises with GDP	37.3	27.7	22.4	19.7
Spending rises with prices and population	44.2	34.1	28.8	26.1
Spending is frozen	59.2	50.1	44.2	41.6

many unknowns that afflict forecasting has been evident in recent budgets.

The figures given for tax cuts in Table 4 would, if the base-case scenario unfolded as described, allow the federal government to achieve its desired spending path and fiscal target exactly, with no room for error. If the base-case scenario is a realistic assessment of Canada's prospects in an "expected value" sense — the sum of the values of each possible outcome times the probability of its occurring — one would expect that the chances of events turning out better or worse than the base case are about 50 percent either way. In that light, the tax cuts represented in Table 4 look much less attractive. Since the fiscal targets are not very ambitious to start with, a 50 percent chance of damaging the credibility of Ottawa's fiscal strategy by failing to hit them seems a good deal too high. What is needed is a fiscal plan that increases the chances of hitting the targets to something more acceptable — say, 90 percent.⁴

The Model

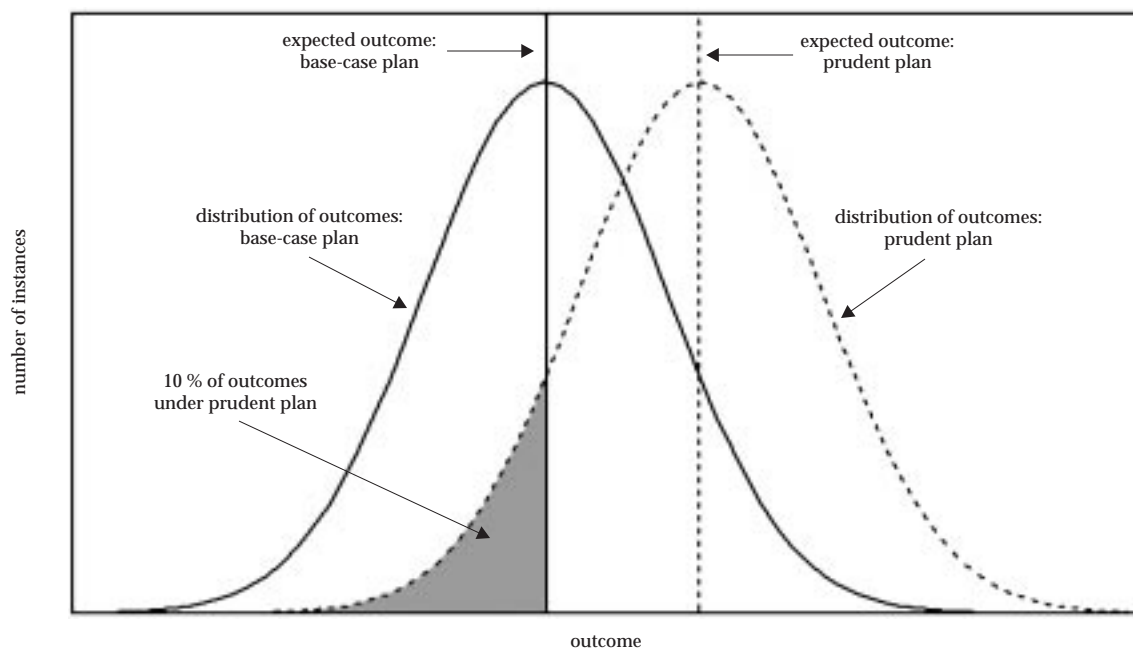
Estimating how much extra budgetary room Ottawa needs to improve its odds of hitting any fiscal target to 90 percent requires an estimate of how spread out the distribution of possible outcomes is around the average expectation. If future ups and downs in the economy and in interest rates are fairly small, and if

the behavior of the Canadian economy in the future closely resembles that of the recent past, then the distribution of possible outcomes is grouped tightly around the base-case mean. If this situation seems likely, Ottawa can plan tax cuts not very different from those shown in Table 4. If, on the other hand, both the economy and interest rates seem likely to throw up big surprises, the distribution of possible outcome is more spread out, and Ottawa can only improve its chances of hitting the chosen targets by holding back more revenue.

One approach to quantifying the uncertainty around future budgetary outcomes is to specify some possible pattern of future economic surprises, then run it through a simple model of federal revenue, spending, and debt-servicing costs in a multiple-run exercise (see Robson 1994; Boothe and Reid 1998).⁵ A somewhat more sophisticated approach is to use an economic model in which not only future shocks, but also a number of the underlying relationships in the economy about which there is uncertainty — such as the response of the economy to changes in the federal budget, or of interest rates to changes in Ottawa's debt and Canada's foreign debt — are the products of random number generation.

William Scarth and I developed such a model to investigate the merits of longer-term fiscal strategies (Robson and Scarth forthcoming). This model, some key features of which are described in the Appendix to this *Commentary*, embodies a number of standard features and is

Figure 1: *Using Distributions of Outcomes for Prudent Planning*



calibrated to produce a steady state resembling Canada's situation in 1997. On average, in the presence of a fiscal strategy that aims for a balanced budget, the model produces a near-term forecast similar to the base-case scenario described above.

What is unusual about the model is that it allows a unique set of economic cycles, annual ups and downs in output, and changes in interest rates to be incorporated into each run, along with different values for key economic relationships. The values for the annual "disturbances" were chosen so that the model would produce volatility in interest rates and output in line with historical experience, after allowing for the important 1990s' switch to inflation targets (the Appendix describes the distribution of the model's inputs and outputs).

Uncertainty around the Fiscal Outcomes

Plugging the above spending paths and various tax-rate-cutting strategies into the model, then

performing multiple simulations, produces a set of distributions for changes in the debt ratio from year to year, for the debt ratio at the end of fiscal year 2003/04, and for the budget balance in each year. The variation in these distributions around their average values provides figures that, if the uncertainty in the model is a fair indication of uncertainties in the real world, indicates the extra room Ottawa might need to raise its chances of hitting each target to 90 percent. Figure 1 shows a stylized example.

In the model, the distributions for these outcomes vary slightly with the different spending paths and tax-cutting strategies that the government might adopt, since these fiscal decisions and their impact on the bottom line affect the economy, which, in turn, feeds back to affect the fiscal outcomes. The distributions are nevertheless similar enough that a couple of instances can illustrate the principle involved.

As a first example, let us assume that federal program spending grows, on average, in line with population and prices over the next

Table 5: *Cumulative Room for Tax Cuts, under Prudent Planning*

	Fiscal Target			
	No Rise in Debt Ratio	53% Debt Ratio by fiscal year 2003/04	No Deficits	No Surplus Less than \$3 Billion
	(\$ billions)			
<i>Spending policy</i>				
Spending rises with GDP	21.3	20.8	19.2	16.5
Spending rises with prices and population	27.7	27.2	25.6	22.9
Spending is frozen	43.2	43.2	40.5	38.4

five years, and that Ottawa’s fiscal target is a 53 percent debt ratio by 2003/04. Under the base-case forecast of Table 4, these parameters allow Ottawa to cut taxes by 0.64 of a percentage point of GDP every year from the amount that they would be under an unchanged taxation policy. This yields a total cut of \$34.1 billion over five years. Feeding this assumption into the model and running 1,000 simulations gives an idea of the variability of the debt ratio in 2003/04 around the 53 percent average outcome. Using the distribution of this variability, it is possible to calculate the cushion — the amount by which Ottawa should aim to reduce the debt ratio below 53 percent — needed to raise the odds of achieving 53 percent or better to 90 percent. In this case, the cushion is slightly over two percentage points of GDP; in this scenario, Ottawa should aim for a debt ratio of 50.9 percent.⁶ Aiming at this more prudent target means scaling the tax cuts back to 0.51 percentage points of GDP annually, which cumulates to \$27.2 billion over five years.

Alternatively, let us assume Ottawa’s aim is to avoid using the contingency fund — or, in other words, to have a surplus no smaller than \$3 billion in any year — while, as above, increasing program spending in line with population and prices. Under the base-case forecast, this combination suggests that Ottawa can cut taxes by 0.49 of a percentage point of GDP each year, which yields the total of \$26.1 billion in tax cuts over five years shown in Table 4. Running 1,000 simulations of this approach in the

model yields a distribution of outcomes for the surplus in the final year, the year in which it is typically smallest, that suggests a cushion of just over \$4 billion is needed to raise the chances of hitting or exceeding the objective to 90 percent. This cushion does not preclude varying the budget in response to economic cycles — moving from a bigger to a smaller surplus in a recession, for example. It allows for responding to economic cycles this way while still observing the fiscal target. Adding this cushion to the original \$3 billion target raises the federal government’s objective for the budget balance in the final year to just over \$7 billion.⁷ Again, aiming at this more prudent target means scaling back the annual tax cut to 0.43 of a percentage point of GDP, which comes to \$22.9 billion over five years.

Adding cushions like these, needless to say, reduces the room in the budget for tax cuts. Table 5 shows the cumulative room available for cuts over the next five years under this “prudent-planning” approach under the various combinations of spending paths and fiscal targets.

Like their base-case counterparts, the estimates of room for tax cuts under prudent planning vary considerably with the chosen spending path. Under the scenario where spending rises with GDP, they are relatively small — as small as \$16.5 billion, or about \$3.3 billion annually, if Ottawa aims never to use the contingency fund. These rather meager margins for tax cuts are the reason I have not examined

more expansive spending paths in detail. If spending were to rise by annual amounts as small as one-third of a percentage point of GDP, tax cuts would be out of the question; indeed, a prudent approach to the bottom line might instead even suggest tax *increases* — a topic well outside the scope of this study.

As for the fiscal targets, the room for tax cuts shrinks more under what originally appeared to be the less demanding constraints: those related to the debt ratio. Because the debt ratio moves both with changes in the budget balance and with GDP, it is harder to pin down than indicators related to the budget balance alone, and therefore requires, for a given degree of confidence in hitting it, a bigger prudence cushion.

The shrinkage is greater, moreover, with the target that originally looked least demanding — keeping the debt ratio from rising in any year — than it is under the constraint of ensuring that the ratio finish the period below 53 percent. This result is a bit surprising. It becomes easier to understand when one imagines, for example, a more pronounced boom than in the base-line forecast, followed by a more pronounced slump. The debt ratio could pass the 53 percent target early, hitting, say, 52.8 percent at the end of fiscal year 2002/03, but then inch up to 52.9 percent at the end of 2003/04; this result would satisfy the 53 percent constraint, but violate the constraint that the ratio never rise.

The target that the debt ratio not rise is, moreover, the only target for which a prudence cushion calculated with reference to the final year alone is not enough. In the model runs, it is not unusual to see a decline in the ratio in 2003/04, following a rise the previous year. To increase the likelihood of avoiding a rise in the ratio *in any year* to 90 percent, therefore, the federal government needs to adopt a fiscal plan that, under the base case, would yield a sizable drop (1.7 percentage points) in the debt ratio in 2003/04. This far more demanding fis-

cal course cuts deeply into the room that this target would offer for tax cuts in a world without uncertainty.

Because of differences in tax-room “shrinkage” under the various fiscal targets, the room for tax cuts under the different targets varies less in a prudent planning framework than in the base-case scenario. It ranges from \$43.2 billion (some \$8.6 billion annually), if spending is frozen and Ottawa pursues either debt-ratio target, to \$16.5 billion (some \$3.3 billion each year) if spending rises with GDP and Ottawa seeks to avoid cutting into the contingency fund.

Like the amounts shown in Table 4, these cumulative amounts are the sum of annual figures that, being the product of tax cuts specified in percentages of GDP, grow in dollar terms with the economy over the years. The cumulative totals are probably the most useful figures to look at, since the annual tax changes Ottawa will actually offer will not round off neatly to equal shares of GDP. Nevertheless, while smaller cuts in one year can balance larger cuts in another, changes in interest payments and the more binding nature of the fiscal target in some years (typically the later ones) limit the amount of shuffling that is possible. Front loading the entire amount onto the first year, for example, is clearly out of the question.

A final point about the cumulative totals is that they are the result of five-year projections that build in the uncertainty that exists at the beginning of the period. As time goes by, updates of the base-case forecast will reduce the uncertainty surrounding outcomes in fiscal year 1999/2000 and beyond, reducing the size of the cushions that prudence requires around the targets in those years, and allowing the federal government to change taxes and spending in response. A similar exercise carried out in a year’s time would, therefore, produce different figures. Starting from today, however, the figures in Table 5 are those that, provided the base case is a realistic assessment of the most likely prospect for Canada, offer a

90 percent chance that Ottawa will be able to pursue a given path for spending and a given tax-cut strategy, while keeping the budget's bottom line on track for a successful outcome.

A Schedule for Tax Cuts

A fiscal-planning study such as this one that covers a variety of spending paths and different constraints for the bottom line offers the benefits of breadth and comprehensiveness; it also offers a frustratingly wide range of possible answers to the key question: how much in tax cuts can Canadians look forward to over the next five years? Stepping back and evaluating the different spending paths and fiscal targets can help narrow the range of replies.

How Much Should Spending Rise?

Viewed from Parliament Hill, higher spending paths look more attractive. The growth of pressure on the budget from courts and quasi-judicial tribunals is politically hard to resist. And, after years of restraint and a hard-won return to a balanced budget, a mixture of perceived need and political ambition has naturally fueled a desire for new and richer programs. Aside from the obvious difficulty that higher spending cuts into the room for lower taxes, the problem with this desire is that most of the demands for newer or richer public services are in areas that Ottawa is not legally or practically well positioned to meet.

The demand for more services and the need for more innovative approaches in Canada today are greatest in health, education, and welfare. These are areas where the provinces have both constitutional authority and, being closer to the action, better capacity for delivering services. Despite bitter complaints and dire predictions, cuts in federal transfers to the provinces have resulted in neither the collapse of medicare nor the disintegration of the country.

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And discretionary increases in these programs of the size now under discussion — a \$2 billion increase in the Canada Health and Social Transfer, for example — would, if spread equally around the country on a per person basis, as they should be, make much less difference than the revenues even fiscally weaker provinces could raise, or the spending they could reallocate, on their own.

Even if the experience of the past few years has shown that the quality of the health care, education, and welfare programs Canadians receive is less dependent on the federal government than it once appeared, pressure both inside and outside Parliament for more spending nonetheless makes this spending path a serious possibility.

A more restrained spending path, in which program spending is frozen in dollar terms, has its merits, but appears rather unlikely.

Several major expenditures — such as transfers to the provinces, employment insurance benefits, and transfers to the elderly — have either undergone reductions or proved resistant to reform in recent years. Others — such as transfers to aboriginals, training programs, and equalization — may not be achieving the objectives Canadians hoped for, but would require extraordinary political courage to cut. Direct federal spending on goods and services, which is principally absorbed by defense and civil service remuneration, has been squeezed to the point where the quality of these functions is impaired, and some discretionary increases are in order. On the whole, the scenario where spending grows in line with population and prices, thus staying constant in real terms per Canadian, seems desirable, if less likely than the more expansive spending path.

Which Fiscal Target Is Best?

While the safe, middle-of-the-road scenario for spending is defensible, making the best choice of a target for the budget's bottom line is a bit more demanding. Taking longer-term demographic constraints seriously suggests reducing the federal debt burden significantly — to, say, 20 percent of GDP — over the next 20 years. As Scarth and I have shown elsewhere (Robson and Scarth 1997), the benefits of front loading a debt-reduction program — running sizable surpluses in the early years to get the interest burden down and build credibility — are considerable.

In this light, the more relaxed fiscal targets discussed here — seeking merely to get the debt ratio down to 53 percent by fiscal year 2003/04 or to avoid deficits — look less attractive. A 53 percent debt ratio by 2003/04 looks good compared with the peak of over 71 percent recorded at the end of 1995/96, but it is still far too high to be on the path to ensuring a 20 percent ratio by the time the baby boomers retire. In fact, it is not even sufficient, under the

base-case forecast, to prevent a rise in the dollar value of Ottawa's interest payments. By contrast, the surplus targets of the prudent approach as applied to the \$3 billion contingency constraint — targets that average a little more than \$8 billion over the next five years — would, if the base-case forecast is realized, set the debt ratio on a steeper downward path and insulate Canadians far more effectively from any potential rise in debt-servicing costs. Looking beyond the accounting tricks that have been deployed to depress reported fiscal outcomes recently, Ottawa's success in improving its bottom line suggests that this desirable approach may also be the most likely one.

Conclusion

To sum up, then, the most likely course for federal program spending over the next five years is probably average growth in line with the economy. Combined with an approach to the bottom line that attempts to ensure, with a 90 percent probability, that the surplus would never be less than the \$3 billion contingency fund, such a course would offer cumulative room for tax cuts of some \$16.5 billion over the five-year period: some \$2,200 for an average family of four.

Alternatively, and preferably, Ottawa could keep real spending per Canadian constant and increase its programs only in line with population growth and inflation. If it did, the same fiscal target — aiming at a 90 percent probability of a surplus greater than or equal to \$3 billion — would yield room for \$22.9 billion in tax cuts by fiscal year 2003/04: \$3,000 for a family of four.

Expressed as annual figures — \$3.3 billion annually, or \$440 per family, for the bigger-spending path and \$4.6 billion, or \$600 per family, under the most restrained course — these amounts may seem a somewhat disappointing payback for the years of fiscal restraint that Canadians have undergone. They are large

enough, however, to permit some important reductions in rates, as well as reindexation, and redefinitions of bases. Equally important in light of the fresh memory of much harder fiscal times, they are prudent amounts. They allow for a sizable budgetary cushion against

the possibility that the economy will perform worse than expected, and offer a corresponding hope that, if things work out as well as or better than expected, Ottawa's fiscal position in five years' time will be dramatically healthier. They are therefore amounts that offer a solid chance that debt and deficit problems will not return and, therefore, a significant guarantee that the tax cuts will be permanent.

Appendix: Uncertainty-Based Modeling

The model used in these simulations is a small one with both neoclassical and Keynesian features, coded in discrete time, which focuses on the interactions between the federal budget and the economy. The model is described in detail in Robson and Scarth (forthcoming); this Appendix focuses on the key sources for the distributions of fiscal outcomes used to calculate the prudence factors.

For each run, the model uses random number generation to produce parameters that describe several key relationships:

- the amount by which tax rates reduce labor supply (percentage point per percentage point);
- the amount by which changes in the federal government's primary (excluding net interest payments) budget balance affect output (both expressed in percentage points of potential output);
- the amount by which interest rates affect output (percentage points of potential output per percentage point of interest rates);
- the slope of the Phillips curve describing the relationship of inflation to the output gap (percentage points of inflation per percentage point of potential output);

- the propensity of households and non-federal governments together to consume out of income (in percent); and
- the amount by which stocks of federal and foreign debt raise Canadian interest rates relative to world rates (basis points per percentage point of output).

The values drawn for each run are normally distributed: the means and standard deviations of the distributions used in the calculations for this study are shown in Table A-1.

In addition, the model uses random numbers to generate disturbances in output and interest rates in each run as follows:

- a cycle of actual output (before the impact of fiscal impulses and other influences) around potential output in a sine wave with a peak-to-peak period that has a mean of six years and a standard deviation of one year, and with an amplitude of 1.5 percentage points;
- exogenous "noise" annual fluctuations in output with a mean of zero and a standard deviation of 1.25 percentage points of potential output; and

Table A-1: *Parameter Distributions*

Parameter	Mean	Standard Deviation
Tax distortion	0.30	0.10
Fiscal impulse	0.67	0.13
Interest-rate impluse	-0.50	0.17
Phillips-curve coefficient	0.33	0.11
Propensity to consume	0.803	0.010
Foreign-debt premium	2.00	0.67
Government-debt premium	2.00	0.67

- exogenous “noise” annual fluctuations in interest rates with a mean of zero and a standard deviation of 0.5 of a percentage point.

What size of the exogenous disturbances to insert into the model is obviously a matter of judgment. As I mention in the text, however, the figures used here were jointly chosen to produce both annual volatility in interest rates and output on what seems a reasonable scale:

- a standard deviation of interest rates of 1.2 percentage points, which is lower than the 3.0 percentage point standard deviation of the average of three-month and ten-year rates recorded since the mid-1950s, but equal to the standard deviation of this measure since inflation targeting began in 1991; and
- a standard deviation of annual changes in real GDP of 1.8 percentage points, which is lower than the 2.4 percentage point figure recorded since the mid-1950s, but reflects the degree to which the lower interest rate volatility affects output volatility in the model (the standard deviation of annual changes in real GDP since 1991 has been 1.2 percentage points).

To give the flavor of the model’s output, Table A-2 shows the standard deviations of the

variables in the base-case economic forecast shown in Table 1 in a representative set of runs. In this sample scenario, federal program spending grows with population and prices, and Ottawa takes a “prudent planning” approach to aiming for a debt ratio of 53 percent by 2003/04.

The standard deviations of the annual figures for the key outcomes used as fiscal targets under the same set of runs are given in Table A-3.

Since these outcomes are approximately normally distributed, about two-thirds of them lie within one standard deviation of the mean, about one-sixth are more than one standard deviation above it, and about one-sixth are more than one standard deviation below it. Calculating the distance from the mean beyond which only 10 percent of the outcomes will lie — to find the cushion necessary to yield a 90 percent chance of meeting or bettering a target — involves multiplying the standard deviation by 1.28. Thus the “prudence cushion” on the 53 percent target in Table 5 is 2.14 percentage points (1.28 times the 1.68 standard deviation around the final debt ratio in Table A-3), which makes the prudent debt target approximately 50.9 percent. In inserting the prudence factors calculated with the model into the various tax-cutting scenarios, I made no allowance for the impact of the tax cuts on the level or growth rate of output. In the model, tax cuts have some effects on the level of output: they increase the effective size of the labor force, and they increase the cash flow from which businesses finance investment; changes in the effective size of the labor force also affect business investment indirectly. Allowing for these effects did not seem consistent with the focus on prudence in this exercise. To the extent that tax cuts would boost output, the figures presented here err on the side of caution.

Table A-2: Standard Deviations around Key Economic Variables, fiscal years 1999/2000 to 2003/04
(1,000 model runs)

	1999/2000	2000/01	2001/02	2002/03	2003/04
Real GDP (% change)	1.29	1.84	1.89	1.91	1.93
Prices (% change)	0.19	0.46	0.49	0.51	0.57
Nominal GDP (% change)	1.29	1.60	1.65	1.71	1.71
Effective debt-servicing cost (%)	0.13	0.20	0.24	0.26	0.28

Table A-3: Standard Deviations around Key Fiscal Variables, fiscal years 1999/2000 to 2003/04
(1,000 model runs)

	1999/2000	2000/01	2001/02	2002/03	2003/04
Change in debt ratio (percentage points)	1.02	1.11	1.11	1.12	1.08
Debt ratio (percent)	1.02	1.12	1.24	1.45	1.68
Budget balance (\$ billions)	2.3	2.4	2.5	2.9	3.2

Notes

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- 1 The federal government's fiscal year runs from April 1 to March 31. For convenience and clarity, this *Commentary* uses the calendar years in which each fiscal year begins and ends to identify it — thus 1998/99 for the current year — and adopts the common practice of comparing debt outstanding at the end of each fiscal year to GDP in the calendar year with which it overlaps most completely (1998 for the current fiscal year).
- 2 The decline in federal spending over the course of the 1990s is exaggerated in the figures presented in federal budgets and Department of Finance publications because two sizable transfer programs established in the first half of the decade — the GST credit and the Child Tax Benefit — are netted against revenue rather than shown as spending. Gross program spending is currently about \$11 billion annually larger than the budget shows, a discrepancy that distorts historical comparisons made using the more familiar net numbers.
- 3 This calculation involves setting up a summary model of Ottawa's revenues, spending, net worth, and net interest payments, then lowering each successive year's annual tax take by 0.01 of a percentage point of GDP until the fiscal target precludes any further cut. Be-

cause the government is starting with a substantial surplus, the budget balances in these simulations tend to decline through the projection period, reaching the smallest surplus or biggest deficit in 2003/04.

- 4 Finance Minister Paul Martin's often-quoted statement that he would hit his deficit targets "come hell or high water" suggests he should plan to make the odds, say, 99 percent. In view of the improvement in Ottawa's fiscal health since that statement was made, however, a target of 90 percent does not seem unduly lax.
- 5 Black, Macklem, and Rose (1997) undertake an impressive investigation of various rules for monetary policy in an uncertain world.
- 6 The process is slightly more complicated than this account, because the distribution of model outcomes differs with the size of the tax cuts. The difference in variability under the more prudent tax cut schedule is, however, too small to affect this calculation.
- 7 Achieving a target for the budget balance in the final (usually the most difficult) year is no guarantee of hitting it in the intervening years. Since the scenarios examined here typically involve a budget surplus that declines over time, and the variability around the outcomes increases over time (see the Appendix), however, the chances of missing the target in an earlier year, yet achieving it in the final year, when following the prudent course, are small enough to ignore. The same is not true, however, for the target that the debt ratio not rise in any year, a point taken up further below.

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