Risk and Uncertainty in the Federal Budget

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The 2006 Canadian federal government budget is based on forecasts and makes some important forecasts of its own. These notes comment on the risk and uncertainty associated with these forecasting exercises. I begin with some background comments.

1. Sympathy

One of my reactions upon reading the federal budget documents is sympathy for the staff of the Department of Finance. They have produced budgets and updates at unusually high frequency in recent years. The 2006 federal budget was issued relatively quickly after a change of government. And this budget suggests that they may produce quarterly updates hereafter and also provide data to a new Parliamentary Budget Officer. I have nothing but admiration for their work under difficult circumstances.

2. Reaction

What has been the expert reaction to the federal budget? How has it affected private-sector forecasts? Here I focus on banks, the Bank of Canada, and international organizations. I omit the alternative budget prepared by the Canadian Centre for Policy Alternatives and the shadow budget prepared by the C.D. Howe Institute because those documents focus on the composition and scale of revenue and expenditure, whereas my focus is on macroeconomic impacts and forecasting.

a. Banks

Many businesses learn about the federal budget through the economic commentary provided by the Banks. I examined one dimension of these commentaries: whether the budget has been viewed as expansionary or not.

The Bank of Montreal predicted that the budget would be stimulative on balance and so would cause the Bank of Canada to raise interest rates to restrain future inflation. The

Royal Bank also described the budget as stimulative. They then described themselves as above consensus on growth and interest rates.

CIBC World Markets said that the budget might be stimulative but that most stimulus was already in place, so that no revision in their interest-rate forecast was necessary. Scotiabank group said that the budget extended the fiscal stimulus (accompanied by provincial budgets) but on balance was unlikely to change the Bank of Canada's stance. The TD group said the budget was unlikely to lead to a re-evaluation by the Bank of Canada. They concluded that the budget was stimulative for GDP but that this effect was likely already incorporated in the central bank's forecasts.

In comparing these assessments, I should mention that I am not sure if each institution uses the word stimulative in the same way. Some commentators base their assessment on the level of the surplus, others on the change in the surplus. It is interesting though, that most commentators focus on the surplus rather than on program spending, which is the measure that most economists would emphasize.

The budget is of course itself based on private-sector forecasts. I realize that there are timing differences and there is an element of surprise in the budget, but one cannot help wondering whether the original forecasts on which the budget is based are consistent with the measures announced in the budget. Can this loop be closed and the forecasts be made unconditional? In practice forecasters may have a reasonable idea of the aggregate stance of the budget in advance, with the element of surprise being found in the composition of the budget measures. Certainly the commentary provided by the banks after the budget also helps close the loop by then providing some revisions to their forecasts.

b. Bank of Canada

The other open loop is with the Bank of Canada. The federal budget makes forecasts based on a path for several interest rates. Then the Bank of Canada has the opportunity to adjust interest rates based on fiscal policy, among other things.

The spring *Monetary Policy Report* – issued before the federal budget – described the Canadian economy as being at or just above capacity. It mentioned government spending as one contributor to aggregate expenditure and hence (by arithmetic only) to GDP growth. It did not forecast any significant changes in that contribution from year to year. This relatively placid view contrasts somewhat with the U-turn in the ratio of federal program spending to GDP that is illustrated in the budget documents (chart 4.2). Again, perhaps this change was already taken into account before the budget.

The Bank of Canada forecasts that total government spending and revenue will rise at the same rate in 2006 and 2007, with both slowing in 2008. Its only other comment on fiscal policy is that it does not expect any second-round effects from the GST rate reduction. There is no other mention of the federal budget.

After the budget, Governor Dodge appeared before the Senate Committee on Banking, Trade, and Commerce on 3 May. His introductory statement said that the Bank's forecast assumes rough government budget balance. Also after the budget the Bank raised rates on 24 May but made no mention of fiscal policy in doing so. Thus the commentators from the private sector who predicted no reaction from the central bank so far seem to be correct.

c. International Organizations

The impact and sustainability of Canadian federal budget plans also is the subject of some commentary by international organizations.

The recent IMF article IV staff report was written just before the federal budget. It has a section on fiscal sustainability. One of its main conclusions is that there is a need to anchor fiscal policy with a public debt objective over a 5-10-year horizon. (The commentators surveyed by O'Neill (2005) also voted for some sort of anchor for fiscal policy.)

In their public information notice from 16 June 2006, the IMF Directors note that "Coupled with past reforms of the Canada Pension Plan, as well as balanced budget rules in many provinces, Canada is better placed than most other countries to cope with the long-term fiscal challenges from population aging." The Directors agreed that the establishment of a Parliamentary Budget Officer and the medium-term debt anchor (by which they mean the debt-GDP ratio in 2013-2014) could help support the social consensus for prudent fiscal policies "while the social consensus for a declining debt ratio could be reinforced through a regular fiscal sustainability report illustrating the challenge posed by long-term spending pressures."

The article IV report also mentions that "Canada remains highly dependent on global economic developments." Like the budget documents, it mentions a fall in commodity prices as one of the external risks. But there is a dog that didn't bark here. Although the IMF refers to the desirability of more explicit debt-reduction targets, and also to the benefits to Canada of high commodity prices and the risks of a downturn, it does not connect the two topics. There is no suggestion of the need for Norwegian-style national saving for a rainy day. Rather the debt target is linked only to population aging and health.

The OECD *Economic Outlook* warns of some inflationary pressure in Canada. It also mentions the very low household saving rate, though noting that this may change if interest rates continue to rise. It suggests that the 2006 federal budget is modestly stimulative or expansionary. Like the IMF, it supports paying down the debt so that the consolidated public sector is ready for aging and increases in health spending.

3. Correlated Risks

The budget documents mention that “fiscal projections are inherently uncertain due to:

- Uncertainty associated with the underlying economic projections.
- Uncertainty associated with the fiscal projections themselves, including volatility in the relationship between fiscal variables and the underlying activity to which they relate.
- The long delays before final fiscal information becomes available.”

The documents then contain a welcome tabulation of the effects of departures from the benchmark forecasts for real output growth, inflation (in the GDP deflator), and short-term interest rates. A 1 percent increase in real GDP raises the surplus by $2.7 billion in the first year and $2.3 billion in the second year. For a 1 percentage point rise in inflation the effects are $2.0 billion in the first year and $1.5 billion in the second year. For a 1 percentage point increase in interest rates the amounts are
-$1.0 billion in the first year and –$1.5 billion in the second year. (There also is a good discussion of how tax revenue elasticities could change.)

These risks are correlated. First, a rise in inflation would normally be reflected in a rise in interest rates too. The analysis of inflation in Table 4.9 of the budget documents does not seem to allow for this correlation, for it has no significant change in public debt charges. It seems unlikely that one could simply add up the effects from the relevant tables to get the total impact of some suite of changes to output, inflation, and interest rates.

A second example comes from a correlation between real output and inflation. The budget documents show a revision between November 2005 and March 2006 in forecasts for real GDP growth and inflation in 2006 and 2007, with slightly lower real growth for 2007 and slightly higher inflation.

But is it generally true that these revisions are correlated? In other words, do forecasters generally predict a relationship between CPI inflation and growth in real GDP? It turns out that they do, but with a positive correlation, in other words a Phillips curve. Gregory, Smith, and Yetman (2006) use data on professional forecasts from the monthly survey conducted by Consensus Economics Inc. They calculate the correlation between predicted CPI inflation and predicted real GDP growth, with controls for the year, horizon, and forecaster. Overall the results suggest that there is a significant, positive correlation. The budget documents suggest that the federal government will make money from a surprise in real GDP or from a surprise in inflation. The history of forecasting suggests that these events often go together.

4. Uncertainty

As a number of commentators have mentioned, the budget provides less forecasting than in the past by limiting itself to a two-year horizon. To quote the budget: “The projections are presented over two years, consistent with the Government's approach to introducing measures when they are affordable and ready to be implemented.” The aim is to make the process more transparent and omit pie-in-the-sky promises with much uncertainty attached to them. (The budget is not completely consistent in this respect, for it also promises a corporate tax cut by 2010.) It will be interesting to see if this shorter horizon leads to greater accuracy.

Even with a two-year horizon, uncertainty can be large, as Table 4.2 in the budget documents shows. For example, the forecasts for the surpluses for 2005-6, 2006-7 and 2007-8 from the November 2005 update status quo were $13.4, $15.0, and $16.4 billion respectively. By March 2006 the revised status quo numbers were $17.4, $17.8, and $19.4 billion. With the budget measures, these three numbers fall to $8.0, $3.0, and $3.0 billion for these three fiscal years.

One striking thing about these three sets of numbers is that some of the revisions in the first two sets – over a period of only 4 months – are greater than the $3 billion surplus forecasts in the third set. This example clearly raises a doubt about how meaningful it is to announce a point forecast for the surplus even with a two-year horizon. This measure of uncertainty (coupled with the positive correlation mentioned above) implies that there is a good chance of a 100 percent forecast error.
In turn that means that there will be surprise surpluses or deficits. The budget sets out a new method for dealing with unexpected surpluses, in the form of allocating them to the CPP/QPP. But the amounts involved could be quite large. There also could be an unexpected shortfall in the $3 billion benchmark surplus, or even a deficit.

Is this a typical revision in forecasts? Again one could look at the past to measure the uncertainty in forecasting the future. For example, the dispersion across the predictions from individual forecasters provides a natural way to measure the uncertainty at various horizons. Such estimates can be constructed easily for GDP growth, inflation, and interest rates. The resulting confidence intervals or error bands for macroeconomic variables then could be translated into such intervals for federal revenue or the surplus.

One advantage of using the dispersion in private forecasts as an estimate of uncertainty at various horizons is that the Department of Finance already surveys the members of a panel of forecasters and uses their average predictions in the budget. Reporting the variation in these forecasts would be a relatively simple step. This estimate of uncertainty would be calculated at arm’s length from the Department, so that there could be no suspicion that it was added to avoid careful budgeting. In that sense, it may have an advantage over the uncertainty calculated from an economic model, though the staff of the Department of Finance certainly have such tools also.

5. External Risks

The budget mentions three significant external risks: a change in commodity prices, a fall in US house prices, and an appreciation of Canadian dollar (from global imbalances). I have three observations on these risks.

First, there is no discussion of what these risks would imply for the federal budget. This silence can be contrasted with the 2006 Ontario government budget, which contains a detailed discussion of possible outcomes. The federal budget reviews the economic impacts of past influenza epidemics but says nothing about past housing price changes or past commodity price falls.

Perhaps these events impact the budget through output, inflation, and interest rates, but no forecasts are provided of their likely impact on those indicators. Perhaps this absence of numbers is due to a lack of macroeconomic research to draw on. We may simply have no good numbers on the impacts of a crash in the US housing market.

Second, there may be just as much uncertainty about events internal to the federal government budget. For example, government officials have already begun to discuss priorities for the autumn and winter of 2006-2007. There is uncertainty about federal transfers to provincial governments, about aboriginal funding, about environmental policy, about the ongoing program review by the Treasury Board, or about how this budget "sets the stage for action in future budgets" on productivity.

Third, I am not sure why changes in these things are referred to as risks anyway. Risks to the outlook are not really risks. In contrast, when the Bank of Canada discusses the risks to its inflation forecast it is clear what it means. For example, a fall in US demand would lead to a change in the Canadian inflation rate, perhaps necessitating a change in the overnight interest rate. But in the federal budget there is no target, only a conditional forecast. Presumably if one of these external variables changed then both (a) the budget instruments would change and (b) the forecast would change. For example, a fall in US growth might lead to a fall in discretionary spending in Canada and also to a deficit. I would not necessarily call this a risk, other than to the conditional forecast, for one might want to run a deficit in these circumstances. Overall, my impression is that there is neither a fiscal policy rule nor a target, so that it is hard to see what is meant by a risk.

There are some informal, medium-term targets in the budget. It abandons the old prudence measure, although it leaves unallocated surpluses of $0.6 billion in 2006–07 and $1.4 billion in 2007–08. It also re-labels the contingency measure as a $3 billion debt pay-down each year. It was not clear to me from the documents whether this figure is a target or a minimum. It is unusual to state a target in current dollars, for this amount will shrink over time as a share of nominal GDP. As noted earlier, and of course by O'Neill (2005), it also is unusual to state a point target for something that is so difficult to forecast.

The budget documents also refer to the "new medium-term objective of reducing the debt-to-GDP ratio to 25 per cent by 2013–14." Some commentators, such as Tapp (2006), have mentioned that this is a very modest goal or mild revision in the date. It also is interesting that nothing is said about the purpose or gains from debt reduction. For example there is no discussion of reductions in future debt charges or inter-generational equity or the potential effect on national savings. While an end to repeated under-estimation of the surplus may be welcome, so would some defence of the goal of paying down debt.

6. Conclusion

It is hard to avoid the conclusion that the budget does not contain targets and that its forecasting exercises are somewhat half-hearted. The $3 billion surplus target is not really credible. Nor does the budget contain an argument for debt reduction. And there is little discussion of the revision to the longer-term debt-GDP target or why a reduction in the ratio might be a good thing. Perhaps the thinking is that presenting no forecasts is better than presenting forecasts that may be wrong, an interpretation supported by the shorter forecast horizon.

The idea of having a point estimate of the surplus may be to meet it and thereby build credibility. But this approach is a double-edged sword, for credibility will be lost if the goal is not met. It might be more credible to give a range of possible outcomes for the surplus or deficit, for example, but make very clear that they are contingent on relatively exogenous events, like US GDP growth or the inflation rate. In a way, the budget documents follow this method now, by giving one alternate scenario for each of Canadian GDP growth, inflation, and interest rates. A second way to demonstrate a track record in budgeting would be to outline contingent rules for things that are more under the control of the government, such as tax rates.

Meanwhile, though, there is a contrast with monetary policy, which nowadays focuses largely on managing expectations. There also is a contrast with the views of international commentators and other experts surveyed in the O'Neill report, who argued for some sort of fiscal policy anchor. Perhaps the budget offers a challenge to economists to think about precisely why there should be medium-term fiscal targets and to explain what might be accomplished by a credible fiscal plan.

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