Bank of Canada

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Renewal of the Inflation-Control Target

Background Information

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INTRODUCTION

As noted in the joint statement issued on 17 May 2001, the Government of Canada and the Bank of Canada have renewed the inflation-control target for a five-year period from the end of 2001. This background note provides additional information on the target arrangements and on the refinements in the way that the Bank plans to implement these arrangements in order to increase the predictability of inflation over the longer term. It also sets out some changes in the way that the Bank will explain inflation developments to the Canadian public.

BACKGROUND

In February 1991, the Government and the Bank introduced targets aimed at reducing the rate of inflation. The objective was to achieve a 3 per cent inflation rate by the end of 1992 (the lowest inflation rate in almost two decades) and to gradually reduce the rate of inflation to 2 per cent by the end of 1995. The targets were extended twice—first from the end of 1995 to the end of 1998 and then from the end of 1998 to the end of 2001. Both extensions involved maintaining a target range of 1 to 3 per cent with a midpoint of 2 per cent.

As was explained when the targets were extended, it was considered important to allow the Canadian economy and the Canadian public sufficient time to adjust to inflation targeting, and it was also considered helpful to see how the Canadian economy functioned throughout a full economic cycle, including a period in which economic activity was at or near the economy's productive capacity.

After a decade of experience, it is clear that focusing monetary policy on keeping inflation low, stable, and predictable makes an important contribution to a well-functioning Canadian economy. The inflation targets have proven to be an effective way of maintaining a low-inflation environment and have provided an anchor for inflation expectations. To achieve the best economic outcomes, it is, of course, essential that other policies, both macro and micro, also have the appropriate focus. But low inflation provides the crucial underpinning that enables the economy to perform well.

A framework in which inflation-control targets assure Canadians that inflation will remain low, stable, and predictable leads to less-pronounced cycles and to higher growth of production capacity.

The reduced amplitude of the business cycle stems from the stabilizing properties of the inflation targets as the Bank focuses on the effects of demand pressures on the future rate of inflation. Thus, when demand presses against the economy's capacity to produce, there will be upward pressure on inflation relative to the target, and the Bank will act to tighten monetary conditions. This, in turn, will moderate demand and activity and thus reduce the inflationary pressures. Conversely, when demand is weak, there will be downward pressure on inflation relative to the target, and the Bank will act to ease monetary conditions. This will support economic activity and offset the downward pressures on demand and inflation.

The latter part of the 1990s has provided strong evidence that, by fostering an environment of low and predictable rates of inflation, the targets contribute to the achievement of sustained, robust growth. Low and predictable inflation supports growth in capacity output through various channels. Among the most important are the ability of businesses and households to make better long-term plans for saving and investment, the increased incentives for business to control costs and increase productivity, the cost reductions that arise from the interaction of inflation and the non-indexed components of the tax system, and the reduced need to divert resources towards protection from inflation.

STRENGTHENING THE TARGETING ARRANGEMENTS

The basic framework for conducting monetary policy under the inflation-control target is being maintained, and the Bank is making a number of modifications to strengthen the way the target arrangements are implemented.

1. The inflation target

The 1 to 3 per cent inflation-control target range that has been in place for the last six years has proved capable of delivering good economic performance and has therefore been retained for the next five years. The Bank has carefully examined the arguments that the target should be raised. These arguments relate to concerns about downward wage rigidity, the inability of interest rates to decline below zero, and the potential risk of deflation. The Bank has concluded that the evidence does not support these concerns for the current target range.[1] The Bank has also carefully examined the arguments for a lower target. Good theoretical arguments can be made that support further reduction in the target, but it has thus far proven difficult to quantify the longer-term benefits of such a change.[2] Consequently, the Bank decided that it was best to maintain the current target range.

To maximize the likelihood that inflation stays within the 1 to 3 per cent target range, the Bank needs to aim at the 2 per cent target midpoint. It is not possible, however, to maintain inflation precisely at the target midpoint all the time. Shocks to demand and supply may push inflation in ways that cannot be offset in the short run because there are lags in the effect of monetary policy. Monetary policy will therefore be directed to moving inflation to the target midpoint over a six- to eight-quarter horizon. In this way, policy aims at keeping the trend of inflation at the 2 per cent target midpoint. The target range of ±1 per cent around the target midpoint thus encompasses the outcomes for inflation that are likely to occur most of the time. This range should be interpreted as a reflection of the short-run uncertainty of outcomes stemming from unpredictable shocks and not as a measure of the indifference of the Bank as to the outcome.

2. Measurement of the target rate of inflation

The inflation target will continue to be set in terms of the 12-month increase in the total consumer price index (CPI). The use of the CPI as the basis for the target reflects its role as the most commonly used indicator of inflation in the Canadian economy. Because it measures the prices of consumer goods and services, the CPI is the most relevant estimate of the cost of living for most Canadians. Moreover, from a technical viewpoint, the Canadian CPI is a sound measure of changes in the price level.[3] The CPI also has some important practical advantages: it is available monthly so that it can be tracked regularly; it is published in a timely fashion without long delays; and it is, for all practical purposes, never revised.

3. Term of agreement

The earlier inflation-control agreements had a three-year horizon. On this occasion, the Bank and the government have agreed on a five-year horizon. This reflects the wide acceptance of the targets after almost a

1. See Technical Background Document 1 on the Bank's Web site (www.bankofcanada.ca) for a brief review of the literature on whether the current low-inflation regime leads to economic difficulties. References to the research that has been done on these issues are provided there.

2. See Technical Background Document 2 on the Bank's Web site for a brief review of the arguments that reducing the rate of inflation further would improve economic outcomes.

3. The bias of CPI inflation in measuring the increase in the true cost of living is low, at about 0.5 per cent per year (Crawford 1998).

decade of operation. Indeed, they have become a central element in the Canadian economic policy framework. A longer period for the agreement will give Canadians greater assurance that low inflation will be a continuing feature of the Canadian economic environment and will facilitate long-term planning.

4. Use and measurement of core inflation as an operational guide to policy

While the overall target is defined in terms of the total CPI, the Bank finds it very helpful to use a core measure of inflation as a shorter-term operational guide to policy.

One reason for this focus on core inflation is the considerable short-run volatility in certain components of the CPI. Since movements in these volatile elements tend to reverse themselves fairly quickly, and since monetary policy actions affect inflation over a longer period, it would be inappropriate for monetary policy to try to offset the short-run movements in the total CPI caused by these fluctuations. Over longer periods of time, the total CPI and core measures of the CPI that exclude components with considerable short-run volatility have tended to move in a very similar fashion and are likely to continue to do so in the future. Hence, achieving the target rate of increase for the core measure of the CPI will tend to bring about a similar rate of increase for the total CPI over time.

Another reason for this focus on core inflation is to adjust for the first-round effects of changes in indirect taxes (such as sales and excise taxes) on inflation. The Bank has always made it clear that it would accommodate the first-round effects of a change in indirect taxes, i.e., not try to offset its direct effect on the total CPI. However, the Bank has also made it clear that it would take whatever actions were necessary to prevent second-round effects, in which the tax-induced rise or fall in the CPI led to subsequent broader effects on wage and price inflation.

To the extent that it isolates the underlying trend in inflation, core inflation tends to be a better predictor of future changes in the total CPI than does the recent history of CPI inflation. That is, using core inflation as the operational guide increases the likelihood of keeping future CPI inflation on target.

Since the inception of the targeting regime in 1991, the Bank has used as its core measure of inflation the CPI excluding food, energy, and the effect of changes in indirect taxes. For the past several years, the Bank has also been monitoring and reporting a number of other measures of underlying inflation, including one called CPIX. CPIX excludes the eight most volatile components of the CPI: fruit, vegetables, gasoline, fuel oil, natural gas, intercity transportation, tobacco, and mortgage-interest costs. It also excludes the effect of changes in indirect taxes on the other CPI components. After a thorough assessment, the Bank has concluded that this measure has a number of advantages over the current measure of core inflation in capturing the underlying trend of inflation. The Bank has therefore chosen it as its new measure of core inflation and as its new operating guide for policy.

The new measure of core inflation has the following benefits:

- It includes 84 per cent of the consumer basket, as opposed to the 74 per cent included in the current measure of core CPI.
- It excludes only the five food and energy components that are most volatile because they are directly affected by supply shocks: fruit, vegetables, gasoline, fuel oil, and natural gas.
- It excludes intercity transportation prices, which are volatile because they are heavily influenced by supply shocks to the price of aviation fuel and by temporary airline seat sales.

- It excludes tobacco prices, which are volatile because of changes in tobacco taxes and other factors.
- It excludes the costs of mortgage interest, which tend to rise (at least for short-term maturities) when monetary policy is tightened and thus give a misleading signal of coming inflation trends.[4]
- Because it removes additional volatile components of the consumer basket and retains other non-volatile components, the new measure of core inflation is somewhat less volatile than the current measure.
- The new measure performs better than the current measure of core inflation in explaining future changes in total CPI inflation adjusted for the effect of changes in indirect taxes.[5]

Chart 1 shows the movements in the current and new measures of core inflation, and Chart 2 shows the new measure of core inflation along with total CPI inflation. Over the period January 1992 to March 2001, the *average* rates of inflation based on the new measure of core CPI, the current measure of core CPI, and total CPI are very close—within 0.1 per cent of one another. We expect that, in the future, the measures of inflation based on the total CPI and the new core CPI will continue to exhibit similar trends. In the event of anticipated persistent differences for a number of years between the trends of the two measures, the Bank would adjust its desired path for core CPI inflation so that it is effectively aiming to keep future total CPI inflation close to the target midpoint.

Chart 1

Two Measures of Core Inflation

Year-over-year percentage change

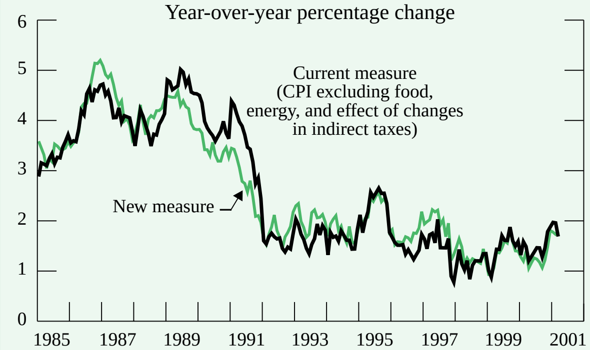
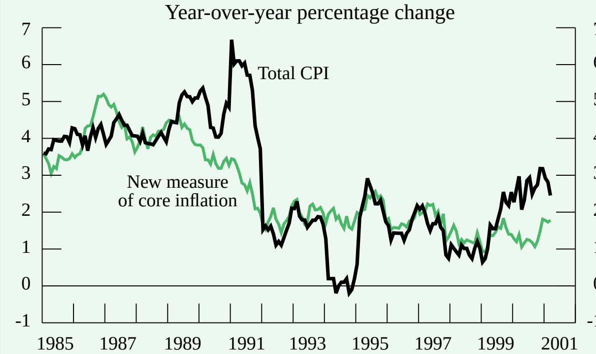


Chart 2

Total CPI and the New Measure of Core Inflation

Year-over-year percentage change



Starting in June 2001, Statistics Canada will publish in its monthly CPI release the CPI excluding the eight most volatile components identified by the Bank and listed above. And the Bank will publish both the effect of changes in indirect taxes on this measure and the new measure of core inflation.

5. *Explanation by the Bank of inflation outcomes*

As noted earlier, the target range for inflation around the target midpoint indicates that the Bank expects the outcome to be relatively close to the target midpoint

4. Most major inflation-targeting central banks exclude mortgage-interest costs from either their targeted measure of inflation or their underlying measure of inflation. These include the Bank of England, the Reserve Bank of New Zealand, the Swedish Riksbank, and the Reserve Bank of Australia.

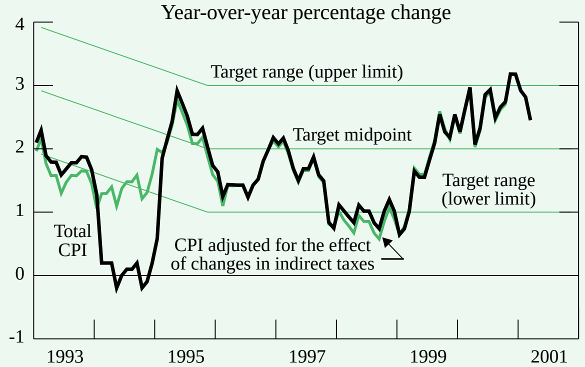
5. This better performance is judged by regressions in which the future changes in 12-month CPI inflation adjusted for the effect of changes in indirect taxes are explained by the current difference between a core measure of inflation and CPI inflation adjusted for the effect of changes in indirect taxes. (That is, tax-adjusted CPI inflation tends to decline when it is above core inflation and to rise when it is below core inflation.) The better performance holds whether the future change is over 12 or 18 months and whether the period considered starts in 1986 or 1992. Other empirical work on various measures of core inflation can be found in Hogan, Johnson, and Laflèche (2001). An article in the Autumn *Bank of Canada Review* will contain further discussion of the properties of the new measure of core inflation.

most of the time. For the official target measure, the 12-month increase in the total CPI, the range will be ±1 per cent; that is, we would expect inflation to fall between 1 per cent and 3 per cent most of the time (Chart 3).[6] When CPI inflation persistently deviates from the target midpoint, the Bank will give special attention in its *Monetary Policy Report*s or *Update*s to explaining why inflation has deviated to such an extent from the target midpoint, what steps (if any) are being taken to ensure that inflation moves back to the target midpoint, and when inflation is expected to return to the target midpoint. These explanations will focus on the movements in total CPI inflation, core inflation, and the components excluded from the core measure, as well as on changes in indirect taxes.

Chart 3

Total CPI and CPI Adjusted for the Effect of Changes in Indirect Taxes

Year-over-year percentage change

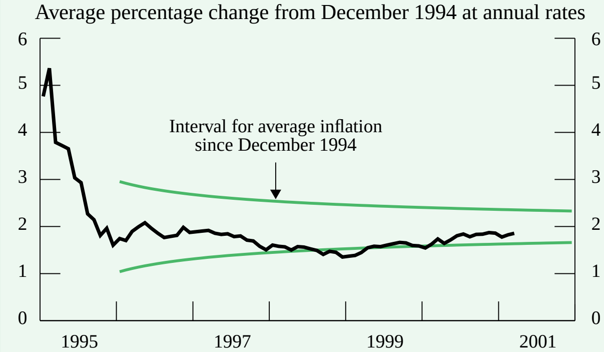


Predictability of average inflation over longer time horizons is desirable. Because unpredictable shocks to inflation should tend to average out over time,[7] monetary policy can deliver this predictability by consistently

Chart 4

CPI Adjusted for the Effect of Changes in Indirect Taxes

Average percentage change from December 1994 at annual rates



aiming at 2 per cent for the 12-month rate of inflation. In these circumstances, the longer the averaging period, the more likely it is that average inflation will approach 2 per cent. Chart 4 illustrates the interval for the likely outcomes for the average of CPI inflation, excluding the effect of indirect taxes, for the period since the end of 1994, when the current target first took effect.[8]

References

Crawford, Allan. 1998. "Measurement biases in Canadian CPI: An update." *Bank of Canada Review* (Spring): 39–56.

Hogan, Seamus, Marianne Johnson, and Thérèse Laflèche. 2001. *Core Inflation*. Technical Report No. 89. Ottawa: Bank of Canada.

6. The largest movement of the total CPI outside the target range occurred in 1994 as a result of the reduction in tobacco excise taxes. The tax effect is reflected in the difference between the total CPI and the CPI adjusted for the effect of indirect taxes, as shown in Chart 3.

7. One type of shock that would not average out over time would be repeated changes in the same direction in indirect taxes.

8. If there is no autocorrelation from year to year (as appears to be the case in the targeting period for total CPI inflation, abstracting from the effect of large indirect tax changes), the statistical formula for the variance of an average implies that the width of the interval will be inversely proportional to the square root of the length of the period over which the average is being calculated. For a range of ±1.0 per cent for the 12-month inflation rate, the interval becomes ±0.7 per cent after 2 years and ±0.5 per cent after 4 years.