TECHNICAL BACKGROUND DOCUMENT 1: A BRIEF REVIEW OF THE LITERATURE ON WHETHER A LOW-INFLATION REGIME LEADS TO ECONOMIC DIFFICULTIES

Over the last five years, a number of authors have suggested that targeting inflation rates of, say, less than 3 per cent could lead to significant economic difficulties. In the period prior to the renewal of the inflation target, Bank staff have reviewed the literature and have undertaken new research into this issue. The Bank also held a seminar at which papers by both Bank staff and outside academics were presented.[1] Our conclusion is that there is no convincing evidence that targeting an inflation range with a midpoint of 2 per cent causes economic problems. Moreover, there is little evidence that an inflation rate of 1 per cent, or perhaps even lower, would cause significant economic problems on an ongoing basis.

This document briefly summarizes our review of the recent literature, focusing on arguments related to downward nominal-wage rigidity, the inability of interest rates to go below zero, and the potential risk of a costly deflation.

Downward Wage Rigidity

Proponents of the hypothesis of downward nominal-wage rigidity, including Akerlof, Dickens, and Perry (1996); Fortin (1996, 2001); Simpson, Cameron, and Hum (1998); and Fortin and Dumont (2000), claim that a moderate rate of inflation is necessary to facilitate the adjustment of real wages and thereby minimize the employment losses coming from a floor on nominal-wage changes.[2] Bank research, including that by Crawford (2001) and Crawford and Wright (2001), has shown that taking into account both the costs of changing wages and the reduced variance of wage changes in a low-inflation environment significantly decreases the estimates of the degree of nominal-wage rigidity in the 1990s.[3] Moreover, Bank researchers Faruqui (2000) and Farès and Hogan (2000), after extending the work of Simpson, Cameron, and Hum (1998) to better control for shocks to labour demand, find that estimates of the effects of downward nominal-wage rigidity on Canadian employment are insignificant.

Work on aggregate wage or price equations by Beaudry and Doyle (2001), Dupasquier and Ricketts (1998), Farès and Lemieux (2001), and Hogan and Pichette (2000) casts significant doubt on downward nominal-wage rigidity being the primary cause of changes in wage and price behaviour in the 1990s. Some of the studies note the importance of taking into account other factors that could change economic behaviour, including most importantly the formation of inflation expectations.

When examining evidence for "near-rationality" in labour markets, as proposed by Fortin and Dumont (2000), it is particularly important to control for changes in the formation of inflation expectations in moving to a low inflation target; these authors have not done so. Moreover, the premise in this work on near-rationality as well as in the corresponding work in the United States by Akerlof, Dickens, and Perry (2000)—that behaviour would never fully take account of a persistent low rate of inflation (given, for example, by an inflation target)—seems untenable.

Overall, we share the view expressed at our seminar last year by Mishkin (2001) and

1. See Crawford (2000) for a summary of the seminar. The seminar volume, which is forthcoming shortly, is now available on the Bank's Web site.

2. For earlier summaries, discussions, and critiques of this hypothesis see Hogan (1998) and Crawford and Hogan (1998–99).

3. The high variance of wage changes in periods of high inflation is an indication of the confusion created by inflation.

Parkin (2001) that the argument for the effects of downward nominal-wage rigidity is not a persuasive one in deciding on an appropriate inflation target.

The Zero Floor on Nominal Interest Rates

A number of authors have argued that the zero floor on nominal interest rates prevents real (that is, inflation-adjusted) interest rates from falling far enough when inflation is below its target, thus leading to a prolonged period in which the economy is weak and inflation remains below its target. After reviewing the evidence, including importantly Black, Coletti, and Monier (1998), and the papers in Fuhrer and Sniderman (2000), Bank economists Amirault and O'Reilly (2001) conclude that most researchers would estimate the probability of hitting the zero floor as negligible for an inflation target of 2 per cent. Moreover, although this probability rises at an increasing rate as inflation falls, their evaluation of the empirical literature is that there would be only a slight increase in the probability as one moved down to a 1 per cent inflation target. This latter conclusion is less widely held. Some authors are more cautious regarding the proposition that the probability increases only slightly, in contrast to Parkin (2001). As well, Parkin notes that the work of Reifschneider and Williams (2000) shows that explicitly taking into account (in various ways) the zero floor in the central bank's reaction function for setting interest rates significantly lowers the cost of hitting the zero bound in the unlikely event that it is hit.

Potential Risk of a Costly Deflation

Mishkin (1997, 2001) has emphasized the importance of avoiding deflations because of their cost. It is important to distinguish at the outset, however, between an unexpected price decline (of, say, one year in duration) and a persistent deflation.[4] It is also necessary to note that there are costs whenever consumers, firms, and financial institutions are adversely surprised. An unexpected price decline of, say, 2 per cent with an inflation target of zero is no more costly than a temporary drop in the inflation rate to zero for a year with an inflation target and expected rate of inflation of 2 per cent. On the other hand, a deflation with some persistence will be more costly than a reduction in inflation of the same size if it causes problems to arise either from hitting the zero floor on nominal interest rates or from downward nominal-wage rigidity. For example, persistent deflation at 2 per cent per year when the inflation target is zero would be more costly than inflation persisting at zero when the inflation target is 2 per cent only to the extent that its persistence becomes more prolonged because of those two problems. But it is important to note that central bank targeting of a specific inflation rate provides a high level of protection against persistent deflation.

We conclude from this analysis that the serious problems come from persistent deflation, that they stem from the first two factors discussed in this document, and that they are unlikely to arise under explicit inflation targeting.

4. It is also important to make a distinction between deflation caused by a rise in productivity growth and that caused by a reduction in the growth of aggregate demand. The former does not have the same adverse effects as the latter.

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