

# Inflation targeting and monetary policy in Canada: What is the impact on inflation uncertainty?

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## Abstract

Inflation uncertainty has been demonstrated both theoretically and empirically to lower real output. This paper examines the impact of inflation targeting in Canada on inflation uncertainty, as well as persistence. Our results indicate that inflation targeting lowered inflation persistence, but actually *increased* uncertainty. Such an effect may be due to the failure of the previous formal target, the M1 money supply, to successfully combat inflation.

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## 1. Introduction

Canada adopted a formal target for inflation in 1991. Adopting official targets for inflation is the latest of formal goals for monetary policy (the others being monetary aggregates and exchange rates). Advocates claim that a formal target for inflation will increase credibility, and thus decrease inflation persistence by anchoring expectations in the face of inflation shocks. Moreover, by anchoring expectations, inflation targeting (hereafter IT) should decrease inflation uncertainty. If true, this is an important feature of IT; while a moderate level of inflation may be neutral for output in the long run, inflation uncertainty can potentially lower investment and hence output growth (Cabellero, 1991; Craine, 1989; Friedman, 1977; Grier, Henry, Olekalns, & Shields, 2004; Grier & Grier, 2006).

Canada announced an IT in steps between 1991 and 1993. Honda (2000) finds that the level of inflation was not affected by targeting, while Johnson (1997) finds that expected inflation

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experienced no change from IT. However, IT may still have an important effect, if it can lower inflation uncertainty, or the persistence of inflation shocks.

Using data from 1970 through the second quarter of 2006, we employ the GARCH (Generalized Autoregressive Conditional Heteroskedasticity) methodology to estimate the impact of IT on inflation persistence and uncertainty. We find that while IT does appear to shorten the life of inflation shocks, it has actually increased uncertainty for any given level of inflation.

We speculate that this increase in uncertainty in response to a formal target may be due to the failure of the previous formal target, that for M1. Given that uncertainty has been shown to impose real costs, the failure of IT to lower uncertainty in Canada gives a cautionary lesson for other nations contemplating adoption of a formal target for price level changes.

This paper proceeds as follows. The next section describes the history of IT in Canada and the literature on the effect of inflation uncertainty. The third section explains the GARCH methodology we will utilize to investigate the impact of IT. The fourth section explains the results, and the fifth section concludes.

## 2. Previous literature

Inflation targeting has been promoted as a means to lower the level, expectations of, and uncertainty surrounding inflation. Nations first started adopting IT in the early 1990s. Like most practices in monetary policy, IT was adopted as a result of the perceived failure of previous policies, namely monetary and exchange rate targets.

Bernanke and Mishkin (1997) argue that IT should increase transparency, as the inflation rate is better understood by the public than other potential formal goals such as the money supply. Moreover, the authors predict that IT will increase monetary discipline and decrease harmful inflation uncertainty. Svensson (1997) shows theoretically that if the central bank chooses its own forecast of inflation as the target that IT will lead to lower inflation variability than monetary or exchange rate goals.

On the other hand, some authors point out that IT may not be desirable. Debelle (1997) surveys the technical difficulties of adopting IT, and the problems that arise when logistical mistakes are made. Kohn (2005) believes that such a policy would decrease central bank flexibility in responding to shocks, such as the 1998 Long Term Capital Management crisis. Sims (2005) points out that with Japan recently hitting the zero nominal bound, inflation targeting would be ineffective, and undermine the credibility of the Bank of Japan rather than enhance it.

Empirically, Fatas, Mihov, & Rose (2006) present results indicating that inflation targeting countries have had lower inflation than non-targeting countries (and lower inflation than those countries targeting money or exchange rates). On the other hand, Ball and Sheridan (2005) use difference-in-differences analysis to show that there is no statistically better performance by IT countries compared to non-targeters regarding the level of inflation.

However, even if IT does not palpably lower the level of inflation, supporters believe the policy can decrease expectations of inflation as well as inflation uncertainty. Regarding the effect on expectations, Johnson (2002) utilized an eleven-country Seemingly Unrelated Regression (SUR) model, which included Canada, and estimated the impact of IT on the consensus of professional inflation forecasts. The author found that in all of the IT-adopting countries, inflation forecasts fell significantly.

Canada adopted IT in several steps between 1991 and 1993. Like other IT countries, Canada began targeting inflation after disappointment with previous formal targets, in this case M1. A formal target for M1 was adopted by Governor Gerald Bouey of the Bank of Canada in November

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