

Discussion

Graydon Paulin

Overview

Johnson's paper addresses one of the main issues of central banking: How successful have monetary authorities been in acquiring credibility for their inflation objectives? Johnson's approach is both simple and elegant. For countries with explicit inflation targets, he examines whether inflation expectations are consistent with those targets. Since not all central banks have explicit inflation targets, he also asks whether inflation has been easily predictable, since this is viewed as one indicator of the successful implementation of monetary policy. The results, though mixed, are not particularly favourable for those countries with explicit inflation targets. Most countries that tried to establish "credible" inflation targets over the sample period failed, and inflation was in general no easier to predict in countries with targets than in those without.

Inflation and Inflation Targets

It is useful to place this study in the context of the remarkable inflation environment that existed during the sample period: global inflation, having accelerated in the late 1980s, then fell to its lowest level in decades. In Figure 1, I show the average inflation rate in 20 industrialized countries, the same 18 countries investigated by the author, plus Spain and Portugal.¹

1. Each country is treated as an equivalent example of the inflation process, and therefore given equal weight. Data are drawn from the OECD *Main Economic Indicators* data base and from national statistical releases.

Figure 1 covers data up to February 1997, but the most recent monthly data show that average inflation has fallen to a mere 1.6 per cent. The dispersion of national inflation rates among countries has also narrowed considerably.

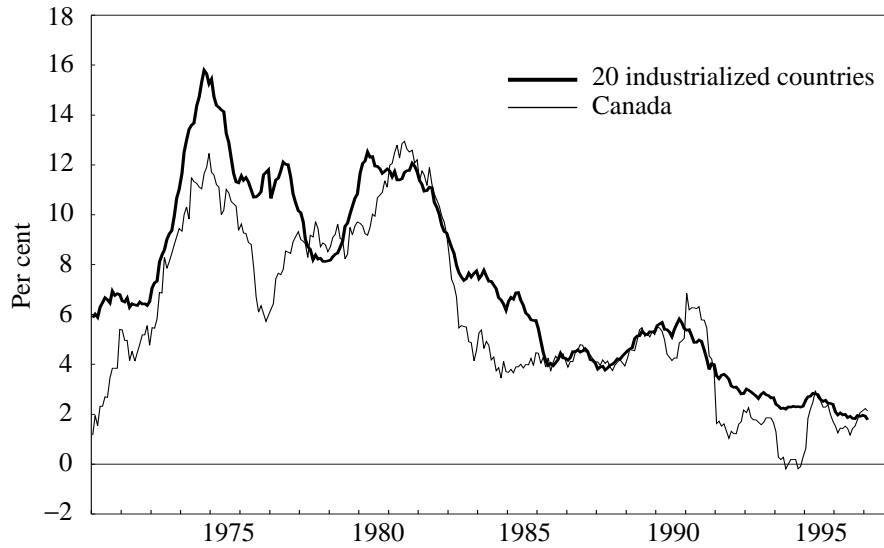
We can isolate the performance of the countries whose central banks adopted explicit inflation targets (adding Spain to the six countries Johnson identifies). Figure 2, with data beginning in 1988, demonstrates the much higher average inflation rate in these countries compared with the 13 other countries. The deceleration of inflation in the early 1990s in the inflation-targeting countries was, however, much more pronounced than in the other countries, to the point where it fell below average inflation elsewhere. Although the targeting countries were largely responsible for the acceleration of inflation that occurred in 1995, they have since redeemed themselves with an average inflation rate again below 2 per cent.

Clearly those countries with explicit inflation targets have been successful in reducing inflation. To what extent was this reduction made easier because of the influence of inflation targets on inflation expectations? The author's broad answer is that the contribution of explicit targets was probably limited. Although my own interpretation of the results is perhaps somewhat more positive regarding the Canadian experience, I think that the lack of a clear effect from inflation targets is understandable. Given the poor historical inflation record of the countries adopting targets, even optimistic central bankers probably did not believe that the targets, on their own, would lead to a large and immediate shift in expectations. It was likely felt that the targets would play a really significant role only with time, as the monetary authorities displayed their determination to achieve and sustain lower inflation.

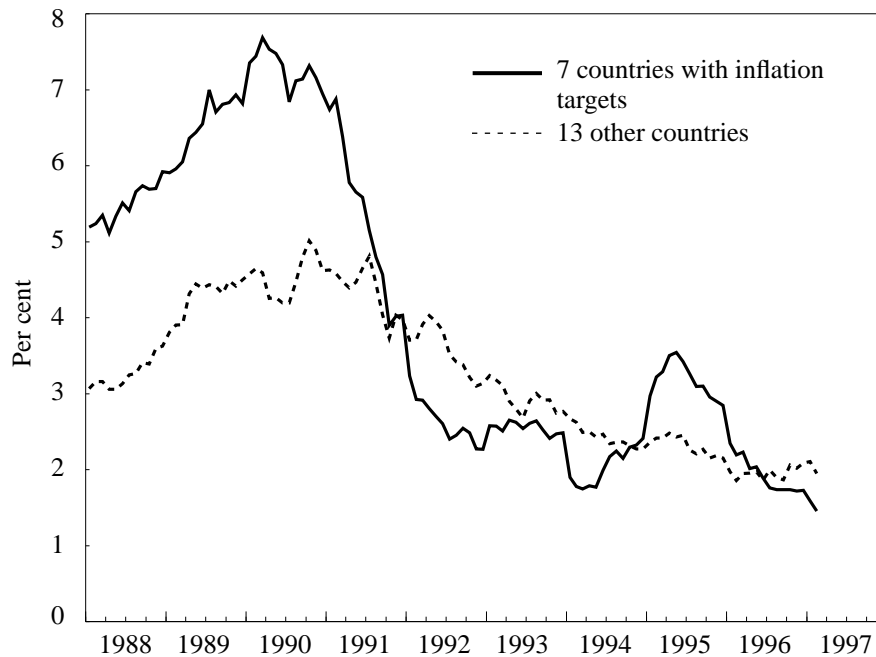
But we should also keep in mind that, in most cases, the targets were introduced *after* inflation had already fallen to levels roughly consistent with the new targets. Only in Canada and New Zealand were the targets introduced when inflation was still "high" (see Debelle 1997). The primary role of inflation targets has therefore been to convince agents that inflation will not be allowed to accelerate back to the higher rates experienced in earlier years. For this, it remains just as important that the targets acquire credibility. Complicating the analysis, however, is the fact that inflation has moved to low levels everywhere—inflation-targeting countries are cursed, not by the fact that they did poorly with respect to inflation, but that everyone else also did well.

The Data Set

The strength of this study is that the data on inflation expectations are drawn entirely from one source, covering the period 1984 to 1995. However,

Figure 1**Consumer Prices: 1971 to February 1997, 12-Month Percentage Change**

Source: Data are from the OECD *Main Economic Indicators* data base.

Figure 2**Consumer Prices: 1988 to February 1997, 12-Month Percentage Change**

Source: Data are from the OECD *Main Economic Indicators* data base.

this strength of consistency is also a source of some constraints. For example, the data include current-year and one-year-ahead inflation forecasts, expressed as yearly rates of change. From some perspectives, this time horizon is short. It is widely recognized that the monetary authorities cannot always hit a point target for inflation. Non-monetary shocks, the lags between policy instruments and recorded inflation, and the inevitable errors in the central banks' own forecasts make that impossible.

When inflation and the targets (defined by the author as the midpoint of the target range, where a range exists) appear likely to diverge, what is really being assessed is whether forecasters believe that the central bank can bring inflation back to the target *within* the forecast time horizon. We must keep in mind that the forecasts are made on average halfway through the first year. And increases in the price level, when translated into annual rates, are far more important early in the year than late in the year. Effectively, the monetary authorities do not have much time to bring inflation into line.² But forecasters may still believe that inflation will be brought back over a somewhat longer time horizon—something that will not be captured by this study.

For Canada (and the United States and Switzerland), the inflation forecasts are in terms of the gross domestic product (GDP) deflator. This is problematic, since this is not the variable that the Bank of Canada targets. The two variables can in fact diverge significantly. Since 1993, for example, Canadian inflation as measured by the GDP deflator has been consistently below that measured by the core consumer price index (CPI) that the Bank of Canada targets for operational purposes.³

Do divergences between the one-year-ahead inflation forecasts and the targets represent a fundamental lack of credibility? Not necessarily. It would be desirable to apply this method to forecasts that go beyond two years in order to test more directly the longer-term credibility of the targets. And it would be helpful to test credibility using different CPI measures for Canada and the United States. Neither of these suggestions can be implemented with the current data set. There are, however, other, longer-term CPI forecasts available, and for at least a subset of these countries an alternative data set could be constructed. This would also allow the analysis to use forecasts created after 1995, which is important given that policy regimes involving explicit inflation targeting have existed for only a short time.

2. Even if they could, they may not choose to do so within the time horizon used here owing to the magnitude of the ensuing changes in the policy instruments and output.

3. For several other countries, the deflator for consumer expenditures is the forecast variable, and this too can diverge significantly from the CPI.

The Results

The author's underlying assumption in assessing his results is that the greater the *predictability* of inflation, the more successful is monetary policy. This is one reasonable approach, but a rate of inflation in the double digits, predictable or not, would not be considered a success. Still, the targeting countries did have the common characteristic that inflation over the entire sample period was, on average, relatively hard to predict (based on the standard deviations of the forecast errors).

Comparing expected inflation to the inflation targets, the findings based on year-ahead forecasts are that most countries failed to establish a credible (dis)inflation path. Nevertheless, the results are relatively encouraging for Canada, and to a lesser extent for New Zealand, the two countries that have been implementing targets the longest. Did the properties of the forecast errors improve in the targeting period relative to the period before? Unfortunately, the evidence from this study does not particularly support this. However, the lack of more favourable results may be related to the specific sample period.

An interesting result emerges when one compares the results for the inflation-targeting countries in 1992-95 with the results reported for the period when the targets were actually in place. For Canada and New Zealand, the results reported for the year-ahead forecasts substantially improve when the shorter sample period is used (see Table 1). While the average forecast error (E^c) is unchanged, or even deteriorates somewhat, the predictability of inflation as measured by the variances, $\text{Var}(u)$ and $\text{Var}(e)$, improves dramatically for both countries, particularly Canada. This

Table 1
Year-Ahead Forecast Properties

	Canada		New Zealand	
	1992-95	1991-95	1992-95	1990-95
E^c	0.72 (3.94)	0.93 (3.44)	-0.89 (1.80)	-0.02 (0.37)
$\text{Var}(u)$	0.18 (0.16)	1.33 (0.23)	0.87 (0.70)	2.13 (1.31)
$\text{Var}(e)$	0.27 (0.08)	0.26 (0.07)	0.36 (0.18)	0.41 (0.66)

Notes: Sample periods as shown. The figures in parentheses are t-statistics for E^c , and confidence intervals for the variances.

Source: Data are from Johnson 1998 (this volume), Tables 5 and 6.

improvement may be only due to the large decline in inflation that occurred early in both countries, but it is also possible that inflation targets lacked credibility initially, but gained credibility over time. The significant changes in the results that can be obtained from changing the sample period suggest that further testing across different sample periods would be useful.

A particularly interesting part of the analysis, and another area that warrants further study, is the comparison of forecast performance across all countries in the data set. Ideally, countries with inflation targets would show more predictable inflation paths than would non-targeting countries. The results, however, do not support this. Average forecast errors in the targeting countries remained large relative to other countries in the 1992-95 period.

While the inflation-targeting countries did experience a significant improvement in the predictability of inflation, based on the reported variances, so also did most of the 18 countries covered in the study. This general improvement is not surprising. With the decline of inflation during the 1990s, the volatility of inflation declined as well (as measured by the standard deviation of inflation during the two periods). If we compare the relative ranking of the inflation-targeting countries among all countries during the earlier period with their ranking in the later period, their position did not really improve.⁴ Indeed, the only large change was a deterioration in Italy's ranking, probably associated with its departure from the European exchange rate mechanism (ERM) in 1992. For Canada, although its ranking did not change significantly, the forecast errors and variances did fall reasonably close to those of many non-targeting countries in the later period. In addition to comparing targeting and non-targeting countries, however, it would be interesting to compare the results across other groups of countries. For example, how did the core-ERM countries in Europe compare? A casual look at the results suggests that as a group they enjoyed a high degree of inflation predictability.

Conclusions

For greater perspective, it would be useful to place the methods and results of this study more broadly in the context of the literature. For example, there is an extensive body of literature on the credibility of target zones for exchange rates. The conference organized by the Bank of Canada in 1996 also included a discussion of monetary policy credibility. One of the papers presented at that conference gives somewhat more positive results with respect to the Canadian experience using a longer forecast horizon (Amano et al. 1997).

4. The ranking was done on the basis of the sum of the reported variances for each country in the two periods.

An interesting question is how a central bank might use information of the kind presented in this study. It is tempting to say that perhaps the monetary authorities should simply target the external inflation forecasts, since improving the predictability of inflation is given such a high weight. However, both theoretical and practical considerations would seem to preclude this course of action.⁵ If the central bank aims for specific inflation targets, however, a persistent deviation of external forecasts from the target will be a source of concern. In that case, the methodology applied here may provide useful information on the source of such deviations.

References

- Amano, R., P. Fenton, D. Tessier, and S. van Norden. 1997. "The Credibility of Monetary Policy: A Survey of the Literature with Some Simple Applications to Canada." In *Exchange Rates and Monetary Policy*. Proceedings of a conference held by the Bank of Canada, October 1996, 1-64. Ottawa: Bank of Canada.
- Bernanke, B. S., and M. Woodford. 1996. "Inflation Forecasts and Monetary Policy." Unpublished (October).
- Debelle, G. 1997. "Inflation Targeting in Practice." IMF Working Paper No. WP/97/35. International Monetary Fund, Washington, D.C.

5. Bernanke and Woodford (1996), for example, argue that if a central bank were to target external inflation forecasts, it would lead to a "circularity" that would ultimately render the forecasts uninformative. And in practice, the *level* of inflation is also of concern, not simply its predictability.