Discussion 3

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During the 15 years since the Bank of Canada embarked on its current course, we have learned a great deal about how to conduct a policy of inflation targeting. For the most part, the experience has been a happy one and its lessons have been encouraging. Many of the papers presented at this conference rightly emphasize the progress we have made in our understanding of the economy and in our ability to control inflation. Yet it is certainly too early for any central bank to declare victory over inflation, or for any economist to claim that we now understand the mysteries of monetary dynamics. A number of critical issues for determining the long-run viability of inflation targeting remain unresolved and will probably require a lot of research—and possibly a certain amount of adverse experience—before we can claim to understand them. Accordingly, my remarks are intended to outline what I perceive as the most important lessons that we have learned about inflation targeting, as well as those that remain to be learned.

1 What We Have Learned

1.1 It actually works

The first lesson may be considered unimportant to younger economists. But for those of us who had already come of age when the Bank of Canada announced its inflation-targeting policy, things look quite different. In 1991, I was among the large majority of academic economists who thought that the Bank's new policy was a huge mistake. Inflation had proven resistant to the Bank's efforts to bring it down. Monetary targeting had succeeded in bringing down the growth rate of M1 as planned, but by the time it was abandoned in the early 1980s, inflation was just as high as when the policy

had been initiated in 1975.[1] After 1980, inflation did fall, in two precipitous drops, but each was accompanied by a large and painful recession.

Thus, it seemed at the time that although monetary policy was the only instrument available for controlling inflation, it was too blunt to have a predictable effect. Milton Friedman had warned that the lags in the effect of monetary policy on the level of economic activity were long and variable, and that the lags in the effect on inflation were even longer and more variable. So it seemed foolish in the extreme for a central bank to stake its credibility on being able to contain the rate of inflation, for the indefinite future, within a prescribed narrow band.

Fortunately, I was proven wrong. For the past 15 years, the Bank has consistently maintained the rate of inflation close to its target, and inflation is no longer perceived as a major problem in Canada. As always, progress entails losses as well as gains; those of us who used to make a living by criticizing the conduct of Canadian monetary policy have suffered an unexpected loss of human capital, at least for the time being.

1.2 No cost in output stabilization

We have learned that stabilizing inflation need not destabilize economic activity. Christopher Ragan's conference paper makes it clear that real output variability has, if anything, declined during the period of inflation targeting in Canada. It has also declined in the United States and in many other countries that have stabilized inflation, even those that have not relied on explicit targets.

This decline in the variability of real activity is something that I expected to occur only if most of the shocks hitting the economy were demand shocks. So what has happened to supply shocks? Have they been dormant during this period? If so, they are far less important than real business cycle theorists would claim, but also less important than saltwater economists, such as Blanchard and Quah (1989), have estimated.

Another possibility is that there is something inherently stabilizing about an inflation-targeting regime that mitigates the trade-off between output and inflation variability in the face of supply shocks. Perhaps by containing inflation expectations, the policy allows the economy to absorb negative supply shocks without sparking a new round of wage and price increases, making it unnecessary for the central bank to curtail aggregate demand even more than supply. That may be so, but the fact that countries without inflation-targeting central banks seem to have enjoyed about as much

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1. See Howitt (1993) for a brief account of this experience.

reduction in output volatility as the inflation targeters (Ball and Sheridan 2003) would suggest that some caution is in order.

In any event, the fact that so many countries have shared this experience shows that stabilizing inflation at a low rate has less of an adverse real effect than most economists would have predicted at the onset of inflation targeting. Indeed, it suggests that controlling inflation is the best way to promote stable growth of output and employment, something that only the most extreme inflation nutter would have claimed 20 years ago. Certainly, the experience has given plenty of ammunition to those in the United States who claim, as Frederic Mishkin did in his conference presentation, that inflation targeting would be consistent with the Fed's dual mandate of promoting low inflation and stable real growth.

1.3 Inflation has become less persistent

Another thing we have learned about targeting inflation is that as the level and variability of inflation have come down, so too has the degree of persistence. Robert Amano and Stephen Murchison show that this has occurred in Canada since the start of inflation targeting, despite the absence of a decline in persistence of the measure of real marginal cost, which is the driving variable in their Phillips curve. This suggests that the drop in inflation persistence reflects a change in the formation of expectations and/or in the catch-up process. It appears that inflation targeting has served to anchor expectations and hence to dampen the effect of shocks that might otherwise have initiated a persistent departure of inflation from its target value.

This fall in persistence seems to corroborate the lesson we have learned from reduced output variability, namely, that an inflation-targeting central bank can afford to take a more accommodating approach to supply shocks without initiating an unwanted inertial movement in inflation. Whether or not this is the case, it has certainly strengthened the Bank of Canada's control over inflation by reducing the time inflation takes to return to target following a temporary shock.

1.4 The exchange rate can be left to do its job

One of the most important lessons for the Bank of Canada is that exchange rate movements need not undermine a well-formulated inflation-targeting policy, even in as small and open an economy as Canada's. The Canada-US exchange rate has experienced large fluctuations since 1991 without derailing the Bank's policy. Indeed, the evidence that Steven Globerman and Paul Storer present in their conference paper suggests that exchange rate

pass-through, which has always been slow and gradual in Canada, has become even more so under inflation targeting. This is further reason to believe that expectations have become sufficiently anchored that the trend of inflation is not easily moved by temporary shocks that might otherwise have started an inertial wage-price spiral.

1.5 Communication and politics

The final lesson that I take from the Canadian experience of inflation targeting is that the policy's success has as much to do with communication and politics as it does with the technical economic aspects of managing aggregate demand and supply. Communication is facilitated by the clarity and coherence of inflation targeting, as Ragan rightly emphasizes in his paper. This helps to take much of the mystery out of monetary policy and hence to sharpen expectations about inflation and interest rates. Less uncertainty about these key variables is undoubtedly good for the functioning of the economy. And clear communication helps to make the Bank's policies transparent, which boosts its credibility. With all of the cards on the table, people are able to see that the Bank has indeed been meeting its promises. More importantly, when news arrives that causes a tactical change in policy, people can see for themselves that this is a considered response to new information rather than a surreptitious change of course. All of this helps to keep inflation well anchored, even in turbulent times.

Politics is involved, because in Canada, as in all other inflation-targeting countries, it is not just the central bank that has signed on to the inflation targets; the government has as well. This gives the central bank a degree of independence from political pressure that adds to the policy's credibility, because people know that the bank cannot easily be bullied into abandoning its policy for partisan political reasons by a government that has publicly committed itself to that same policy. I believe this is the reason why central banks that have adopted inflation targets have been among the least independent, according to the Bade and Parkin (1987) rankings. This may explain why Ball and Sheridan (2003) found that inflation did not fall any more in inflation-targeting countries than in non-inflation-targeting countries. That is, countries with independent central banks were able to bring inflation down in the face of political pressure to do otherwise, while those whose central banks were more under the control of their political masters needed the extra degree of independence that the inflation targets gave them.

2 What Remains to Be Learned

2.1   Why does it work?

Before we start congratulating ourselves, it is important to realize how little we understand of the reasons for the success of inflation targeting. Consider, for example, the evidence that expectations have become anchored. Is this really a result of people having more confidence in the central bank's commitment to inflation targets, or is that seeing inflation stay around 2 per cent for over a decade gives people confidence in predicting 2 per cent inflation? Likewise, consider the evidence that inflation persistence has fallen. Is this because expectations have become anchored, or is it because policy-makers have brought an end to fluctuations in the permanent component of inflation?

These questions are crucial to the conduct of monetary policy, and yet I know of no evidence that would provide definitive answers. The new dynamic stochastic general-equilibrium (DSGE) macro models that have sprung up over the past decade seem ideal for addressing the questions, but, despite the fact that every central bank in the world seems to be developing one, there are many unresolved issues in these models.

We should find evidence of reduced persistence in the transitory component of Canadian inflation using estimates of hybrid Phillips curves; the coefficient on expected inflation should have gone up relative to that on lagged inflation. Yet the only paper at this conference that presents such before-and-after estimates (that of Bergljot Barkbu and Nicoletta Batini) shows almost no change in these weights. As Sharon Kozicki points out in her discussion of this paper, we really don't know where to look for the source of changing persistence, and the most common elements of persistence in DSGE models (indexation, rule-of-thumb behaviour, and habit persistence) are among the most ad hoc and least well developed elements of the models. I would place my own bets on learning behaviour, which Kevin Moran examined in his conference paper, especially in light of the important paper by Milani (2005)—to the effect that once the assumption of rational expectations is replaced by a reasonable version of constant-gain least-squares learning, one can account for persistence without these other ad hoc elements. The literature on learning in DSGE models is still in its infancy, however.

One thing that disturbs me about DSGE models is the assumption, made explicit only in the most carefully formulated versions, of complete risk-sharing markets. This assumption seems not only inconsistent with attempts to introduce financial frictions, as in Robert Tetlow's interesting conference paper on financial bubbles, but it also shuts down any influence that

monetary policy might have through its effects on the banking sector, a sector whose very existence would not be consistent with the micro-foundations of the model unless, contrary to fact, banks operated with no resource cost.

It is also doubtful that the Calvo pricing model can bear the huge burden placed on it by DSGE models. The remarks of several discussants at the conference pointed out that many results are sensitive to minor variations on the Calvo theme. If we don't understand price formation, then how can we understand how the rate of price increase is controlled by an inflation-targeting central bank?

I also wonder whether the Walrasian representation of the labour market used in DSGE models can accurately delineate wage and employment dynamics. The use of labour's share and other related measures of marginal cost gives a good fit to hybrid Phillips curves and emphasizes the forward-looking component, but these measures are typically countercyclical. More generally, the processes of search, matching, and bargaining that play an important role in the literature on unemployment dynamics are missing from DSGE models. Consequently, I think it is difficult to say with any confidence that the trend in inflation has been stabilized by monetary policy alone, unaided by the increase in global competition and outsourcing that has diminished labour's bargaining power.

2.2 How does a central bank fly blind?

The success of inflation targeting depends on the ability to foresee latent inflation pressures several quarters ahead, in time to take pre-emptive action. Indications of such pressures should come from forecast surveys, measures of core inflation, unit labour costs, money and credit aggregates, the output gap, and so on. But, in recent years, the ability of any of these indicators to predict future inflation has almost vanished.

Charles Freedman argued during one of his illuminating interventions at the conference that the Bank has become a victim of its own success, that indicators of future inflation have lost their forecasting power because expectations have become so firmly anchored at 2 per cent. It is clear that any policy that efficiently stabilizes inflation six to eight quarters hence around a fixed point will inevitably make inflation orthogonal to all information six to eight quarters earlier.

The problem with this scenario is that the Bank is now acting without the benefit of feedback. How serious a problem this is depends on your point of view. If people are forming rational expectations while keeping a constant, critical eye on the Bank, then feedback will come soon enough if the Bank

does something inconsistent with a rational expectation of 2 per cent. But if people have settled into a presumption of 2 per cent until they see otherwise, we may be building a latent inflationary spiral that will become apparent only when it is too late to stop it without a massive recession. At the same time, if inflation really is stuck at 2 per cent until a gigantic policy error is made, then perhaps an optimal monetary policy should take advantage of that inertia by pushing against the speed limit, allowing us the maximal level of economic activity. The stakes are high and our knowledge is shaky.

2.3 Where are the gains from low inflation?

Despite years of searching, the profession still has not discovered convincing evidence of a significant benefit to reducing inflation even from double-digit levels. The "shoe-leather" cost of the inflation tax on non-interest-bearing money can never be made into anything significant in a world where this asset represents such a tiny fraction of total wealth. One of the advantages of the current generation of DSGE models is that the cost of inflation in these models springs not from the role of money as a store of value, but from its role in the pricing process, specifically, its role in magnifying the wedges between marginal rates of substitution that arise through the random timing of price changes. But this is not enough to produce large welfare losses, even in carefully calibrated and disaggregated models such as the one presented at the conference by Eva Ortega and Nooman Rebei.

The non-indexation of long-term debt contracts strikes me as an important area in which to look for significant costs, because it implies that inflation impedes otherwise mutually beneficial long-term contracts, and hence impedes the long-term investments that depend on such contracts. I would like to see more work on the role played by the non-indexation of tax systems, and also of private accounting systems. The latter form of non-indexation implies that even a perfectly known and perfectly anticipated positive rate of inflation will introduce noise into the allocation of capital, because the profits of some companies are exaggerated by inflation, while others' are artificially reduced, depending on such factors as the importance of depreciable capital and the size and structure of outstanding debt. Even someone familiar with the situation underlying a company's published financial statements can be fooled. Introducing these elements of reality into calibrated macro models could take us a long way in understanding the costs of inflation. But the elements are inconsistent with the assumption of perfect capital markets underlying current DSGE models.

It would appear that the world has settled on 2 per cent as the optimal inflation target, and it is difficult to find fault in this assumption.

Francisco Ruge-Murcia's paper suggests that at this rate, Canada has little risk of falling into a deflation trap by reaching the zero bound on nominal interest rates. And there is little evidence that downward nominal-wage rigidity is hurting the economy at this rate, although that could change if Canadian productivity doesn't start growing soon the way I expect it to. Meanwhile, we may be forgoing many benefits by not going to zero. I don't really know, and as long as we don't introduce more elements of real-world monetary economics into our models, none of us will know.

References

Bade, R. and M. Parkin. 1987. "Central Bank Laws and Monetary Policy." University of Western Ontario. Unpublished.

Ball, L. and N. Sheridan. 2003. "Does Inflation Targeting Matter?" National Bureau of Economic Research Working Paper No. 9577.

Blanchard, O.J. and D. Quah. 1989. "The Dynamic Effects of Aggregate Demand and Supply Disturbances." *American Economic Review* 79 (4): 655–73.

Howitt, P.W. 1993. "Canada." In *Monetary Policy in Developed Economies*, edited by M.U. Fratianni and D. Salvatore, 459–508. Studies in Comparative Economic Policies, Volume 3. Westport, Connecticut: Greenwood Press.

Milani, F. 2005. "Expectations, Learning, and Macroeconomic Persistence." University of California, Irvine. Unpublished.