

## *Part VII.* How Successful Has Inflation Targeting Been?

**A**n initial look suggests that inflation targeting has been a success: inflation was within or below the target range for all targeting countries, and noticeably below the countries' average inflation levels of the 1970s and 1980s. The macroeconomic baselines shown in the chart series in Parts III-VI of this study indicate that the reduced inflation levels in these countries were sustained without benefit or harm from unusual macroeconomic conditions.

In New Zealand, the disinflation during the four years prior to target adoption was accompanied by a period of sluggish GDP growth and, since 1988, rising unemployment. The continuation of the disinflation during 1990-91, amid recession in many other Organization for Economic Cooperation and Development (OECD) economies, led to recession and sharply rising unemployment. In Canada, the disinflation was achieved along with continued progress in lowering unemployment, only a brief spike in nominal interest rates, and continued positive, though slowing, growth. Similarly, in the United Kingdom, the disinflation began two years prior to target adoption (during membership in the Exchange Rate Mechanism) continued against a background of improving growth, falling unemployment, and much lower nominal interest rates in the wake of the United Kingdom's exit from the European Monetary System.

Yet, while the reduction of inflation in these three countries represents a genuine achievement, it is not clear whether the reduction was the result of forces that had already been put in place before inflation targeting was adopted. Did the adoption of an inflation target in the countries considered here have an effect on inflation and on

its interaction with real economic variables? In this section, we provide some tentative evidence on this question by undertaking a very simple forecasting exercise. (Additional evidence from a wider range of statistical investigations on a larger set of countries is found in Laubach and Posen [1997b].) We estimate a three-variable unrestricted vector autoregression (VAR) model of core inflation, GDP growth, and the central bank's overnight instrument interest rate from the second quarter of 1971 to the date of target adoption; we then allow the system to run forward five years from the time of target adoption, plugging in the model's forecast values as lagged values.<sup>1</sup>

This exercise is meant to give a quantitative impression of whether the interaction between inflation and short-term interest rates exhibits a pattern of behavior after the adoption of the inflation target that differs markedly from the pattern before.<sup>2</sup> The unconditional forecast of each variable represents the way we would expect the system to behave in the absence of shocks from the situation at the time of target adoption. The comparison between what actually happened to these variables and their unconditional forecast is reasonable for the early 1990s, given the absence of major supply and demand shocks since adoption for the three inflation targeters we examine.<sup>3</sup>

In the three countries adopting inflation targets, disinflation through tighter monetary policy had largely been completed by the time the target was adopted, allowing interest rates to come down. (The year or so of further disinflation appears to be attributable to prior monetary policy moves, given policy lags.) This sequence of events is consistent with our finding in the case studies that countries adopted targets when they wished to lock

in inflation expectations at a low level after a disinflation. The key question is whether upward blips in inflation do or do not lead to persistent rises—holding output and inflation constant—as they would have in a system estimated under the prior regime.

Charts 1-4 (pp. 89-92) plot the results of these simulations against the actual path of the variables over the period for each of the three inflation-targeting countries plus Germany. As might be expected, the simulations over time flatten out toward their sample means or a slight trend (given the absence of shocks imposed by the unconditionality of the simulation). For all three inflation targeters, the actual inflation rate comes in consistently below what would have been expected and exhibits something of a downward trend as opposed to the simulation's slight upward tendency. Complementarily, for all three targeters, the actual interest rate used as the monetary policy instrument remains well below the simulation's forecast throughout the period. Output appears to be largely undisturbed by the adoption of targeting, averaging around the projected path in all three countries. In general, inflation and nominal short-term interest rates seem to have declined since target adoption without any major effect on output.

These results can be interpreted as consistent with a greater direct response of inflation to monetary policy with fewer output effects along the way, given the movement of interest rates at or below those forecast on average in the three targeters. Alternatively, these results can be an indication that in the targeting countries, disinflation through tighter monetary policy had begun and been largely completed by the time that targeting began, but that inflation did not bounce back up afterward as expected.<sup>4</sup>

By contrast, the simulations for Germany clearly reflect the effects of monetary unification, with both inflation and the monetary policy instrument exceeding their projections and returning to them only in early 1994. GDP growth initially exceeded the projection as a result of the expansion in aggregate demand, until in 1992 and 1993 the effects of the increasingly restrictive monetary policy—as seen in interest rates well above those forecast into the second half of 1994—forced output growth below its projected trend. We interpret the return over time of inflation and the monetary policy instrument to their projected levels after a surprise demand shock of great magnitude as a characteristic of a successful targeting regime.

Our assessment of the effectiveness of inflation targeting in New Zealand, Canada, and the United Kingdom is on the whole positive. In all three countries, the adoption of targets was followed by the movement of inflation into, and the maintenance of inflation within, the announced target range. In the time since the adoption of inflation targets, our unconditional forecasts indicate that inflation and nominal interest rates have remained low in all three countries relative to the amount of output growth seen (which itself approximates the level forecast). This set of results is consistent with the interpretation that inflation does not appear to rise with business cycle expansions as it had in the past. Laubach and Posen (1997b) provide further support for this interpretation, presenting evidence from private sector forecasts and interest rate differentials that medium- and long-run inflation expectations in New Zealand, Canada, and the United Kingdom lie within these countries' target ranges.

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Chart 1

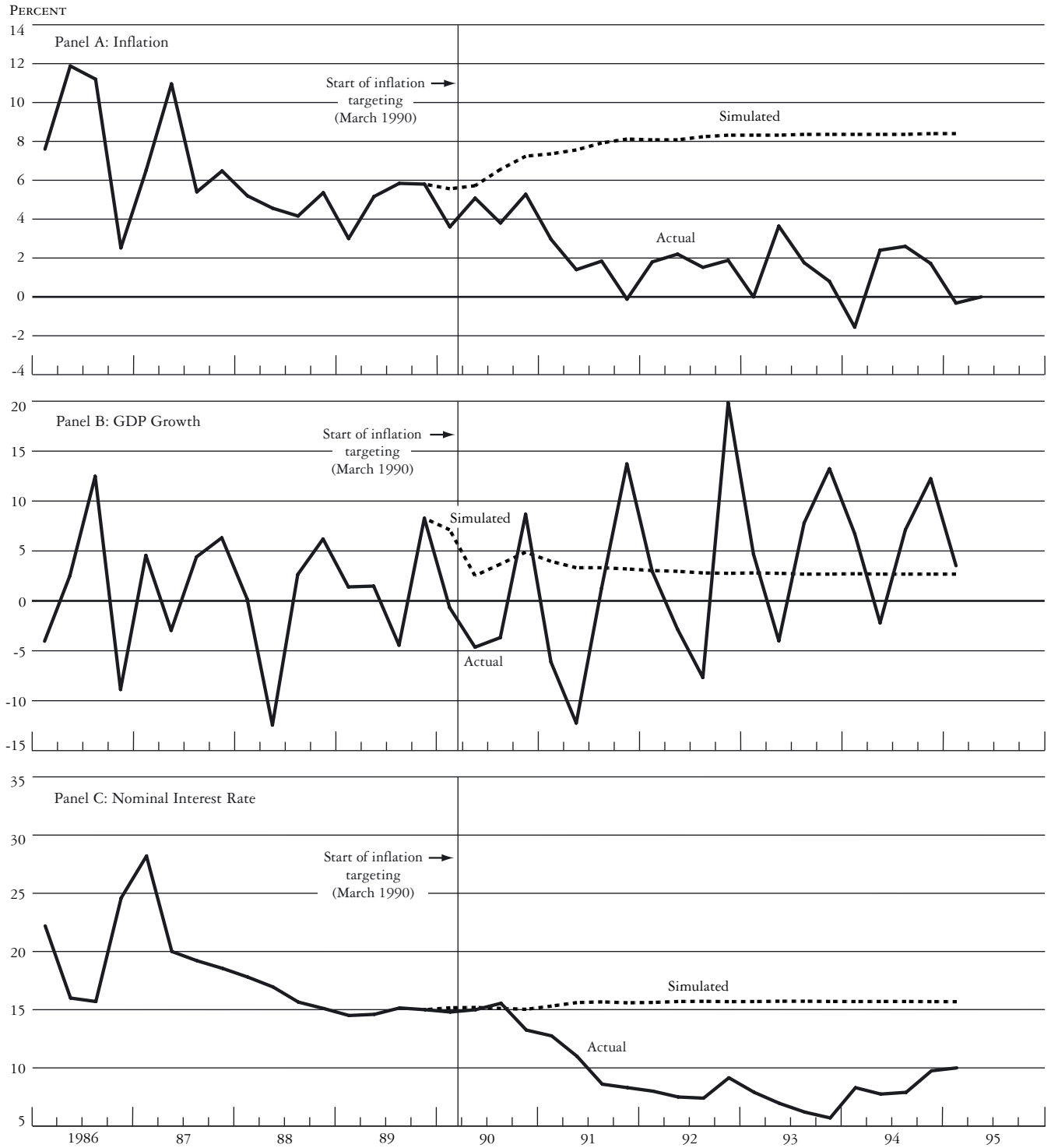
DYNAMIC SIMULATIONS: GERMANY



Sources: Authors' calculations; Bank for International Settlements; Organization for Economic Cooperation and Development, *Main Economic Indicators*.

Notes: The chart depicts the results of a dynamic simulation of inflation, GDP growth, and the nominal interest rate based on an unrestricted vector autoregression (VAR) of quarterly observations of these three variables from the second quarter of 1971 up to the time of German monetary unification. The solid line represents the actual values of the variables, and the dashed line represents the unconstrained forecast of the variables made from unification forward using the VAR coefficients. The forecasts show the path the variables would have taken in the absence of German monetary unification and other unforeseen shocks. In Panel C, the nominal interest rate used is the central bank's instrument interest rate.

DYNAMIC SIMULATIONS: NEW ZEALAND



Sources: Authors' calculations; Reserve Bank of New Zealand; International Monetary Fund, *International Financial Statistics*.

Notes: The chart depicts the results of a dynamic simulation of inflation, GDP growth, and the nominal interest rate based on an unrestricted vector autoregression (VAR) of quarterly observations of these three variables from the second quarter of 1971 up to the time of inflation targeting adoption. The solid line represents the actual values of the variables, and the dashed line represents the unconstrained forecast of the variables made from adoption forward using the VAR coefficients. The forecasts show the path the variables would have taken in the absence of inflation targeting and other unforeseen shocks. In Panel C, the nominal interest rate used is the New Zealand ninety-day bank bill rate.

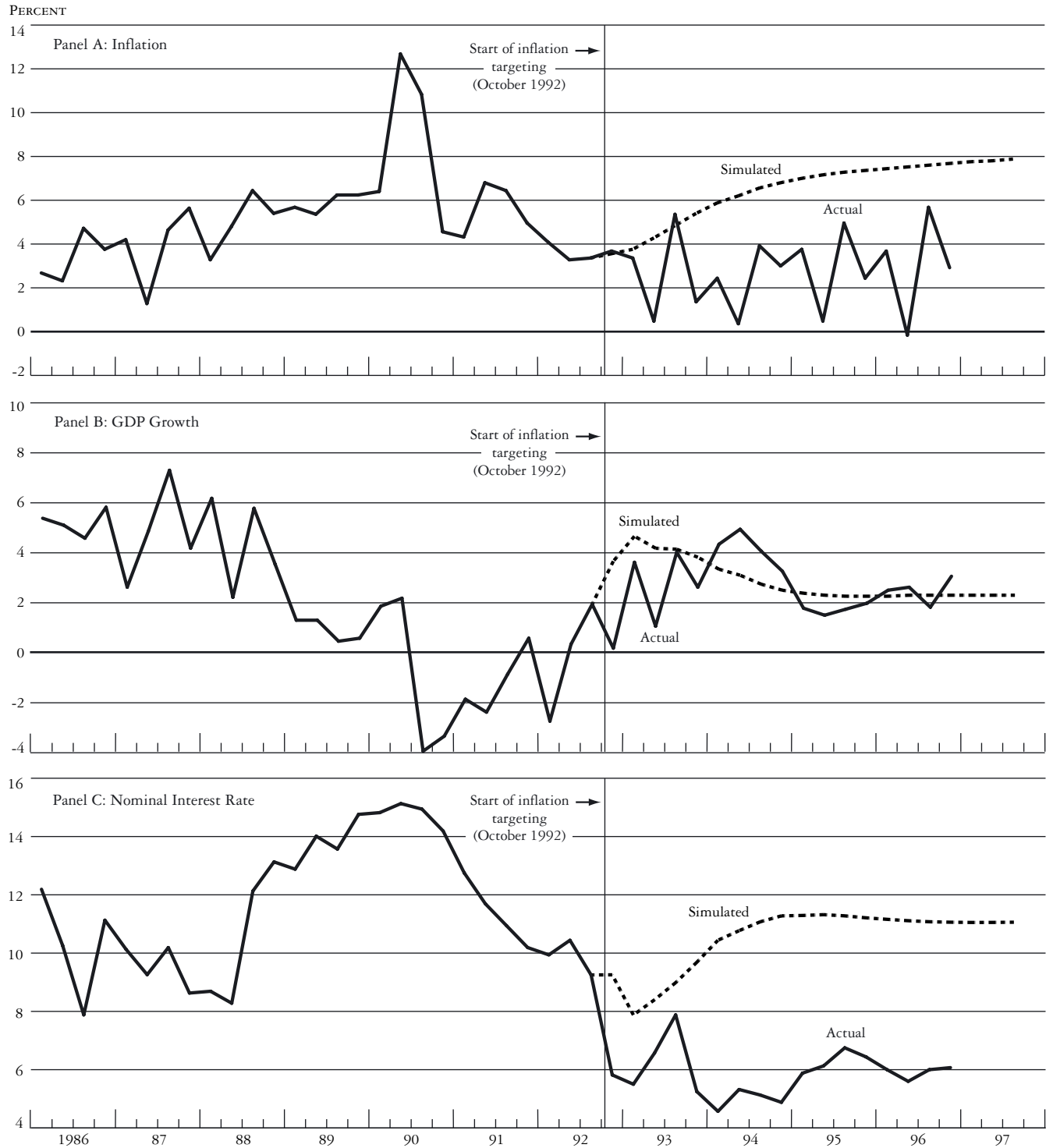
DYNAMIC SIMULATIONS: CANADA



Sources: Authors' calculations; Bank for International Settlements; Organization for Economic Cooperation and Development, *Main Economic Indicators*.

Notes: The chart depicts the results of a dynamic simulation of inflation, GDP growth, and the nominal interest rate based on an unrestricted vector autoregression (VAR) of quarterly observations of these three variables from the second quarter of 1971 up to the time of inflation target adoption. The solid line represents the actual values of the variables, and the dashed line represents the unconstrained forecast of the variables made from adoption forward using the VAR coefficients. The forecasts show the path the variables would have taken in the absence of inflation targeting and other unforeseen shocks. In Panel C, the nominal interest rate used is the central bank's instrument interest rate.

DYNAMIC SIMULATIONS: UNITED KINGDOM



Sources: Authors' calculations; Bank for International Settlements; Organization for Economic Cooperation and Development, *Main Economic Indicators*.

Notes: The chart depicts the results of a dynamic simulation of inflation, GDP growth, and the nominal interest rate based on an unrestricted vector autoregression (VAR) of quarterly observations of these three variables from the second quarter of 1971 up to the time of inflation target adoption. The solid line represents the actual values of the variables, and the dashed line represents the unconstrained forecast of the variables made from adoption forward using the VAR coefficients. The forecasts show the path the variables would have taken in the absence of inflation targeting and other unforeseen shocks. In Panel C, the nominal interest rate used is the central bank's instrument interest rate.