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A time-series approach to test a change in inflation persistence: the Mexican experience

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Abstract

When a central bank commits credibly to a nonaccommodative monetary policy, observed inflation should be a stationary process. In countries where, for a variety of reasons, the determinants of inflation could lead it to follow a nonstationary process, the adoption of a credible disinflationary programme should therefore induce a fundamental change in the stochastic process governing inflation and, in particular, should diminish its persistence. This article studies the time-series properties of both inflation and core inflation during the 1995–2006 period for the Mexican economy, using recently developed techniques to detect a change in the persistence of economic time series. Consistently with the adoption of an inflation-targeting framework, the results suggest that inflation in Mexico seems to have indeed switched from a

nonstationary to a stationary process around the end of year 2000 or the beginning of 2001.

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Notes

[1] Formally, this is the result under adaptive expectations. The condition for the price level to be determinated under rational expectations is that the monetary authority should have a nominal anchor (Blanchard and Fischer, 1989). The existence of this anchor would imply that inflation cannot wander away from some value indefinitely, thus ensuring stationarity. Also note that the discussion has as a maintained assumption that nominal rigidities are present, so that monetary policy can have real effects in the short run.

[2] Bernanke et al. (1999), Clarida et al. (1999) and Svensson (1997, 2000) provide descriptions of the inflation-targeting framework. Under this regime, first-round effects of supply shocks are accommodated by monetary policy, while demand shocks and second-round effects of cost push shocks are not accommodated. On the other hand, given initial conditions, the nominal anchor could become determined by the inflation target, if the central bank enjoys credibility.

[3] There is already an important body of evidence suggesting a significant reduction on both the level and persistence of inflation around the world. Borio et al. (2003) document the disinflation process as a global phenomenon; see also Cecchetti and Debelle (2005).

[4] Capistrán and Ramos-Francia (2006) suggest that, during the 1980s, inflation in Mexico may have indeed exhibited a nonstationary behaviour.

[5] For a detailed discussion on the actions undertaken after the crisis, the disinflation process and the adoption of an inflation targeting framework in Mexico, see Ramos-Francia and Torres (2005).

[6] Examples of these more traditional procedures include testing for the stability of the sum of the coefficients on the lagged-dependent variable in an AR Model for inflation, or testing for shifts in the unconditional mean values of inflation, using structural change Models.

[7] Capistrán and Ramos-Francia (2006) report: (i) a drastic drop in the mean and SD of inflation in Mexico for the period 2000–2006, compared to the previous two decades; (ii) evidence of a break in January 2001, which lowered the level of inflation; and (iii) a reduction in the sum of the autoregressive parameter from 0.95 in the period 1990–1999 to 0.31 in 2000–2006.

[8] We do not discuss further these statistics as they are well known and implemented in popular software such as E-Views. For details, see Ng and Perron (2001).

[9] Recall that the estimation of the change point is based on the $M(X)^R$ statistic.

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