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Inflation targeting and inflation persistence in Asia–Pacific☆

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ABSTRACT

Following the Asian financial crisis in 1997–1998, a number of regional central banks adopted inflation targeting. While it is possible for the average inflation rate to be close to target, deviations of inflation could nevertheless be large and protracted. We therefore explore how successful this framework has been by looking at the persistence of inflation, as measured by the sum of the coefficients in an autoregressive model for inflation, using a median unbiased estimator and bootstrapped confidence bands. We find that persistence tends to decline following the adoption of inflation targeting. The speed by which persistence falls varies across countries. Interestingly, the economies not adopting inflation targeting show a smaller decline in persistence. Overall, we conclude that inflation targeting has performed well in Asia.

1. Introduction

Asian economies have historically experienced relatively low and stable inflation rates (Gerlach, Giovannini, Tille, & Vinals, 2009). Nevertheless, in recent years a number of Asian central banks have adopted monetary policy frameworks involving explicit inflation targeting (IT) (Filardo & Genberg, 2010a). This policy choice reflects the same consideration that led to the introduction of IT in many advanced economies, including Sweden and the United Kingdom: the need to introduce a new anchor for monetary policy following the abandonment of a fixed exchange rate regime. Thus, after the Asian financial crisis in 1997–1998, Korea introduced IT in 1998, Indonesia and Thailand in 2000, and the Philippines in 2002 (Ito & Hayashi, 2004).[1]

In this paper we explore how successful these policy choices have been, looking at data from a sample of economies in Asia–Pacific with and without IT. The literature is ambiguous about the effects of IT in emerging economies. While Goncalves and Salles (2008) and Lin and Ye (2009) find a significant decline in inflation after the adoption of IT, Brito and

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[1] See Mishkin (2000) for an early contribution on the advantages and disadvantages of IT as a monetary policy strategy in emerging market economies.

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Bystedt (2010) do not. While it seems natural to judge success by computing the average inflation and its variance since the adoption of the inflation target, it is possible for the average inflation rate to be close to target, but deviations of inflation may nevertheless be large and protracted. Thus, the persistence of shocks to inflation matters also at low levels of inflation. We therefore use an alternative metric of success and study how persistent shocks to inflation are. The intuition is straightforward: deviations of inflation from target will be temporary if the central bank is effective in stablising inflation. In fact, a number of authors have argued that the persistence of inflation has fallen in many industrial countries in recent years and have suggested that this is due to the greater focus on inflation stabilization by central banks (Benati, 2008; Levin & Piger, 2006; Pagan, 2003).

Before proceeding, we emphasise that while IT typically has involved an increase in the weight attached to stabilising inflation in the countries that have adopted it, *any* monetary policy strategy that attaches primary importance to price stability is likely to lead to a low level of inflation persistence.[2] Monetary policy makers in both Japan and Singapore (and, outside Asia, in the euro area and in Switzerland) have established long track records of tight inflation control and might therefore not have felt it necessary to adopt IT, yet conduct policy in much the same way as policy makers using explicit IT.[3] The formal adoption of IT is thus neither a necessary nor a sufficient condition for a drop in inflation persistence. For example, one could view Singapore as an inflation targeter that uses the exchange rate as its instrument to control inflation. Furthermore, countries might claim to target inflation but do not appear to have reduced the persistence of inflation. In fact, we will evaluate whether the drop in inflation persistence, if any, is unique to IT regimes.

The paper is organised as follows. Section 2 briefly reviews the literature on the role of IT for inflation persistence in mature and emerging economies. Section 3 presents an illustrative model useful for gauging the effect of IT on the inflation process. Our preferred measure of inflation persistence is introduced in Section 4, while Section 5 discusses the results from full-sample as well as rolling-window estimation. Finally, Section 6 offers some tentative conclusions and suggestions for future research.

2. Inflation targeting and inflation persistence

The fall in inflation persistence over the last two decades in major industrial countries is now well documented. Levin and Piger (2006) find that, conditional on a change in the mean (potentially reflecting a change in monetary policy makers' objectives), inflation is much less persistent than previously thought. To understand why, suppose that the central bank controls inflation closely, but that the average inflation rate, as captured by the constant in an autoregressive model for inflation, falls in the sample.[4] If the econometrician does not allow for this change when estimating the degree of persistence, it will appear that inflation was above the mean in the first part and below the mean in the rest of the sample. Thus, inflation will be seen as deviating persistently from the mean.

Less supportive evidence for a reduction in inflation persistence is provided by Cecchetti and Debelle (2006) who conclude that the principal change in the inflation process in the past two decades is a decline in the mean of inflation. Levin, Natalucci, and Piger (2004) argue that the adoption of IT lowered the degree of inflation persistence in major industrial countries. For the aggregate euro area, however, the results are ambiguous. The study of O'Reilly and Whelan (2005) finds no change in inflation persistence over the sample period, while Tillmann (2012) provides evidence in favor of a decline in persistence since 1999.

The empirical impact of regime changes on inflation persistence is studied in Benati (2008). He estimates a small-scale New-Keynesian model for major industrial countries over various subperiods using Bayesian methods. His main result is that the degree of intrinsic inflation persistence as captured by the coefficient of lagged inflation in a hybrid Phillips curve drops significantly towards zero once a credible new monetary regime is in place.

For emerging market economies, however, the effects of IT are mixed. Goncalves and Salles (2008) find that developing countries adopting IT experience a significant decline of inflation and in growth volatility.[5] Using a variety of propensity score matching methods, Lin and Ye (2009) and Lin (2010) support these findings. According to their results, both the level of inflation and its volatility fall after the adoption of IT. Recently, however, Brito (2010) and Brito and Bystedt (2010) extend this line of research by taking account of common time effects. These authors find that IT has no effect on the level and the variance of inflation in emerging countries.

In this paper we revisit the effects of IT in emerging economies and shed light on this controversy by addressing one important and hitherto neglected aspect, the evolution of inflation persistence. Only two recent papers analyse the effect of IT on the persistence of inflation for developing economies. Siklos (2008) estimates a first-order autoregressive (AR(1)) process for inflation for a set of emerging market countries and includes a dummy variable indicating the adoption of IT. He

[2] See Walsh (2009) for a similar point.

[3] Of course, the ECB was established only in 1999, but adopted key parts of the monetary policy framework of the Bundesbank, which had a long history of inflation control.

[4] See the theoretical analysis in Svensson (1997) who finds that under IT, inflation equals the targeted rate plus random shocks that occur between the time the interest rate is set and the impact on inflation. This implies that shocks to inflation are transient.

[5] See also Amato and Gerlach (2002) and Vega and Winkelried (2005).