

## Changes in Inflation Dynamics Under Inflation Targeting? Evidence from Central European Countries<sup>1</sup>

Jaromír Baxa<sup>a,b</sup>, Miroslav Plašil<sup>c,d</sup> and Bořek Vašíček<sup>c</sup>

<sup>a</sup>Institute of Economic Studies, Charles University, Prague

<sup>b</sup>Institute of Information Theory and Automation, Academy of Sciences of the Czech Republic

<sup>c</sup>Czech National Bank

<sup>d</sup>University of Economics, Prague



Understanding the nature of short-term inflation dynamics poses a major challenge for monetary policy. The traditional Phillips curve postulated that there is a stable trade-off between inflation and economic activity. Consequently, taming inflation was deemed to be costly in terms of output loss. However, a

better understanding of the role of expectations has changed the perceptions of monetary policy conduct. Since inflation is believed to be affected not only by current and past monetary policy measures, but also by the commitment to future monetary policy actions, a credible monetary policy that anchors inflation expectations can achieve disinflation at no cost in terms of real output. This concept of inflation dynamics was formalised into the New Keynesian Phillips curve (NKPC), which emerged during the 1990s. Its main ingredient is a forward-looking inflation term tracking the effect of inflation expectations on the current value of inflation.

The NKPC was proposed as a structural model of inflation dynamics (Galí and Gertler, 1999; Galí et al., 2001), in the sense that it is a result of an optimisation process at the micro level and thus is invariant to policy changes. In practice, however, there are numerous reasons why the nature of the inflation process can evolve over time. Importantly, the implementation of a stable monetary policy regime with a clearly defined nominal anchor can stabilise inflation and reduce its persistence and variability through anchored inflation expectations (Benati et al., 2008). Macroeconomic changes can in turn feed back to the microeconomic environment (Fernández-Villaverde and Rubio-Ramirez, 2007). The countries in Central Europe went through a series of structural changes where both macroeconomic and microeconomic factors might have played a role in triggering changes in inflation dynamics during the last two decades. There are a few studies that aimed to test the NKPC for Central European countries in a conventional time-invariant setting (e.g. Franta et al., 2007; Vašíček, 2011). These studies conclude that inflation is more persistent in Central European than in developed countries and that external factors are arguably more important than domestic ones. Based on this evidence, however, it is very difficult to draw any conclusion related to the effects of monetary policy on the temporal and cross-country variation in the inflation process.

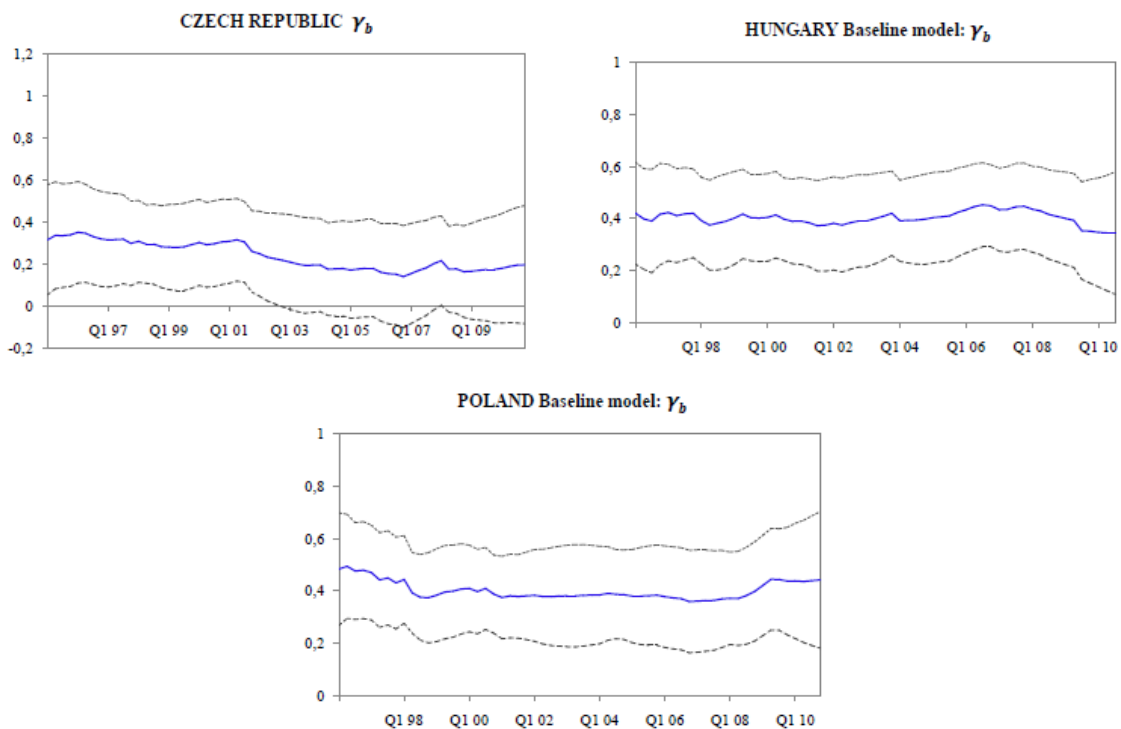
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<sup>1</sup> This article is based on Baxa et al. (2012).

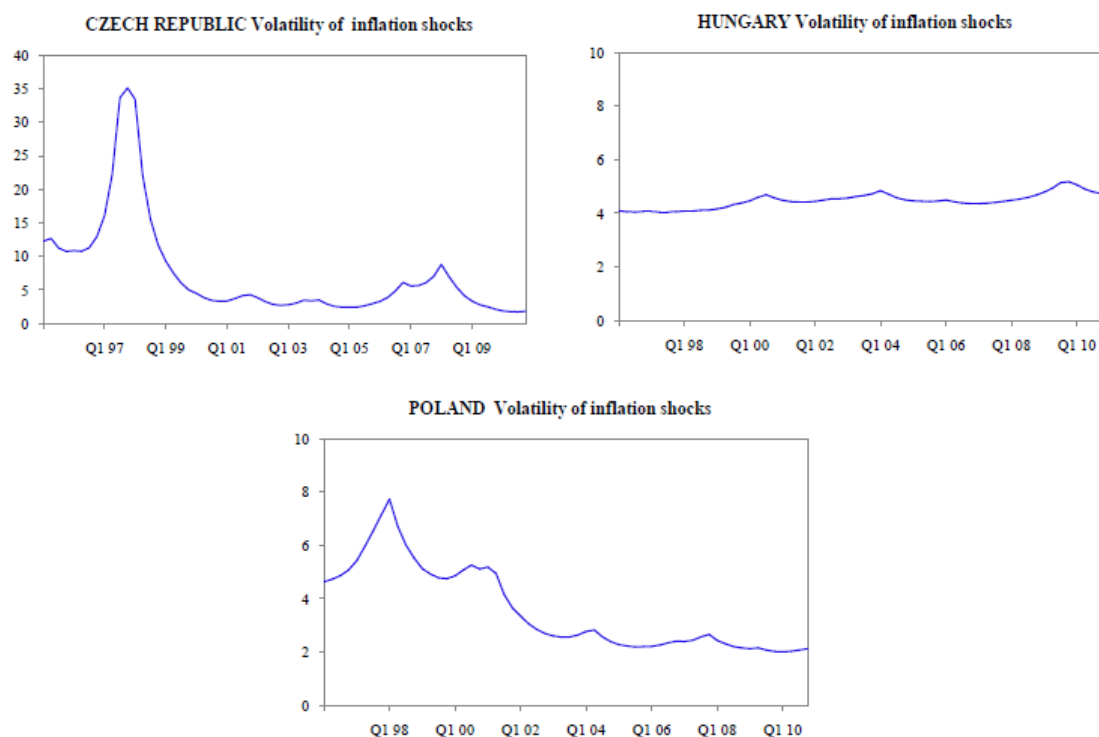
Our study (Baxa et al., 2012) aims to provide some evidence on inflation dynamics in three central European countries that have adopted inflation targeting (the Czech Republic, Hungary and Poland). We estimate a so-called time-varying parameter model with stochastic volatility using Bayesian techniques. Our objective is to shed some light on potential changes in the overall inflation dynamics, such as inflation persistence, and the characteristics of microeconomic behaviour, such as the frequency of price changes.

We find that the nature of the inflation process differs notably across the selected central European countries. Although the forward-looking component dominates the inflation dynamics in all three countries, which is a sign of (at least partially) anchored inflation expectations, inflation is considerably less persistent in the Czech Republic than in Hungary and Poland. The fact that persistence has been constantly decreasing in the former can be seen in Figure 1, which depicts the time-varying coefficient on the lagged inflation term.

**Figure 1.** Measures of intrinsic inflation persistence



In addition, the volatility of inflation shocks (Figure 2) decreased quickly a few years after the adoption of inflation targeting in the Czech Republic and Poland, while it remains rather stable in Hungary even ten years after inflation targeting was adopted. These results suggest that inflation expectations do matter, but they seem to be particularly well anchored in the Czech Republic and Poland, while this is less true for Hungary.

**Figure 2.** Volatility of inflation shocks

Moreover, the overall (reduced-form) estimates of the inflation process allow us to obtain an estimate of the average single price spell. It varies between two and three quarters, which is slightly below the value of around four quarters found for the Eurozone (Klenow and Malin, 2011). We find that the pricing behaviour of firms has been subject to change across time. In particular, the length of price fixation has been increasing over time. This seems to reflect the fact that economic agents take into account the overall macroeconomic environment when making price-setting decisions. Indeed, we find a negative relationship between the average length of fixation and both the inflation rate and its volatility. This is consistent with economic intuition suggesting that in a situation of higher and more volatile inflation it becomes more complicated for economic agents to distinguish changes in relative prices from changes in the overall price level (Lucas, 1972) and the price change is triggered more often.

We also find that the share of backward-looking price setters, i.e. firms who simply adjust their prices for observed inflation rather than in a forward-looking fashion, is changing smoothly, with a predominantly downward-sloping trend. However, the value varies substantially across countries, with an estimated range of between 20% and 50%. According to our results, it seems that this characteristic of price setting is driven mainly by long-term factors such as increasing competition, decreasing administered prices and the learning capacity of price setters (rather than by the current macroeconomic environment).

Our findings have some noteworthy policy implications. Previous research argues that the implementation of a stable monetary policy regime with a well-defined nominal anchor such as inflation targeting contributed to a decrease of inflation persistence in the most developed countries. Although all three countries under study officially adopted inflation targeting a decade ago, inflation persistence has not changed considerably in Poland and Hungary and has remained at high levels when compared to the Czech Republic or developed countries. In addition, for

Hungary the volatility of inflation shocks remains high. This could be related to the fact that inflation targets in these countries are less credible and economic agents chiefly take into account observed inflation levels rather than the inflation target. This is arguably linked to the role of the exchange rate in monetary policy. Indeed, Hungarian monetary policy has paid special attention to exchange rate movements and expectations, and the exchange rate channel was considered the most efficient channel of monetary policy transmission (Vonnak, 2008).

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