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Formal targets, central bank independence and inflation dynamics in the UK: A Markov-Switching approach

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ABSTRACT

We examine inflation and uncertainty in the UK with a version of the Markov Switching model, which allows for changes in the variance as well as in the mean and persistence of a series. We find that the UK's attempts at exchange rate pegs in the form of shadowing the deutschmark and entering the ERM were ineffective, and in the latter case counterproductive in lowering inflation uncertainty. The 1981 budget, however, greatly lowered uncertainty, and the adoption of a formal inflation target also had a palpable, negative impact on inflation uncertainty. As a suggestive exercise, we examine inflation uncertainty in the US, and find that, over 2005–2008, in the absence of an inflation target, uncertainty rose in the US, while uncertainty remained low in the UK over this period of rising commodity prices and financial turmoil.

1. Introduction

Low inflation is a major policy goal for both developed and many developing countries. Sadly, in the post-World War II era, the inflation rate in the UK has at times been much higher than hoped for (see Benati, 2008a, for a detailed analysis of inflation in the UK over the "Great Inflation" and "Great Moderation" periods). Moderate inflation in and of itself may be neutral for long run income. However, inflation has been shown to increase inflation uncertainty (Friedman, 1977; Ball, 1992), and uncertainty over inflation has been shown theoretically and empirically to lower investment and real output.

Accordingly, the UK has tried a number of policies designed to lower inflation and its accompanying uncertainty. The Bank of England was given operational independence in 1997. Prior to this, there were several attempts to peg the exchange value of the pound, first by "shadowing" the deutschmark, and then by entering the Exchange Rate Mechanism (ERM) as a possible precursor to Euro adoption. Finally, after leaving the ERM in 1992, the Bank of England adopted a formal inflation target. Inflation targets have also since been adopted by most other industrialized nations.

The purpose of this paper is to examine the UK inflation dynamics with the Markov Switching (MS) technique and, at the same time, to investigate the impacts of these various polices on UK inflation uncertainty. This differs from other papers that use regression or GARCH models to evaluate inflation mean/shock persistence/inflation uncertainty. The MS technique utilized here is based on an error correction model in which the mean, shock persistence and uncertainty in two different regimes can be evaluated. Thus, rather than examining changes in the mean, persistence and uncertainty of UK inflation separately or jointly (i.e., any two of the three), we investigate all three issues simultaneously. Furthermore, due to the

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special characteristics of the MS model, we are able to obtain the probability of the economy being in the high inflation uncertainty regime. Given the probability derived from the MS model, a probit model is incorporated to assess the impacts of UK's various policies on inflation uncertainty.

We find that the exchange rate pegs, e.g., shadowing the deutschmark and the ERM, were ineffective in decreasing uncertainty. In the case of the ERM, it actually increased uncertainty over the future path of prices. On the other hand, the 1981 budget lowered inflation uncertainty. Moreover, the adoption of the formal inflation target had a decidedly negative impact on inflation uncertainty. The inflation target did seem to foster clear communication and transparency, thus palpably decreasing the uncertainty over the future path of prices. While inflation rose above its 2% target, prompting a mandatory explanatory letter from the Bank of England's governor Mervyn King to the Exchequer starting in April 2007, it is notable that in our sample, which runs through May of 2008, uncertainty did not pick up at the end. This indicates that, despite the breach of the target, the public, at least for a year, invested the Bank of England with much credibility.

We investigate this issue further with a comparative exercise. While noting that the effect of inflation targeting in the UK may not be replicated in other countries, it is of interest to contrast the UK's experience with that of the US, as the US is the largest industrialized country without a formal target, over the last several years of rising commodity prices and financial shocks. We find that over the 2005–2008 period, while uncertainty in the UK remained low, in the US, without a formal target, uncertainty rose. While one cannot be too bold in drawing clear causal inference from this comparison, it does bolster the case that in the UK inflation targeting did decrease the public's uncertainty of the future path of prices in the face of economic and financial disturbances.

This paper proceeds as follows. The next section describes the previous literature on inflation, uncertainty and policies designed to decrease both. The third section describes the MS methodology to be employed. The fourth section describes our results, while the fifth section discusses our results in light of previous findings. The sixth section concludes.

2. Previous literature

Inflation has been a source of concern for policymakers in the UK, as elsewhere, due to the potential real economic costs that a rising price level extracts. While the direct impact on long run output of low or moderate inflation may be negligible, uncertainty about the future price path may be costly. Friedman (1977) posits that the negative real effects of inflation arise mainly from inflation uncertainty. Uncertainty about the future price path lowers the information content of prices, therefore making long term contracting difficult. This could lead to lower investment and long run growth (Cukierman et al., 1993). Grier and Perry (2000) and Grier et al. (2004) provide empirical evidence that inflation uncertainty decreases output growth.

Policymakers thus desire, all else constant, a low rate of inflation and an accompanying low level of inflation uncertainty. Additionally, most central bankers find it desirable to have a low persistence of inflation shocks. If shocks to the price level do not have a significant long-lasting effect on the future path of prices, the central bank can maintain low inflation in the face of disturbances. For instance, a spike in commodity prices need not require a severe monetary tightening, if the persistence of shocks is low. Achieving low persistence may necessitate a high level of credibility for the central bank (Cecchetti and Debelle, 2006; see also Benati 2008b for a discussion of secular changes in UK inflation persistence).

While low inflation, persistence and uncertainty are desirable, the existence of nominal rigidities makes obtaining and sustaining a stable price level potentially costly in terms of short run output and employment. This is especially the case, if, as in the Barro–Gordon framework, the public mistrusts the central bank's commitment to low inflation and thus maintains expectations of higher inflation. This leads to higher-than-optimal inflation in equilibrium.

A possible way out of the Barro–Gordon conundrum is a commitment mechanism in the form of a formal target, or quantitative goal (the exchange rate, money supply, or inflation). Another possible commitment mechanism is to give the central bank a high degree of independence, so that its decisions are insulated from political pressure for short run monetary stimulation (Cukierman, 1992). There is a large literature, both theoretical and empirical, on the impact of exchange rate targets on monetary outcomes. Britain may yet go as far as possible in terms of exchange rate targeting by eliminating its currency and joining the Euro. Even without doing so, its "shadowing" of the Deutschmark in the 1980s and entrance to the ERM in the 1990s were variants of exchange rate targets. The desirability of currency targets is still debated. Some nations, especially in Eastern Europe, still endeavor to join the Euro, while other emerging markets in Asia and Latin America have had devastating balance of payments crises which some economists attribute to inappropriate currency pegs. To anticipate our results, we find that Britain's recent exchange rate targets were ineffective in generating desired monetary results.

Another goal is a money supply target, which the UK has also employed in the past. The inability to hit such targets in the UK and elsewhere has led to a wide decrease in popularity (although the European Central bank still maintains a monetary target as one of its "twin pillars" of inflation and money supply targets). Finally, the difficulties of exchange rate and money supply targets have paved the way for inflation targets (IT). An IT is a formal announcement by the central bank of a targeted rate or range of inflation over a coming period. In the wake of the ERM crisis, the Bank of England adopted a formal inflation target in 1992. The UK thus stands with most industrialized (and many emerging market) nations in having an IT, although a few countries, most notably the United States, have no IT or any formal goal.[2]

[2] Beginning in February 2009, the US Federal Reserve announced that it will publish long-term forecasts of inflation, which some interpret as a de facto inflation target. However, there is still no formal inflation or any other target for the US central bank.