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# Inflation persistence and robust monetary policy design

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## Abstract

This paper examines the performance of optimised interest-rate rules when there is uncertainty about a key determinant of the monetary transmission mechanism, namely the degree of persistence characterising the inflation process. The paper focuses on the euro area and utilises two variants of an estimated small-scale macroeconomic model featuring distinct types of staggered contracts specifications which induce quite different degrees of inflation persistence. The paper shows that a cautious monetary policy-maker is well-advised to design and implement interest-rate policies under the assumption that inflation persistence is high when there is considerable uncertainty about the prevailing degree of inflation persistence. Such policies are characterised by a relatively aggressive response to inflation developments and exhibit a substantial degree of inertia.

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## 1. Introduction

There is an active and rapidly growing literature on the evaluation of structural models of inflation determination.<sup>1</sup> While theoretical models, starting with the staggered contracts models of Taylor (1980) and Calvo (1983), propose that current inflation depends on future inflation and a measure of current demand or cost pressures, recent empirical research has highlighted that these models, at least in their simplest specification, typically fail to explain the high degree of inflation persistence observed in the data. In fact, most empirical studies that have focused on estimating variants of the New-Keynesian Phillips Curve (NKPC), based on either Taylor or Calvo-type staggered contracts, have obtained highly significant estimates of the coefficient on lagged inflation.

At the same time, Taylor (2000) and Cogley and Sargent (2001) have observed that the degree of persistence in U.S. inflation has been drifting downward in the 1980s and 1990s as inflation has come under control. Taylor (2000) suggests that the diminished degree of inflation persistence may be due to changes in the orientation of monetary policy. In an environment with a stable and transparent monetary policy regime, inflation expectations may become contained and, hence, price and wage setters may be less inclined to change their contracts in response to shocks. Similarly, Brayton et al. (1999) argue that globalisation has increased competition in the products markets, thereby squeezing mark-ups and yielding reductions in prices. Although Staiger et al. (2001) do not find empirical evidence in favour of such theories, more favourable evidence may emerge as data from the low-inflation regime accumulate.

In the light of the ongoing controversy about the appropriate specification of structural models of inflation determination and more recent indications that the law of motion for inflation may have altered, this paper investigates the performance of simple monetary policy rules when the monetary policy-maker is faced with uncertainty about the degree of persistence characterising the inflation process. The degree of inflation persistence represents a key determinant of the monetary transmission mechanism and has important implications for the ability of monetary policy to stabilise inflation relative to output. Hence, monetary policy rules should ideally be designed to perform reasonably well under a range of alternative models of inflation determination which differ with respect to the degree of inflation persistence that they induce.

To examine the consequences of different degrees of inflation persistence for the performance of monetary policy rules, we concentrate on the euro area for which such an examination seems particularly relevant. First, the euro area is a new and relatively unexplored entity and, hence, the European Central Bank (ECB), with its rather short history, faces substantial uncertainty about the characteristics of the aggregate euro area inflation process. And second, the mixed empirical evidence based on data for individual euro area member states provides no clear indication of what type of model should be chosen for modelling the aggregate inflation process.

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<sup>1</sup>See for example the evaluations by Galí and Gertler (1999), Guerrieri (2005), Sbordone (2002), Rudd and Whelan (2002) and Cogley and Sbordone (2004) for the U.S. and the studies by Galí et al. (2001) and Coenen and Wieland (2005) for the euro area.

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