Do asymmetric central bank preferences help explain observed inflation outcomes?

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ABSTRACT

When the central banker's loss function is asymmetric, changes in the volatility of inflation and/or unemployment affect equilibrium inflation. This suggests that changing macroeconomic volatilities may be an important driving force behind trends in observed inflation. Previous evidence, which has offered support for this idea, suffers from a spurious regression problem. Once this problem is controlled for, the evidence suggests that the volatility of unemployment does not help explain inflation outcomes. There is some evidence of a relationship between inflation and its volatility, but overall the data does not support the view that changing economic volatility, as filtered through asymmetric central bank preferences, is an important driver of inflation trends.

1. Introduction

It is well known that US inflation was low in the early 1960s, rose through the late 1960s and 1970s before falling through the 1980s, and remaining low thereafter. A similar pattern of rising then falling inflation occurred in many other OECD countries.[1] What caused this rise and fall of inflation is an open question that has attracted a great deal of recent attention. In this paper we ask to what extent the common observed inflation trend in OECD countries is the result of the interaction of time inconsistency problems in monetary policy interacting with changes in the volatility of shocks to inflation and/or unemployment.

This is a promising candidate explanation of inflation trends for a number of reasons. First, it is well known that the degree of macroeconomic volatility has fallen along with the level of inflation in many OECD countries in recent years.[2] Thus the decline in OECD inflation rates is roughly coincident with the so-called Great Moderation. Second, standard time inconsistency models of monetary policy, extended to allow for asymmetric central bank preferences, provide a clear theoretical channel through which these factors would affect trend inflation. Since these models abstract away from country specific
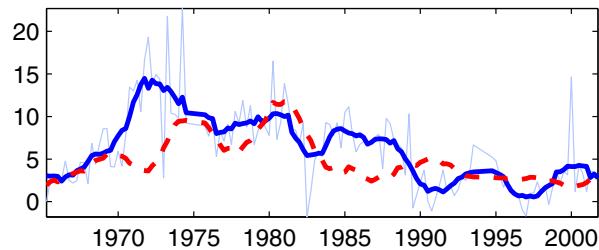
Fig. 1. Australia.

institutional details, the theory naturally extends from the US case to the cross country setting. Third, the comments of policy insiders[3], empirical work on monetary policy reaction functions[4], as well as direct estimates of central bank preference parameters based on more structural models[5] support the key feature of these models: that central bank preferences are asymmetric. Finally, existing research explicitly examining the relationship between asymmetric central bank preferences and inflation outcomes appears to support the hypothesis.[6]

While the literature to date has largely focused on the US experience, the existence of a common pattern in inflation suggests that any successful explanation ought to be robust across OECD countries. The existing empirical work on this topic, however, covers only a handful of the countries that experienced a rise and fall of inflation. Surico (2006) and Ruge-Murcia (2003a), for example, only study the US, while Ruge-Murcia (2004) examines the US and four other countries. While these results are intriguing, the question of whether the theory works for a broad set of countries has not been answered. Addressing this question is the main objective of our paper.

We begin the paper by documenting the existence of a common trend in the inflation rates of OECD other than the US. Figs. 1–12 plot inflation rates, measured by annualized quarterly percentage changes in the Consumer Price Index, for 12 OECD countries. For comparison, a 2-year centered moving average of US inflation is included on each plot (the dashed red line) A common pattern is visible in the raw data (the light blue line), but more transparent in the 2-year centered moving averages also displayed in the figures (the heavy blue line), and is as follows: inflation starts out low in the early 1960s in most countries. This is followed by a period of rising inflation lasting until the late 1970s or early 1980s in all countries except Germany and Japan (where inflation peaks in the early and mid 1970s, respectively). After this period of rising inflation, inflation rates then fall until the present, and are generally as low or lower by the end of the 1990s than they were in the early 1960s. The commonality of inflation outcomes over the past four decades suggests that a successful explanation of long run inflation trends ought to be applicable across OECD countries.

Theories of time inconsistent monetary policy based on asymmetric central bank preferences are a plausible candidate explanation of this common trend as these models are general enough to encompass the differing institutional arrangements across OECD countries. While early versions of these models required the policy makers target an unattainable unemployment rate, recent theoretical innovations show that monetary policy may suffer from time inconsistency even when central bankers target the NAIRU. When central banks have asymmetric preferences, policy makers care about the *sign* as well as the magnitude of deviations of unemployment and inflation from target. In this case, monetary policy suffers from a time inconsistency problem which causes equilibrium inflation rates to depend on the variance of the shocks to inflation and unemployment.[7]

Consider, by way of illustration, a policy maker who dislikes above NAIRU unemployment more than below NAIRU unemployment, and suppose that the variance of shocks to unemployment increases. With a higher variance, the probability of an episode of very high (and, due to the asymmetry of preferences, strongly disliked) unemployment increases. The central banker will respond with expansionary monetary policy, in an attempt to drive the average unemployment rate down, to reduce the likelihood of an episode of very high unemployment. This policy, however, results in an increase in equilibrium inflation. Given the asymmetry in the loss function, the policy maker would be willing to pay this price to avoid a more distasteful episode of very high unemployment.[8]

A natural test of this theory is to use a GARCH model to estimate the conditional variance of shocks to unemployment and/or inflation and then regress inflation on this conditional variance to measure any correlation. The results of this simple exercise support the proposition that asymmetric preferences and changing volatility can explain inflation trends in at least some OECD countries.[9] We argue that findings, based on this test, that changes in the conditional volatility of unemployment

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[3] Blinder (1998, 1997) and Goodhart (1998).

[4] Reduced form tests for asymmetries in policy reaction functions include Bec et al. (2002), Kim et al. (2005), Martin and Milas (2004), Karagedikli and Lees (2004), and Bruinshoofd and Candelon (2005).

[5] Surico (2004, 2003), Dolado et al. (2005), Dolado et al. (2004), and Aguiar and Martins (2008).

[6] Ruge-Murcia (2004), Surico (2006).

[7] Cukierman (1999), Ruge-Murcia (2003a), Gerlach (2003), and Nobay and Peel (2003).

[8] With rational expectations, of course, this policy response is anticipated by agents, and produces the rise in inflation with no offsetting change in average unemployment.

[9] Ruge-Murcia (2004).