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European Economic Review 49 (2005) 887–907

EUROPEAN
ECONOMIC
REVIEW

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Poole in the New Keynesian model

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Received 15 December 2000; accepted 19 June 2003

Abstract

We study the properties of alternative central bank targeting procedures within the standard New Keynesian model. We find that Poole's famous insights concerning the output stabilization properties of money and interest rate targeting obtain when intertemporal substitution is low. And that output volatility rankings do not induce similar welfare rankings. Unlike the popular presumption, money targeting always fares better for money demand shocks. For fiscal shocks, money targeting does better for low and worse for high degree of intertemporal substitution. The opposite pattern obtains for supply shocks.

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JEL classification: E32; E52

Keywords: Poole; Targeting; Macroeconomic volatility; Welfare

1. Introduction

In the three decades since its publication, the seminal work of Poole (1970) has defined the framework of the theoretical debate in the area of central bank targeting procedures (see Walsh, 1998). It has also exerted a significant influence on actual monetary practices. There has been significant cross country and time series variations in the operating procedures adopted by central banks in the industrial world and the particular choices are often justified by referring to the basic insights of Poole. For instance, as implied by Poole's analysis, the pace of financial innovation and the

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resulting instability in velocity during the 1970s and 1980s created a presumption in favor of interest rate targeting as a means of smoothing fluctuations in aggregate economic activity and inflation. Similarly, the Bundesbank defended its decision to target monetary aggregates by pointing out that velocity in Germany was remarkably stable.

The original analysis of Poole was conducted within the standard textbook IS-LM framework and used output volatility as the sole evaluation criterion. The shortcomings of this model are well known. [Canzoneri et al. \(1983\)](#) redid Poole within the imperfect information, rational expectations model and confirmed that instability in the LM (IS) curve favors interest rate (money supply) targeting. Moreover, within this class of models, the optimal choice of the targeting procedure tends to be ambiguous when supply shocks are the dominant source of macroeconomic instability. The ranking depends on the slope of the IS curve ([Blanchard and Fischer, 1986](#)).

A natural question is how Poole's basic insights carry over to the models that are currently used to evaluate monetary policy (computable, dynamic general equilibrium models). And also, whether the rankings of alternative procedures would change if an explicit welfare criterion were adopted. Interestingly, this issue remains relatively unexplored. There have been some works that have asked Poole type of questions, but no existing analysis evaluates the relative performance of interest rate and money targeting for all three types of shocks, namely supply, money and fiscal shocks. [Carlstrom and Fuerst \(1995\)](#) study this issue in a limited participation model with supply and fiscal but no money demand shocks. [Gali \(2003\)](#) and [Ireland \(2000\)](#) address related questions within the context of the New Neoclassical Synthesis (NNS) model. Gali abstracts from money demand shocks while Ireland leaves fiscal shocks out (and he also considers a "soft" interest rate peg, that is one with persistent but variable rates).

The objective of this paper is to examine the properties of alternative targeting procedures in an economy that represents a faithful, general equilibrium rendition of Poole. The model is the standard NNS one, with capital accumulation, staggered prices and three shocks: Supply, fiscal and money demand shocks. Four findings stand out.

First, money targeting generates higher welfare point for money demand shocks independent of the degree of intertemporal substitution (also risk aversion) and the weight attached to real balances in the utility function. This is an interesting result as there is a strong presumption in the literature (that derives from Poole's analysis) that money demand shocks are best dealt with under interest rate pegging. While this is true as far as output stability is concerned we show that it does not extend to welfare comparisons.

Second, the ranking of the two procedures for supply and fiscal shocks depends critically on the value of risk aversion. For supply shocks, interest rate pegging produces better results when risk aversion is high, and worse when risk aversion is low. The opposite pattern obtains for fiscal shocks.

Third, the main insights of Poole concerning output volatility as a function of the targeting procedure and the type of the shock survive intact in the New Keynesian – NNS – model only when risk aversion is high. For low risk aversion, interest rate targeting stabilizes output even for fiscal shocks.

There are some differences between our welfare rankings and those found in the existing literature. In Section 3, we explain the sources of these differences and also

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