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Journal of Monetary Economics 50 (2003) 605–631

Journal of
MONETARY
ECONOMICS

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Monetary policy evaluation with noisy information[☆]

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Received 15 November 2000; received in revised form 12 July 2002; accepted 9 September 2002

Abstract

This study investigates the implications of noisy information regarding the measurement of economic activity for the evaluation of monetary policy. Using a simple model of the U.S. economy, I show that failing to account for the actual level of information noise in the historical data provides a seriously distorted picture of feasible macroeconomic outcomes and produces inefficient policy rules. Naive adoption of policies identified as efficient when this difficulty is ignored results in macroeconomic performance worse than actual experience. When the noise content of the data is properly taken into account, policy reactions are cautious and less sensitive to the apparent imbalances in the unfiltered data. The resulting policy prescriptions reflect the recognition that excessively activist policy can increase rather than decrease economic instability.

Published by Elsevier Science B.V.

JEL classification: E52; E58

Keywords: Policy evaluation; Taylor rule; Optimal control; Observation noise; Inflation targeting; Natural growth targeting

[☆]I would like to thank Richard Anderson, Charles Calomiris, Carl Christ, Bill English, Milton Friedman, Greg Hess, David Lindsey, Brian Madigan, Allan Meltzer, Dick Porter, Simon van Norden, Kendrew Witt, participants at presentations at Johns Hopkins, Berkeley, Columbia, the Federal Reserve Bank of St. Louis, the International Monetary Fund, and at meetings of the Econometric Society and the Federal Reserve System Committee on Macroeconomics, for valuable discussions and comments. The opinions expressed are those of the author and do not necessarily reflect views of the Board of Governors of the Federal Reserve System.

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1. Introduction

Monetary policy decisions are made in real time and are based, by necessity, on preliminary data and estimates that contain considerable noise and are often substantially revised months or years after the event. While part of everyday life for policymakers, this aspect of the monetary policy process is often neglected in theoretical formulations of monetary policy, introducing a wedge between the promise of macroeconomic theory and the reality of macroeconomic practice.

Recognition of the complications resulting from the presence of noise is important for the study of monetary policy for two reasons: First, the evaluation of past policy is incorrect when it is based on the wrong data. That is, our understanding of the past becomes distorted. Second, the evaluation of alternative policy strategies is unrealistic and likely to mislead if it is based on the assumption that policy can react to either data that are not really available to policymakers when policy must be set or that are only available with substantial noise. That is, recommendations for better policy in the future become flawed.

Failing to recognize the extent of our ignorance leads to the false promise that an activist stabilization policy can have considerable success in fine-tuning the economy. Policy reactions that are unduly influenced by apparent imbalances in the data that may be mere artifacts of faulty measurement, however, risk increasing rather than reducing economic instability. This problem is by no means new to macroeconomic policy. For at least the past fifty years, it has been articulated many times by Milton Friedman, for instance in several of the essays he collected in 1953 and 1969 (Friedman, 1969). As early as 1947, Friedman (1947) questioned the value of control theory for taming business cycle fluctuations by observing:

Contemporary interpreters of the course of business have notoriously failed not only to predict the course of business but even to identify the current state of affairs. It is not abnormal for some to assert that we are in the early stages of deflation and others that we are entering into an inflation (1947, p. 414).

Rather surprisingly, half a century later and despite considerable advances in the evaluation of monetary policy performance, the quantitative relevance of this issue for monetary policy design has yet to receive proper attention. On one hand, those who believe that our knowledge of the economy is seriously lacking suggest adopting passive rules that generally forego short-run stabilization. On the other, proponents of activist policy implicitly suggest that the information problem does not present a serious handicap.¹ This paper attempts to bridge this gap. My analysis draws on

¹Earlier work that bears on this issue includes Meltzer (1987), who presents evidence confirming substantial errors in assessing the economic outlook to argue against activist policy and McCallum (1994) who recognizing the difficulty of policy formulated with contemporaneous information, suggests that activist policy should be based on lagged information. Several authors, including Taylor (1999a), McCallum (1999), and Orphanides (2001), argue that measurement problems should be of concern for activist stabilization, and many others, including Estrella and Mishkin (1999), Kuttner (1992), Orphanides and van Norden (2002), and Wieland (1998) discuss the difficulties associated with the measurement of the concept of full employment in the context of stabilization policy. Since the working paper version of this study was completed, several

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