Productivity growth, transparency, and monetary policy ☆

Ichiro Muto

Research and Statistics Department, Bank of Japan, 2-1-1 Nihonbashi Hongokucho Chuo-ku, Tokyo 103-8630, Japan

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ABSTRACT

This study examines whether central bank transparency about views of future productivity growth contributes to stabilizing macroeconomic fluctuations. In a standard New Keynesian model, the central bank and private agents make their subjective estimates on the persistence of productivity growth. In this situation, if private agents believe that the central bank's projections include forecast errors on future productivity growth, these beliefs can destabilize private agents' own expectations because the central bank's forecast errors may lead to policy mistakes in the future. Consequently, central bank transparency does not necessarily stabilize the variations of the output gap and inflation rate. The central bank should respond strongly to the inflation rate, if the impact of transparency is uncertain.

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notably, imperfect data and the difficulties of distinguishing permanent from temporary changes will make changes in secular productivity growth exceptionally difficult to identify in real time, both for the private sector and for the Federal Reserve. The need to discern the underlying economic forces and to react appropriately in an environment of incomplete information makes monetary policy an exceptionally challenging endeavor. ——— Bernanke (2005)

1. Introduction

In recent years, the implications of central bank transparency have been actively investigated in monetary economics.[1] Among the various aspects of central bank transparency, this study focuses on "economic transparency" in the terminology of Geraats (2002). Economic transparency concerns the economic information that is used for monetary policy, including economic data, policy models, and the central bank's forecasts. Economic transparency is distinct from other kinds of transparency (such as political, procedural, policy, and operational transparency) in that it does not deal with the behavior of the central bank itself. Rather, it concerns the central bank's views of economic conditions, which are determined mainly by the activities of private agents.

In the case of economic transparency, it is arguable whether the central bank should seek to be perfectly transparent, because the central bank usually faces considerable uncertainty as to economic conditions or economic structures. If we take account of this kind of uncertainty, it is not a straightforward task to evaluate the value

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[1] See Geraats (2002), Blinder et al. (2008), and Cruijsen and Eiffinger (2010) for a survey of the literature on central bank transparency.
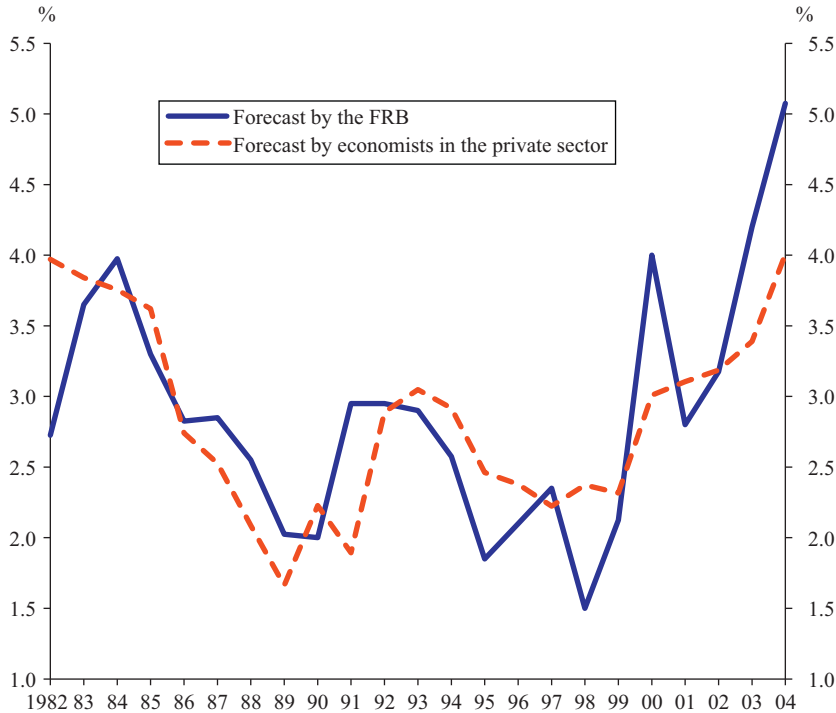
Fig. 1. Forecasts for output growth in the U S economy. *Note*: "Forecast by the FRB" denotes the Greenbook projections of the Board of Governors of the Federal Reserve System. "Forecast by economists in the private sector" is the Survey of Professional Forecasters released by the Federal Reserve Bank of Philadelphia. Each series indicates 1-year-ahead forecasts made at the beginning of each year (January or February).

of central bank transparency, because the information provided by the central bank to private agents might be inaccurate.

The problem of uncertainty becomes particularly serious with respect to the trend growth of aggregate productivity. Trend productivity growth is a key variable for monetary policymaking, because it is the crucial determinant of potential GDP and the equilibrium level of the real interest rate. However, it is widely recognized as difficult to obtain an accurate estimate of the trend growth of aggregate productivity, especially in real time. An important issue for monetary policymakers is whether the central bank should be transparent even when they are uncertain about future productivity growth. As noted by Bernanke, the issue is complicated because not only the central bank but also private agents face uncertainty regarding the persistence of productivity growth. In such a case, the impact of central bank transparency is likely to depend on private agents' forecast of future productivity growth. Because central bank transparency mainly influences private agents' perception about the central bank's forecast, the impact of transparency should depend on private agents' conjecture about the central bank's forecast.

We examine whether central bank transparency about views of future productivity growth contributes to stabilizing macroeconomic fluctuations. In a simple version of a New Keynesian model, which is very close to the models of Galí et al. (2003) and Ireland (2004), we assume that the central bank and private agents cannot fully identify the transitory and persistent components of productivity growth and that they solve a filtering problem in order to estimate the persistence of productivity growth. This kind of filtering process has already been introduced in some previous studies, such as Tambalotti (2003), Edge et al. (2007), and Gilchrist and Saito (2008). These studies have shown that private agents' gradual recognition of the persistence of productivity growth can replicate the persistent movements of major macroeconomic variables, which are usually found in vector autoregression (VAR) analysis.

This paper focuses on the heterogeneity of the forecasting mechanisms used by the central bank and private agents. Fig. 1 presents forecasts of real output growth made by the Federal Reserve Board (FRB) and economists in the private sector. This figure shows that the difference of the forecasts between the FRB and the private sector reached nearly or more than 1% in some years, such as 1982, 1991, 1998, 2000, and 2004. The standard deviation of the forecasts between 1982 and 2004 is 0.682 for private sector and 0.854 for the FRB. The first order autocorrelation coefficient is 0.781 for private sector and 0.587 for the FRB. Thus, the data suggest that the forecasts are fairly heterogeneous between the FRB and private agents, and that the FRB changed the forecast more sharply (or largely) than the average of private forecasts at least during this period.[2] Although

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[2] In terms of forecast accuracy on output growth, Romer and Romer (2000) report that the FRB forecast was superior to private agents' forecast in the data from the period 1970–1991. However, D'Agostino and Whelan (2008) find out that the FRB's superiority of forecast accuracy has been lost in more recent period of 1992–2001.