When is discretion superior to timeless perspective policymaking? ☆

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ABSTRACT

The monetary policy literature assumes increasingly that policy is formulated according to the timeless perspective (Woodford, 1999a). However, by treating appropriately the auxiliary state variables that characterize the timeless perspective equilibrium when evaluating policy performance, this paper shows that discretionary policymaking can be superior to timeless perspective policymaking and identifies model features that make this outcome more likely. Using standard New Keynesian DSGE models, discretion is found to dominate timeless perspective policymaking when the price/wage Phillips curves are relatively flat, due, perhaps, to firm-specific capital (or labor) and/or Kimball (1995) aggregation in combination with nominal rigidities. These results suggest that studies applying the timeless perspective might also usefully compare its performance to discretion, paying careful attention to how policy performance is evaluated.

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1. Introduction

Much work in recent decades has been devoted to understanding how central banks should conduct monetary policy. It is now generally accepted that private sector expectations can be an important channel through which monetary policy operates and that the time-consistency issues raised by Kydland and Prescott (1977) are a legitimate and material policy concern. These concerns feature prominently in the monetary policy design literature, which emphasizes the distinction between commitment and discretion and are taken seriously by central banks, many of whom have adopted inflation targeting policy regimes. Although optimal commitment policies (Kydland and Prescott, 1980) have the obvious attraction of being optimal, they are unattractive in so much as their performance is attributable to a central bank that exploits private-sector expectations in some arbitrary initial period while promising never to do so again. Because discretionary policies are known to be suboptimal and optimal commitment policies are not time-consistent and depend on arbitrary initial conditions, Woodford and coauthors have argued that monetary policy might better be conducted according to a "timeless perspective".

The timeless perspective approach to policy design was first outlined in Woodford (1999a), advanced as a solution to the "initial period" problem that characterizes optimal commitment policies.[1] At that time, Woodford (1999a) argued that

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[1] Related to the timeless perspective, King and Wolman (1999) and Khan et al. (2003) analyze responses to exogenous shocks once the economy has reached its stationary distribution under the optimal commitment policy. Unlike the timeless perspective, however, they do not propose to overwrite the optimal commitment policy when analyzing transitional dynamics.

the initial period problem could be overcome if the central bank were to "adopt, not the pattern of behavior from now on that would be optimal to choose, taking expectations as given, but rather the pattern of behavior *to which it would have wished to commit itself to at a date far in the past*, contingent upon the random events that have occurred in the meantime." Simply put, the initial period problem ceases to be a problem once the initial period has long since passed. In subsequent work, the concepts of timeless perspective policy making and timeless perspective equilibria have been refined and made more formal.[2] Because the timeless perspective overcomes the initial period problem, the literature on monetary policy has embraced it, to the point where such policies increasingly form the backbone of policy analysis and one central bank—Norges Bank—has employed the timeless perspective to construct its public interest rate forecasts.

Timeless perspective policies are closely related to optimal commitment policies. In particular, both policies involve auxiliary state variables that track the value of commitments over time. One implication of these auxiliary state variables is that timeless perspective policies involve commitments and are not time-consistent in the sense of Kydland and Prescott (1977). At the same time, timeless perspective policies are not optimal in the sense of Kydland and Prescott (1980), opening the door to the possibility that they may be inferior to other suboptimal policies, such as discretion.

In this paper I ask whether discretionary monetary policy can dominate policy designed according to the timeless perspective and answer in the affirmative. The paper then examines the factors that govern this result, employing a microfounded dynamic stochastic general equilibrium (DSGE) model to ascertain the role that nominal and real rigidities play in determining whether discretion is superior. Indeed, it is shown that discretion is more likely to dominate timeless perspective policy making in models where nominal and real rigidities are important. Two additional contributions of the paper are that it develops a measure of policy performance suitable for consistently evaluating timeless perspective and discretionary policies and that it shows how timeless perspective equilibria can be obtained from the solution to an unmodified formulation of the optimal commitment problem (cf. Woodford, 2003). It is important to compare the performance of timeless perspective policies to discretion because such a comparison helps to identify and understand situations where timeless perspective policy making may be inferior to discretion. More generally, such a comparison allows us to better understand when discretionary policies perform well and when timeless perspective policies perform less well.

Previous studies comparing discretion to timeless perspective policy making have tended to focus on unconditional loss when evaluating policy performance[3] (McCallum and Nelson, 2004; Sauer, 2007). However, there are several good reasons not to use unconditional loss for this purpose. One reason is that the loss function common to both the timeless perspective and discretionary optimization problems is (invariably) conditional. Another reason is that using unconditional loss to evaluate performance amounts to comparing discretion to the optimal commitment policy because the timeless perspective policy and the optimal commitment policy share the same asymptotic equilibrium. A third reason is that, by ignoring transition dynamics, the use of unconditional loss can generate spurious performance reversals (Kim et al., 2008). Rather than use unconditional loss to compare the two policy strategies, in this paper a measure of conditional loss is developed that is suitable for the task. Specifically, the paper shows how the auxiliary state variables that enter the timeless perspective equilibrium can be "integrated out" to produce a measure of conditional loss that is invariant to the multiplicity that is known to characterize timeless perspective policy making (Woodford, 2003, Chapter 7), that remains conditional on the natural state variables common to both decision problems and that does not ignore transition dynamics. For linear-quadratic models, this integration lowers the performance of the timeless perspective policy relative to the optimal commitment policy by terms that quantify the conditional mean and the conditional volatility of the auxiliary states.

Of course, it is far from automatic that the resulting measure of policy performance will permit a timeless perspective to be dominated by discretion. However, using standard New Keynesian DSGE models, it is shown that factors that flatten the New Keynesian Phillips curve, such as nominal price rigidity, firm-specific labor/capital and Kimball (1995) aggregation, can raise the conditional volatility (in particular) of the auxiliary state variables to the point where discretion becomes the superior policy. Indeed, the intuition for this result is reasonably clear. As the Phillips curve becomes increasingly flat, the central bank must generate greater volatility in real marginal costs in order to stabilize inflation. To the extent that real marginal costs are correlated with the central bank's other policy objectives, this volatility in real marginal costs raises the volatility of the commitments that characterize the timeless perspective policy, penalizing its performance.

The remainder of this paper is organized as follows. Section 2 introduces the timeless perspective approach to policy design and applies it to a simple New Keynesian model. Section 2 also shows why the treatment of the auxiliary states in the loss function matters importantly for performance comparisons. Section 3 illustrates how standard control methods for rational expectations models can be used to construct and analyze the equilibrium of a timeless perspective policy. In addition, Section 3 shows how the auxiliary state variables can be conditionally integrated out to construct a measure of policy performance that is easy to compute and that is suitable for comparing the performance of discretion and timeless perspective policies. Applying this measure of policy performance to the simple New Keynesian model introduced in Section 2 and Section 4 demonstrates that discretion can, indeed, be superior to timeless perspective policymaking.

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[2] See Woodford (2003), Giannoni and Woodford (2002a,b) and Benigno and Woodford (2003, 2006).

[3] Indeed, some have interpreted the term "timeless perspective" to mean that timeless perspective policies should be derived as the solution to an unconditional optimization problem (Blake, 2001; Jensen and McCallum, 2002; Damjanovic et al., 2008). Since Woodford's approach to timeless perspective policy design does not do this, these studies have found that timeless perspective policies are not optimal from the timeless perspective.