

Conditional Welfare Comparisons of Monetary Policy Rules*

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Abstract

1 Introduction

Literature on monetary policy can be broadly classified into two categories. The first category involves the construction of dynamic stochastic general-equilibrium models for monetary policy. The solid micro foundations built into these models are important because they facilitate interpretation of outcomes and cross-validation with the results of other studies: the hope is that better micro foundations will yield better positive macroeconomics. However, solid micro foundations are also important because they provide an appealing basis for the second category of monetary policy analysis which involves welfare evaluations of various monetary policy rules.¹ Welfare analysis of

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¹Examples include Rotemberg and Woodford (1997) and King and Wolman (1999).

monetary policy rules requires researchers to make two inevitable decisions. They are what kind of criterion to use in ranking different policy rules and what kind of policy rules to consider.

Since the seminal contribution by Ramsey, the conditional welfare—the summation of the discounted expected utilities conditional on the information at the initial period—has been widely used in evaluating monetary policy. One rationale for using this criterion is that it is consistent with the private behavior which generates the model equations. In growth theories, the optimal decision based on this criterion is called the modified golden rule and commonly compared to the golden rule.² The golden rule optimizes a different criterion: the unconditional welfare. Using a criterion of which the discount factor is set to unity is also equivalent to maximizing the unconditional welfare, since no discounting implies that only the events in the far future matters for welfare evaluations. Though inconsistent with the private agents' behavior, the unconditional welfare criterion has been used since it is easy to compare different policy rules. Under this criterion, the transitional dynamics becomes irrelevant and the comparison does not depend on initial conditions of the economy.³

The optimal policy according to Ramsey is to specify a complete state-contingent path to maximize the conditional welfare.⁴ However, this Ramsey policy is quite complicated and is not durable in the sense that this may create a time inconsistency problem. Accordingly, many researchers try to look for a policy that is optimal within a class of time invariant rules.⁵ Time invariance achieves simplicity that improves communication and durability that achieves implementability. Two ways of specifying time-invariant rules are an instrument rule and a targeting rule. An optimal policy with these rules has often been searched for using the criterion of the unconditional welfare. A contribution of this paper is to apply the conditional welfare criterion at the time of adopting the rule.

²This comparison applies analogously in monetary policy problem, as shown by King and Wolman (1999).

³This difference in the choice of criterion is also reflected in the debate between Woodford and McCallum in the proper definition of the timeless perspective.

⁴We assume the availability of commitment technology in this paper. [Kim-Levin-Yun]

⁵Timeless perspective optimal policy is an example of time invariant rules.

2 Analysis of Proposed Approach

In comparison to the practices of normative monetary policy analysis, we propose that welfare evaluations of monetary policy follow the following practice. First, to be consistent with microfoundation based on the consumer problem, we used the conditional welfare—rather than the unconditional welfare—as a criterion. Furthermore, unlike the timeless perspective, we claim that the conditional welfare should be evaluated at the time of adopting the rules. Second, due to the problems associated with time inconsistency of Ramsey solutions, we propose that we find the best policy among a class of ‘reasonable’ time-invariant policy rules. We think that ‘reasonable’ policies are implementable and easy to communicate.

Now we turn to two example economies and investigate the optimal policy under the good practice we propose. After finding the optimal policy, we evaluate the potential costs of other policies such as discretion and timeless perspective. The first example is a simple New Keynesian model, such as the benchmark case by Clarida, Gali and Gertler (1999). In the case when there is no distortion due to monopolistic competition, we show that the optimal policy according to our proposed approach is different from other time invariant rules such as the timeless perspective as far as the current state of the economy is not at its deterministic steady state. The other example is the model by Christiano, Eichenbaum and Evans (2004) which incorporates the monopolistic distortion and so induces another different between our proposed approach and other approaches.

3 Illustrations in a Simple New Keynesian Model

[material in the slide file]

4 Implications of the Christiano, Eichenbaum and Evans (2004) model

[material to be added]

5 Conclusion

[to be written]