Optimal fiscal and monetary policy under imperfect competition

Stephanie Schmitt-Grohé [a,c,d,*], Martín Uribe [b,d]

[a] *Department of Economics, Rutgers University, New Brunswick, NJ 08901, USA*
[b] *Department of Economics, University of Pennsylvania, Philadelphia, PA 19104, USA*
[c] *NBER, Cambridge, MA, USA*
[d] *CEPR, London, UK*

Abstract

This paper studies optimal fiscal and monetary policy under imperfect competition in a stochastic, flexible-price, production economy without capital. It shows analytically that in this economy the nominal interest rate acts as an indirect tax on monopoly profits. Unless the social planner has access to a direct 100% tax on profits, he will always find it optimal to deviate from the Friedman rule by setting a positive and time-varying nominal interest rate. The dynamic properties of the Ramsey allocation are characterized numerically. As in the perfectly competitive case, the labor income tax is remarkably smooth, whereas inflation is highly volatile and serially uncorrelated. An exact numerical solution method to the Ramsey conditions is proposed.
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1. Introduction

In the existing literature on optimal monetary policy two distinct branches have developed that deliver diametrically opposed policy recommendations concerning

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[*] Corresponding author. Address: Department of Economics, Duke University, P.O. Box 90097, Durham, NC 27708, USA. Tel.: +1-919-660-1889; fax: +1-919-684-8974.
E-mail addresses: grohe@econ.rutgers.edu, grohe@duke.edu (S. Schmitt-Grohé), uribe@econ.upenn.edu (M. Uribe).

the long-run and cyclical behavior of prices and interest rates. One branch follows the theoretical framework laid out in Lucas and Stokey (1983). It studies the joint determination of optimal fiscal and monetary policy in flexible-price environments with perfect competition in product and factor markets. In this group of papers, the government's problem consists in financing an exogenous stream of public spending by choosing the least disruptive combination of inflation and distortionary income taxes. The criterion under which policies are evaluated is the welfare of the representative private agent. A basic result of this literature is the optimality of the Friedman rule. A zero opportunity cost of money has been shown to be optimal under perfect-foresight in a variety of monetary models, including cash-in-advance, money-in-the-utility function, and shopping-time models. [1]

In a significant contribution to the literature, Chari et al. (1991) characterize optimal monetary and fiscal policy in stochastic environments. They prove that the Friedman rule is also optimal under uncertainty: the government finds it optimal to set the nominal interest rate at zero at all dates and all states of the world. In addition, Chari et al. show that income tax rates are remarkably stable over the business cycle, and that the inflation rate is highly volatile and serially uncorrelated. Under the Ramsey policy, the government uses unanticipated inflation as a lump-sum tax on financial wealth. The government is able to do this because public debt is assumed to be nominal and non-state-contingent. Thus, inflation plays the role of a shock absorber of unexpected adverse fiscal shocks.

On the other hand, a more recent literature focuses on characterizing optimal monetary policy in environments with nominal rigidities and imperfect competition. [2] Besides its emphasis on the role of price rigidities and market power, this literature differs from the earlier one described above in two important ways. First, it assumes, either explicitly or implicitly, that the government has access to (endogenous) lump-sum taxes to finance its budget. An important implication of this assumption is that there is no need to use unanticipated inflation as a lump-sum tax; regular lump-sum taxes take up this role. Second, the government is assumed to be able to implement a production (or employment) subsidy so as to eliminate the distortion introduced by the presence of monopoly power in product and factor markets.

A key result of this literature is that the optimal monetary policy features an inflation rate that is zero or close to zero at all dates and all states. [3] In addition, the nominal interest rate is not only different from zero, but also varies significantly over the

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[1] See, for example, Chari et al. (1991), Correia and Teles (1996), Guidotti and Végh (1993), and Kimbrough (1986).

[2] See, for example, Erceg et al. (2000), Galí and Monacelli (2000), Khan et al. (2000), and Rotemberg and Woodford (1999).

[3] In models where money is used exclusively as a medium of account or when money enters in an additively separable way in the utility function, the optimal inflation rate is typically strictly zero. Khan et al. (2000) show that when a non-trivial transaction role for money is introduced, the optimal inflation rate lies between zero and the one called for by the Friedman rule. However, in calibrated model economies, they find that the optimal rate of inflation is in fact very close to zero and smooth.