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The inflation tax in an open economy with imperfect competition ☆

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Abstract

This paper studies the national welfare maximizing inflation tax in an open economy with imperfect competition. It shows that the presence of a monopolistic distortion dampens the incentive to engage in strategic use of the inflation tax. If this dampening effect is strong enough, monetary policy becomes completely inward-looking, restoring the Friedman rule as an equilibrium strategy regardless of the actions of the foreign government. This aspect of the policy interaction—driven entirely by the presence of imperfect competition—is important because it determines the underlying structure of the policy game and is therefore crucial for determining whether or not there exist welfare gains from international monetary cooperation.
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1. Introduction

This paper studies the national welfare maximizing inflation tax in an open economy with imperfect competition. In previous work, Cooley and Quadrini (2003)—henceforth CQ—use a model with perfect competition to show that in a two-country world, non-cooperative governments face an incentive to use the domestic inflation tax to gain an advantage over the terms of trade. This incentive leads to a systematic inflationary bias, giving rise to potentially large wel-

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fare gains from international monetary cooperation—on the order of one half to a full percentage point of steady state consumption when policy is set under commitment.

However, imperfect competition is widely regarded to be an important feature of the economy.[1] It is particularly important in an open economy context because it helps to explain a number of important issues in international trade.[2] In particular, imperfect competition arising from product differentiation is one of the core assumptions underlying Obstfeld and Rogoff (1996, 2000), which from the basis for what has become the workhorse model in open economy macroeconomics. Given its central role in the open economy literature, it seems natural then to ask what imperfect competition implies for the national welfare maximizing inflation tax. This paper shows that it has important consequences for the equilibrium inflation tax as well as for the resulting gains from international monetary cooperation.[3]

As in CQ, the model presented in this paper assumes a transactions demand for money which enters through a cash-in-advance constraint. Anticipated inflation causes the nominal interest rate to rise above zero, implying that money is dominated by bonds in rate of return. Agents respond by inefficiently economizing on real cash balances, substituting out of consumption and into leisure. Intuitively, anticipated inflation can be thought of as a tax on consumption, or equivalently, a subsidy for leisure. In a closed economy setting, the representative agent both bears the entire burden of the consumption tax and enjoys the full benefit of the leisure subsidy. Accordingly, the optimal policy is to minimize the consumption-leisure distortion by eliminating the inflation tax altogether.[4]

This story does not necessarily hold in an open economy because leisure is a non-traded good. Holding constant foreign inflation, higher domestic inflation creates a leisure subsidy that primarily benefits the domestic representative agent. At the same time, the adjustment of the exchange rate allows for expenditure switching in both countries away from the domestically produced good and into the foreign produced good. The expenditure switching channel allows the burden of the consumption tax to be shared equally across countries. As long as the welfare gain from the leisure subsidy (which accrues mainly to the domestic household) outweighs the welfare loss from the consumption tax (which is shared across countries), there is an incentive to inflate away from the Friedman rule to gain an advantage over the terms of trade.[5] Doing so creates a "beggar-thy-neighbor" spillover to the foreign agent.

The primary contribution of this paper is to show that this trade-off depends crucially on the degree of imperfect competition in the world economy. When world product markets are perfectly competitive, the trade-off unambiguously favors the terms of trade distortion, generating a strong incentive to engage in policy competition. In this case, the policy game takes on a prisoner's dilemma structure that results in potentially large welfare gains: over ten percent of steady state consumption, assuming symmetry in country size. Quantitatively, the welfare gains found

[1] Hall (1986) provides empirical evidence for the importance of imperfect competition by examining microeconomic data from fifty industries across all major sectors of the US economy. For more recent evidence see Basu and Fernald (1997).

[2] For example, monopolistic competition gives rise to specialization due to increasing returns as well as inter-industry trade. See Helpman and Krugman (1985) for a survey of imperfect competition in the international trade literature.

[3] Judd (2002) also argues that imperfect competition has important implications for optimal taxation, though this argument is centered on the optimal capital tax.

[4] Chari et al. (1996) and Correia et al. (2002) also demonstrate the optimality of the Friedman rule in a closed economy context.

[5] Carlstrom and Fuerst (1999) and Cooper and Kempf (2003) also find that the Friedman rule is suboptimal in an open economy context.