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Optimal fiscal and monetary policy when money is essential ☆

S. Borağan Aruoba *, Sanjay K. Chugh

University of Maryland, United States

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Abstract

We study optimal fiscal and monetary policy in an environment where explicit frictions give rise to valued money, making money essential in the sense that it expands the set of feasible trades. The two main results are that the Friedman Rule is typically not optimal, and the long-run capital income tax is not zero. Neither of these results is due to any incompleteness of the tax system, as can sometimes occur in standard Ramsey analysis. Rather, by developing a precise notion of margins of adjustment using standard concepts of MRS and MRT, we show that the tax system in our model is complete. The need to distort cash-intensive activity in some sense *causes* a nonzero capital tax in our model. This deep connection between monetary issues and fiscal policy is in contrast to existing models of jointly-optimal fiscal and monetary policy, in which the monetary aspects of the economic environment have little to do with capital taxation prescriptions. Taken together, these findings reframe some conventional wisdom from baseline Ramsey models.

JEL classification: E13; E52; E62; E63

Keywords: Friedman Rule; Intertemporal distortions; Micro-founded models of money

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* Corresponding author.
E-mail addresses: aruoba@econ.umd.edu (S.B. Aruoba), chughs@econ.umd.edu (S.K. Chugh).

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1. Introduction

Monetary theory has made important advances of late, ones that enable researchers interested in applied policy questions to consider explicit frictions that give rise to valued money. In this paper, we build on the work of Lagos and Wright [31] and Aruoba et al. [9] to study optimal fiscal and monetary policy, in the tradition of Lucas and Stokey [32] and Chari et al. [15]. Two main results emerge from our work: the Friedman Rule is typically not optimal, and the optimal long-run capital income tax is not zero. The first result is opposite that of standard flexible-price Ramsey monetary models. The second result, although also obtainable in standard flexible-price Ramsey models, is driven by a unique connection between monetary policy and fiscal policy present in our model that is absent in reduced-form models of money demand. Taken together, these results reframe conventional wisdom from baseline Ramsey monetary analyses.

The contribution of Lagos and Wright [31] and Aruoba et al. [9] – hereafter, LW and AWW, respectively – was to integrate search-based monetary theory, in the spirit of Kiyotaki and Wright [26,27], with standard dynamic general equilibrium macroeconomics. This integration makes the study of policy questions much easier and more relevant than in earlier search-based models. However, these models have been criticized on two grounds. First, they superficially resemble standard cash-in-advance (CIA) or money-in-the-utility-function (MIU) models, making some question whether they really are any deeper than reduced-form models of money. This point has been raised by, among others, Howitt [23]. Second, until now, the policy questions addressed in these new models have been largely confined to the long-run welfare costs of inflation. When parameterized to seem as close as possible to standard CIA and MIU models, the quantitative answers they have yielded to this question are similar to those obtained with CIA and MIU models, further adding to the sense that these new models simply re-invent CIA or MIU. In this paper, we ask a different policy-relevant question, the jointly-optimal fiscal and monetary policy, and even when we parameterize the model to look very similar to standard reduced-form models of money, we reach conclusions very different from those reached by Chari et al. [15] – hereafter, CCK – and others. Our results thus show that the answers to policy questions may indeed be very different once monetary frictions are treated seriously.

Our first main result is that the nominal interest rate is typically positive because it is optimal to tax activities that require cash.[1] The reason behind this result is that, because all final goods should be taxed to some degree as part of an optimal tax system, taxation of cash activities is naturally part of the second-best allocation. This prescription is simply standard Ramsey theory. In the LW and AWW environments, the explicit spatial and informational frictions that make money essential (in the sense of Kocherlakota [28] that it expands the set of feasible trades) render inflation the most natural way of taxing activities that require money. As we discuss, our results can be reconciled both technically and conceptually with those of CCK. Interestingly, Kocherlakota [29] conjectured that the Friedman Rule may not be optimal in a Ramsey problem in search-based models. Our results show his conjecture is correct.

[1] In a different context, one that abstracts from public finance considerations, Rocheteau and Wright [35] show that a positive nominal interest rate may be optimal because it can correct inefficiencies along the extensive margin of bilateral trading by influencing the relative number of traders on each side of the market. In other micro-founded models of money that also abstract from public finance considerations, Shi [38], Bhattacharya et al. [12], and Head and Kumar [22] also find that deviations from the Friedman Rule can be optimal.