Asymmetry, imperfectly transferable utility, and the role of fiat money in improving terms of trade

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Abstract

We modify the Kiyotaki and Wright (1991, J. Economic Theory 53, 215–235; 1993, Amer. Econom. Rev. 83, 63–77) framework so that there is a universal double coincidence of wants in all barter matches. We also introduce divisible service sidepayments into the model and allow agents to bargain over bundles of goods, services and money in bilateral matches. In asymmetric matches, the agent that values the other's good more dearly will typically have to make a substantial service sidepayment to complete the bargain. When sidepayments transfer utility imperfectly, the general equilibrium is inefficient. Agents barter too much. When barter is inefficient, a robust monetary equilibrium may exist which improves welfare. Both robust monetary equilibria and welfare-improving monetary equilibria require asymmetric matches, imperfectly transferable utility, and monetary exchange yields better expected terms of trade than barter. In contrast to other search models, money does not speed up trade. © 1998 Elsevier Science B.V. All rights reserved.

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1. Introduction

In a series of influential papers, Kiyotaki and Wright (1989, 1991, 1993) have developed a search-theoretic approach to monetary economics. This approach

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articulates how Jevons' classic double-coincidence problem can yield the existence of valued money as a rational expectations equilibrium.[1] Recently, Williamson and Wright (1994) have shown that the search approach can generate valued money in an environment in which private information generates a recognizability problem. Examination of both problems yields the following three central results: (1) the nonmonetary equilibrium is inefficient, (2) there exist monetary equilibria which are robust in the sense that agents strictly prefer to accept fiat money in exchange for goods, and (3) there is a welfare-improving role for fiat money.[2] In contrast, when both problems are absent, Williamson and Wright (1994) find that none of the three results obtain.

This paper also develops a model in which neither the double-coincidence problem nor the recognizability problem are present. However, we are able to obtain results (1)–(3) by introducing three new ingredients into the Kiyotaki and Wright framework. First, we change the preferences for goods such that there is a universal double coincidence of wants in all barter matches but where some matches involve an asymmetric valuation of goods. Second, we allow all agents to produce divisible services as sidepayments to supplement goods exchange. Third, we allow agents to bargain over bundles of goods, services and money in bilateral matches.

The new ingredients yield three specific elements that are necessary for results (1)–(3) to obtain in our model: (i) asymmetric matches, (ii) services transfer utility imperfectly, and (iii) monetary exchange yields better expected terms of trade than barter. In the absence of any of these elements, a monetary equilibrium may exist but it is not robust or welfare improving. Elements (i)–(iii) reveal that money can be a superior mechanism for transferring utility between traders by yielding better expected terms of trade than barter.

In the conclusion, we argue that elements (i)–(iii) are indicative of general features of economies that generate results (1)–(3). For money to yield better terms of trade, barter must yield terms of trade that can be improved upon. In particular, in positive surplus matches, the terms of trade must not transfer utility perfectly. We argue that this is often the case in asymmetric matches. When the asymmetry is sufficiently severe, the terms of trade may be such that barter either does not occur, or if it does, utility is transferred imperfectly. Then using money may improve an agent's trading opportunities. Generally, money is

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[1] This search approach builds on Jones' (1976) adaptive expectations search model. See Kiyotaki and Wright (1993) and Shi (1997) for references to papers using the search approach. Ostroy and Starr (1990) provide a survey of transaction money models.

[2] Of course, both problems have been used to motivate results (1)–(3) in general equilibrium models in which Walrasian markets are decentralized. The absence of the coincidence of wants is modelled in Samuelson's (1958) overlapping generations model and Townsend's (1980) turnpike model. Bryant (1980) generates valued money in an overlapping generations model with private information.