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Money, barter, and costly information acquisition

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Abstract

Endogenous information structure is analyzed in a search model of production and exchange under qualitative uncertainty by allowing agents to invest in an inspection technology at a fixed cost where incurring a higher cost permits quality to be recognized with higher probability. In any equilibria where agents acquire information, some bad commodities are always produced. The information acquisition promotes production and exchange of good commodities. As the information problem becomes severe, money can improve welfare by economizing on information costs. In the optimal monetary equilibrium, agents adopt trading strategies which contribute to the saving of information costs.

Key words: Money; Private information; Information acquisition

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1. Introduction

One of the main activities of a consumer in a market economy is the acquisition of goods and services. The provision of these goods and services requires not only the sale of income-yielding productive services but also the use

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of resources to acquire information about quality characteristics of goods and services. When the quality of a commodity is less certain, acquisition of information requires greater use of valuable resources. A rational consumer chooses optimal information by comparing the marginal cost of acquiring information to the marginal benefit from an improved trading position and reduced quality uncertainty. A similar idea was earlier noted by Stigler (1961) in the context of the search for the minimum price of an automobile.

Since Smith (1776) and Jevons (1875), traditional discussions of money have emphasized its function as a medium of exchange and its role in mitigating informational frictions associated with commodity transactions. Qualitative uncertainty can provide an incentive for some sellers to produce low-quality output and attempt to cheat uninformed buyers, and buyers have to decide whether or not to purchase a commodity of unknown quality. Brunner and Meltzer (1971) analyzed a partial equilibrium model to stress the idea that the institution of money exists because it serves to economize on the costly information production that would otherwise be necessary to mitigate moral hazard problems in the exchange of commodities. King and Plosser (1986) attempted to incorporate the Brunner–Meltzer hypothesis in a general equilibrium model of money.

This paper examines a search-theoretic model that captures costly information acquisition to study exchange both with and without fiat money, defined as an intrinsically useless but universally recognizable medium of exchange. Recently, Williamson and Wright (1994) analyzed a search-theoretic monetary model of production and exchange under private information concerning the quality of commodities or the 'lemons' problem.[1] They show that when the private information problem is severe, the use of a universally recognizable fiat currency leads agents to adopt trading strategies that ultimately increase the probability of acquiring commodity of good quality, because the seller recognizes money but may not recognize another commodity. This is the incentive effect through which money can increase welfare. However, because information structure was assumed to be exogenously given, they abstracted from the elements central to the development of a monetary theory that accords with the hypothesis of Smith, Jevons, and Brunner and Meltzer.

[1] It abstracts from the 'double coincidence problem' in order to isolate the impact of informational frictions. Many traditional discussions of money have emphasized its role in overcoming the double coincidence of wants problem with direct barter; see, for instance, Jevons (1875). Menger (1892) argues that natural media of exchange depend on their intrinsic properties such as a relatively low storage or exchange cost. Kiyotaki and Wright (1989, 1991, 1993) formalized some of these ideas using search-theoretic equilibrium models of the exchange process. In these models, commodity money or fiat money can arise endogenously as a medium of exchange, reducing the search and transactions costs associated with pure barter.