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Optimal card payment systems

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Abstract

This paper presents a model of a card payment system to address the pricing and rules that govern such systems. It evaluates the social optimality of privately set interchange fees and the adoption of a rule by payment systems to prevent merchants surcharging for card transactions using two extremes of merchant pricing—monopolistic pricing and perfect competition. Both types of merchant pricing constrain the ability of card schemes to use interchange fees and the no-surcharge rule in anticompetitive ways, although for quite different reasons. The positive role of the no-surcharge rule in preventing excessive merchant surcharging is also highlighted.

JEL classification: G21; L31; L42

Keywords: Payment systems; Banks; Credit; Debit cards; Interchange fees

1. Introduction

Recently, the pricing and rules governing card payment systems such as those offered by MasterCard and Visa have come under attack from policymakers in a number of jurisdictions. In the United Kingdom, a report commissioned by the government (see Cruickshank, 2000) suggested a number of problems with the banking sector there, including the high level of fees set between banks in payment systems (interchange fees). In response, the government has given its competition authority new powers to regulate payment systems, including interchange fees (HM Treasury, 2001). The European Commission has also been investigating interchange fees and the rules set by the members of card associations (see European Commission, 2000, 2001). In Germany, a heated debate has arisen concerning the banking system's intention to adopt a common interchange fee for all debit card payments. Outside Europe, antitrust cases are pending

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against MasterCard and Visa in the United States, and in Australia the central bank has moved to regulate card associations (Reserve Bank of Australia, 2002).

Despite the strong public interest in payment systems, there is only a small body of academic research that policymakers can draw on to analyze the pricing and rules of such systems. This is all the more surprising given the dramatic increase in usage of card payments in the last decade. Based on data from the Bank for International Settlements and the European Central Bank, Krueger (2001) calculates debit and credit cards in 12 industrial countries (Belgium, Canada, Denmark, Finland, France, Germany, Italy, Netherlands, Sweden, Switzerland, United Kingdom, United States) which grew from 9.3 billion transactions in 1987 to 33.7 billion transactions in 1998.

This paper builds on the existing literature by providing a model that provides new insights into the role of the rules and pricing that govern such payment schemes. An open scheme (such as the debit and credit card systems offered by MasterCard and Visa) involves the issuance of cards by issuing banks (issuers) to cardholders. These cardholders use their cards to make purchases with merchants which have been signed up by acquiring banks (acquirers). Such schemes differ from closed schemes (such as that offered by American Express) in that they allow, and in fact encourage, competing banks and other institutions to issue cards and acquire merchants. Since for a typical transaction, cardholders pay a different institution from that which receives payment from the merchant, the card association plays the role of clearing payments between issuers and acquirers. In addition, the card association sets an interchange fee, which is a payment made by acquirers to issuers on each transaction. Apart from the setting of the interchange fee, two other rules set by card associations have attracted the attention of policymakers: (i) The no-surcharge rule (often called the 'no-discrimination' rule in Europe), which says that merchants cannot set a surcharge on goods purchased using cards (as opposed to other forms of payment) and (ii) the honour-all-cards rule, which says that merchants must accept all legitimate cards within a card system, regardless of the particular institution that issues them.

In the context of an open payment scheme, we study the welfare implications of the lack of merchant surcharging. We also examine how the level of the interchange fee between issuers and acquirers affects consumers' and merchants' behavior, discussing the optimal setting of such an interchange fee from a private and social perspective.

Previous studies have focused on the positive role interchange fees play in reallocating funds between merchants and cardholders, so as to best align private costs and benefits with those of the network as a whole. Baxter (1983) provides the first formal analysis. Baxter notes that to maximize surplus in the card network, the sum of cardholder and merchant benefits for the marginal transaction should equal the sum of the respective marginal costs. This can be achieved if cardholders are charged a fee equal to the sum of the issuing and acquiring marginal costs, less the merchants' transactional benefits. In this case, cardholders will face the joint transactional benefits and joint costs of using cards. However, with different banks competing for cardholders and merchants, there is no reason to expect that without an appropriately set interchange fee, issuing banks will set their prices in this way. By setting an interchange fee equal to the difference between merchant benefits and the acquirers' marginal cost, perfect