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The economics of credit cards, debit cards and ATMs: A survey and some new evidence

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Abstract

This paper provides a critical survey of the large and diffuse literature on credit cards, debit cards and ATMs. We argue that because there are still many outstanding issues and questions about the pricing, use and substitutability of these payment mechanisms, that there are significant further opportunities for research in these areas. A large number of questions are examined in this survey, including the pricing of credit cards, the impact of networks on the provision and pricing of ATMs, as well as the tradeoffs that consumers make between different types of payment mechanism, including debit cards, credit cards and ATMs. Importantly, this paper is also amongst the first to provide new evidence on this latter question from bank level data (from Spain). We conclude that point of sale (debit card) and ATM transactions are substitutes, and that ATM surcharges impacts point of sale volume significantly.

JEL classification: G21

Keywords: Credit cards; Debit cards; ATM

1. Introduction

Thirty years ago most consumers accessed banking services, such as making deposits or determining balances, by visiting their bank in person. In the intervening thirty years, however, there has been enormous technological change in the provision of banking services to consumers. Today many consumers go for many months, or even years, without having to physically visit their bank, or a bank teller. The most important technological developments that have caused this change have been the emergence of credit cards, debit cards and automated teller machines (ATMs). Given the importance of these technologies, to both banks as well as consumers, it is not surprising that these technological developments have lead to a large and growing body of academic research.

This paper provides a survey of the literature on the economics credit cards, debit cards and ATMs. As we argue below, this literature is not only large and growing, it is also remarkably diffuse. Researchers have examined these products in the context of a large variety of different subdisciplines including, financial economics, banking, monetary economics, macroeconomics, industrial organization, regulatory economics, consumer behavior, and network economics among others. The aim of this paper is to provide a survey of some of the major questions, puzzles and issues in this literature. We also provide some new evidence on the relationship between ATMs and debit cards. It should be emphasized that this survey focuses on academic

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articles rather than descriptive studies emanating from within the banking industry or from regulatory authorities.

Even though the literature on credit cards, debit cards and ATMs is very diffuse, there is, however, one overriding theme which seems to cover most of the literature. This is the extent to which these financial products and instruments appear to diverge from standard textbook descriptions of how financial markets and instruments should function. Each of the three financial instruments and technologies we examine here are highly complex products and services, which bundle together a large variety of attributes. For example, credit cards provide a means of payment services and line of credit etc. ATMs involve the customers' bank as well as other banks in networks etc. Furthermore, all of these products involve consumer behavior, which could entail less than rational decision making. The complexities and distortions in these products and technologies have provided the starting points for many of the studies examined in this survey. Most of these studies attempt to explain how these products and technologies work, and the impacts that they have on consumers, banks and markets.

The main conclusion of this survey, is that while a large amount of research has already been undertaken on credit cards, debit cards and ATMs, we believe that there are still a great many issues and puzzles that remain to be resolved. For example, the issue of credit card interest rates has generated a large number of alternative hypotheses, with very littler convergence towards a commonly accepted explanation. Given the complexities inherent in these products and services and the possible irrationality of consumers concerning consumer financial decisions, it seems evident that studying the economics of credit cards, debit cards and ATMs can provide large rewards for economists from a variety of different sub-disciplines. Furthermore, we have seen the recent emergency of large and richly detailed datasets involving large panels of individual consumers, or large panels of individual banks etc. which can provide the data necessary to empirically test a large number of hypotheses concerning credit cards, debit cards and ATMs.

This survey has four main parts. Sections 2–4 discuss in turn the literatures on credit cards, ATMs and debit cards. Section 5 provides our new results taken from a very large database on ATM and debit card (point of sale) usage in Spain. Finally Section 6 concludes.

2. Credit cards

Credit cards are highly complex financial instruments. Their usage reflects a large number of different characteristics and motivations (transactions, debt, consumer benefits etc.), involve a large number of prices (interest rates, teaser rates, grace periods, penalty fees, annual fees etc.) and quantity constraints (credit limits, minimum payments). These characteristics and their associated services are supplied by a large variety of different card providers (banks, non-banks etc.). Furthermore, because credit card markets involve decisions by consumers (rather than corporations or markets) issues of consumer behavior and consumer rationality play a far more significant role in this market relative to other financial markets.

In the last 15 years or so Credit cards have essentially become a "test case" for examining how far standard finance theory (risk and return, competitive markets etc.) can be extended in an environment where some of the usual characteristics of financial markets (e.g. competitive buyers and sellers of assets) are not present. The aim of this section is to provide a literature survey to draw together the various strands of research on credit cards as a financial instrument and payment mechanism.

2.1. Credit card pricing puzzles

One of the main strands of research on credit cards has been an examination of pricing issues, such as whether credit card interest rates are "too high". As we argue in this section, a number of alternative hypotheses have been proposed in the literature to explain credit card pricing with very little consensus emerging. The clear implication from the array alternative explanations for credit card pricing is that significant further empirical research is required in order to provide a more robust understanding of how credit cards are priced. This section examines these various hypotheses regarding card pricing and the empirical evidence to date.

2.1.1. Adverse selection, search costs and switching costs

The article by Ausubel (1991) was one of the first to examine in detail the significant pricing distortions inherent in the market for credit cards, and to propose possible explanations for these distortions. Ausubel (1991) documents a significant puzzle in that even though the market for credit cards resembles a competitive market (with many thousands of suppliers and few barriers to entry), the actual interest rates charged by credit card providers are both high as well as sticky downward. Ausubel (1991) provides a variety of evidence in support of his view concerning the profitability of credit card providers, including premia in the resale of credit card accounts as well as the comparison of credit card profitability in the banking industry with other banking products. The puzzle Ausubel (1991) poses is why credit card interest rates are so sticky and why profits are so high, even though the market structure resembles that of a competitive market.

Ausubel (1991) poses a variety of different explanations for this puzzle, largely based on the issues of asymmetric information and consumer behavior. He highlights two possible costs to consumers in seeking to change credit card products. These are search costs (the costs of finding information on alternative providers) and switching costs, (the costs of switching to an alternative provider). He also proposes an adverse selection theory whereby banks are reluctant to cut interest rates because this action will attract high risk borrowers (based on the assumption that these