






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.

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 sub-disciplines 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 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 little 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 emergence 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 Credit cards, 3 Automated teller machines (ATMs), 4 Debit cards (electronic fund transfer at point of sale) 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.

Section snippets

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.)....

Automated teller machines (ATMs)

Automatic teller machines (ATMs) began to be introduced in the 1970s with the aim of lowering bank costs. Their introduction has generated a large and growing research literature examining for example the role of technology on banking, the impact of network effects as well as the impacts of ATMs on bank competition...

Debit cards (electronic fund transfer at point of sale)

This section examines the literature on electronic fund transfer at point of sale (EFTPOS) networks, which are also sometime referred to as Debit Card networks. While there has been a very large increase in these networks, the academic research on this topic still remains relatively small. EFTPOS networks are facilities provided by merchants for consumers to directly withdraw cash at the point of sale in order to pay the merchant for goods. This means that consumers do not have to access cash...

New estimates on the substitution between ATMs and EFTPOS

In this paper we provide new estimates on the question posed by Humphrey et al. (2000) by examining the substitution between ATMs and EFTPOS, using a new database consisting of detailed bank level data on ATM and EFTPOS transactions. While the data used by Humphrey et al. (2001) is aggregate country level data, our data is bank level data taken from Spain. Our new database consists of 1242 panel data observations of bank specific data from Spain (compared to the 26 observations used by Humphrey ...

Conclusions and future research agenda

The main conclusion of this survey is that research in the area of credit cards, debit cards and ATMs is still inconclusive and unsettled, and that additional research remains to be conducted. The topic of credit card pricing provides one example of the unsettled nature of this research. For example, as we describe in detail above, theoretical explanations for the behavior of credit card interest rates in the existing literature include (1) adverse selection, (2) search costs, (3) switching...

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...In turn, technological developments over the past 30 years are one of the driving forces behind the structural changes in the financial markets and the creation of new financial tools and instruments. The retail payments market has especially seen major changes with the emergence of new, electronic platforms and instruments such as debit and credit

cards, which are gradually replacing paper-based payments (Scholnick et al., 2008). According to the Global Insight study by VISA (2003), U.S. consumer spending has increased by \$6.5 trillion over the past two decades....

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