



Payment card rewards programs and consumer payment choice

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ARTICLE INFO

Article history:

Received 27 January 2009

Accepted 25 March 2010

Available online 1 April 2010

JEL classification:

C35

D12

M31

Keywords:

Consumer choice

Payment methods

Rewards programs

Merchant discount fees

ABSTRACT

By using a unique data set that contains detailed information about consumer payment choice and consumers' attitudes toward each payment method, we estimate the effects of payment card rewards on consumer choice of payment methods. Our approach allows us to control for consumer heterogeneity. We find the effects of rewards to be statistically significant across five retail types. Our policy experiments suggest that for the sub-population who hold both credit and debit cards, removing rewards would increase their share of paper-based payment methods (i.e., cash and checks), measured in terms of in-store transactions, by no more than 4 percentage points.

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1. Introduction

Credit and debit card payments have been growing rapidly. To continue the growth, payment card networks keep adding new merchants to their networks. But adding new cardholders is becoming more difficult because most consumers in the United States already have both credit and debit cards.¹ To increase their market shares and card usage by existing customers, US card issuers have been offering attractive rewards programs. Since launching the new rewards programs, many issuers have seen increases in spending on both credit and debit cards.² However, we know little about the sources of these increases. It is unlikely that rewards card users simply increase their spending on their credit and debit cards without changing their spending habits involving other payment methods. Which payment methods are mainly replaced by rewards credit and debit cards? To what extent do rewards card transactions replace other forms of payment transactions, such as cash and check transactions?

The answers to these questions are important for the debate about the welfare consequences of payment card rewards. On the one hand, the proponents argue that rewards can reduce total costs to the economy by inducing consumers to switch from a more costly payment method, such as checks, to a less costly payment method, such as credit and debit cards.³ Rewards may also increase the gross benefits of merchants and card issuers by increasing the total number/value of transactions. The proponents also believe that consumers would benefit from rewards. On the other hand, the opponents argue that rewards may not reduce the costs of the payment system if most consumers simply substitute rewards credit (debit) card transactions for non-rewards credit (debit) card transactions. In addition, the society would need to incur additional costs to maintain rewards programs. Rewards may also lead to distorted price signals to consumers, and cause some consumers to choose socially less efficient payment methods (Simon, 2005). Merchants may not benefit from rewards if they hardly increase the number/value of transactions. Moreover, rewards may lead to higher card transaction fees to merchants, which may cause higher prices for their goods and services. As a result, consumers, especially those who do not use rewards cards, could be hurt by the higher retail prices.

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¹ According to the 2004 Survey of Consumer Finances conducted by the Federal Reserve, 75% of US households hold at least one credit card and 74% hold an ATM/debit card.

² See, for example, *ATM&Debit News*, August 25, 2005 and December 22, 2005.

³ The Reserve Bank of Australia (2007) found that check is the most expensive payment method in Australia. In the United States, resource costs of checks are generally higher than those of cards (Garcia-Swartz et al., 2006).

The above debate has important public policy implications on the current fee structure of payment cards. A typical fee structure for a credit or debit card transaction requires a merchant to pay a merchant discount fee to its acquirer, who processes card transactions for the merchant. The major part of the merchant discount fee is transferred from acquirers to card issuers (the fee is called interchange fee in some card networks, such as MasterCard and Visa). The fees received by card issuers from the merchants can be used to provide rewards in some countries, including the United States, while regulations in other countries require the merchant discount fee (or the interchange fee) to be set based on the cost-based benchmark that excludes the cost of providing rewards.⁴ Consequently, rewards values have become significantly lower in some of these countries (e.g., Australia). Nevertheless, with scant empirical evidence on the effects of rewards, it is not clear whether these fee regulations are appropriate for them, and whether other countries should follow suit.⁵ Understanding the effects of rewards on payment choice could also help evaluate another possible policy that allows merchants to set surcharges that differ across any particular credit or debit cards. It is conceivable that surcharges set by merchants could neutralize the incentive generated by rewards on payment choice.

The welfare consequences of rewards programs and their implications on these public policies crucially depend on both the social costs of various payment methods and how rewards programs affect consumers' choice of payment methods.⁶ Our paper will focus on the latter—providing empirical evidence on how rewards programs influence consumer payment choice. To the best of our knowledge, this is the first study that empirically examines this research question.⁷ We exploit a unique consumer survey data set and estimate a series of multinomial logit models that explain how the following consumer characteristics are related to the payment choice across retail types: demographics, income, technology adoption, and most importantly, whether the consumer receives rewards on credit/debit cards. By using the parameter estimates, we conduct policy experiments to quantify the effects of removing reward features from payment cards on consumer payment choice. As discussed above, our policy experiments would allow us to shed light on the current policy debates, such as whether to regulate the payment card fee structure and whether to allow merchants to set surcharges.

Our unique data set allows us to alleviate two problems when estimating the *direct* effects of rewards programs.⁸ The first problem is that deciding whether to obtain rewards payment cards could be endogenous. It is likely that a typical consumer who chooses to obtain a rewards credit/debit card would use this payment method relatively more often, regardless of whether it offers rewards. To handle this problem, we adopt the approach proposed by Harris and Keane (1999), who used attitudinal data to control for unobserved consumer heterogeneity. Our data set provides detailed mea-

asures of individual perceptions toward each payment method. We use these measures to control for unobserved consumer heterogeneity in preferences for various payment methods.

The second problem is that some consumers may perceive that only a subset of payment methods is available to them at a given retail store, and thus, the choice set of payment methods may vary across consumers. Ignoring the variation of choice sets could lead to biased estimates of the parameters (e.g., Goeree, 2008; Ching et al., 2009). Previous literature has used panel data and made strong assumptions about the process of choice set formation in order to take choice set heterogeneity into account (e.g., Bronnenberg and Vanhonacker, 1996; Mehta et al., 2003). In contrast, our data set, which provides information on each consumer's perceived payment methods accepted by retail type, allows us to control choice set variation without taking this path.

Our results indicate that including attitudinal data (i.e., consumer perceived payment method attributes) produces a substantial improvement in model fit and interpretation of estimated parameters, particularly the effects of rewards programs. We find that the estimated coefficients are very similar whether we allow consumer choice set to vary by individual or not—this indicates the robustness of our results. The results from the policy experiments of removing rewards suggest that the majority of consumers who currently receive rewards on credit and/or debit cards would continue to use those payment methods even if rewards were no longer offered. For consumers who hold both credit and debit cards, we find that the share of paper-based payment methods for this sub-population would increase by no more than 4 percentage points, while the share of credit (debit) cards would decrease (increase).

The rest of the paper is organized as follows. Section 2 provides some background on the US payment card rewards programs and literature review. Section 3 describes the data set. Section 4 discusses the empirical model. Section 5 presents the results and discusses their implications. Section 6 concludes the paper.

2. Background

2.1. Rewards programs in the United States

In the United States, credit card rewards have more than 25 years of history, while debit card rewards are relatively new. All top 10 credit card issuers (whose aggregate market share is more than 80%) provide rewards, according to their websites; while about one-third of depository institutions provide debit card rewards, according to a report by Dove Consulting (2007). Consumers are more likely to receive debit card rewards when they make a signature-debit transaction rather than a PIN-debit transaction.⁹ Today, various types of rewards are offered: airline miles, cash-back, discounts, gifts, etc. Because of the variety of rewards programs and complexity of reward structure, it is difficult to obtain the average reward rates for credit and debit cards. But casual observation suggests that credit card rewards are usually more generous. According to Tony Hayes, an industry expert, the average value of the rewards for rewards credit cards is about 1% of the purchase value and that for rewards debit cards is about a quarter percent (Carten et al., 2007).¹⁰

⁹ A typical US debit card can carry out both PIN- and signature-debit transactions. To make a PIN-debit transaction consumers type personal identification number at the point of sale to authorize the transaction, while to make a signature-debit transaction they sign the receipt.

¹⁰ These average values are likely the gross value. Some reward credit cards, such as air mile cards, charge an annual fees but the majority of reward credit cards do not charge an annual fee. The net reward values (after subtracting an annual fee) could be lower, but are likely still positive.

⁴ Regulations that require cost-based interchange fees have been implemented in several countries, such as Australia, Mexico, Spain and Switzerland (Bradford and Hayashi, 2008).

⁵ Rochet and Wright (2010) analyze the welfare implications of imposing interchange fee caps from a theoretical viewpoint.

⁶ A complete welfare analysis also depends on other factors, such as implicit and explicit transfers among consumers, merchants, and card issuers. We leave this topic for future research.

⁷ After circulating a working paper version of this paper in 2006, several studies that examine this topic have appeared recently (e.g., Carbó-Valverde and Liñares-Zegarra, 2009; Simon et al., 2010).

⁸ A consumer's holding a rewards credit (debit) card would *directly* affect his utility of using the card, because he can receive, for example, 1% cash-back on his purchase with the card. It could also *indirectly* affect his utility by changing his attitudes toward credit (debit) cards. We refer the former "direct" effect and the latter "indirect" effect. Section 4 will give more details.

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