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Abstract

Overdrafts have been an ongoing concern of policymakers. They are one of the main issues in the prepaid card rules that the Consumer Financial Protection Bureau (CFPB) is currently proposing. Despite regulatory interventions and heated debate between proponents and opponents of further intervention, little research has been conducted to understand the overdraft behavior of prepaid cardholders. This paper attempts to fill that gap by analyzing a large micro-level dataset of general purpose reloadable (GPR) prepaid cardholders. We find that a small percentage of GPR prepaid cardholders regularly make overdraft transactions and incur overdraft fees, but they tend to spend and load more funds on their card as well as use their card for a longer period of time than do cardholders who do not make overdraft transactions. Our results suggest that some cardholders may be making a deliberate decision to overdraw their account and pay overdraft fees.

JEL Classification: D12; E42; G21

Keywords: Overdrafts, General purpose reloadable prepaid cards, Unbanked and underbanked

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1. Introduction

Despite recent regulatory interventions, overdraft programs have been an ongoing concern of policymakers. Between 2009 and 2011, the Federal Reserve Board amended its regulations regarding overdraft programs and other financial regulators issued supervisory guidance. Nevertheless, the Consumer Financial Protection Bureau (CFPB) pointed out in its recent study that several concerns previously identified by the Federal Deposit Insurance Corporation (FDIC) before these interventions persist (CFPB 2013). Primary concerns include the ability of consumers to anticipate and avoid overdraft costs on their checking accounts and the fact that a small but significant segment of consumers continue to incur a large number of overdraft fees.

Concerns over overdrafts and associated overdraft fees also extend to prepaid cards, especially general purpose reloadable (GPR) prepaid cards. Indeed, overdrafts are one of the main issues in the CFPB's proposed prepaid card rules.¹ General purpose prepaid cards are the most rapidly growing payment instrument, with a 48 percent compound annual growth rate between 2006 and 2012 (Federal Reserve System). Among those cards, GPR prepaid cards are gaining the most traction among unbanked and underbanked consumers, who do not have access to or prefer not to use other forms of electronic payments, such as debit and credit cards.

Proponents of further intervention urge the CFPB and financial regulators to limit or ban overdraft fees charged to checking or prepaid card account holders because, they claim, those fees cause serious financial harm to account holders. Opponents of the interventions, in contrast, argue that overdraft programs provide liquidity-constrained consumers with access to short-term loans relatively more conveniently and less expensively than do currently available alternatives such as payday and auto title loans.

¹ The proposed rule is available at: <http://www.gpo.gov/fdsys/pkg/FR-2014-12-23/pdf/2014-27286.pdf>.

Given regulatory interventions and heated debate, the literature on checking account overdrafts has been growing recently. However, little research has been conducted on overdrafts made by prepaid cardholders. This paper attempts to fill that gap by examining GPR prepaid cardholders' actual behavior. Questions unanswered regarding overdrafts on GPR prepaid cards include: How common are overdrafts on GPR prepaid cards? What amount of overdraft fees do cardholders who make overdraft transactions typically incur? What drives overdrafts on GPR prepaid cards? Does the overdraft fee burden crowd out cardholders' spending for goods and services on their card?

This paper examines these questions using a dataset provided by NetSpend, a leading prepaid card provider and one of very few providers that offer overdraft programs on GPR prepaid cards. We begin by describing NetSpend's overdraft program and our dataset as well as reporting summary statistics regarding overdrafts: the shares of cardholders who are eligible for, and who actually make use of, the overdraft program, and the intensity of overdraft usage and associated fee payments. We then examine whether overdrafts are caused by cardholders' limited attention to their account balance, the effect of overdraft fee payments on spending on the card, and the relationship between overdrafts and card lifespan.

Our results suggest that a small percentage of GPR prepaid cardholders regularly make overdraft transactions and incur overdraft fees. Cardholders who make overdraft transactions tend to incur a higher fee amount, spend and load more funds on their card, and continue using their card for a longer period of time than those who do not make overdraft transactions. While mixed evidence is found regarding whether cardholders' limited attention on their account balance is a cause of overdraft, some cardholders appear to be making a deliberate decision to overdraw their account and pay overdraft fees.

2. Background

2.1 Overdraft programs and regulations

Overdraft programs allow checking or prepaid card account holders to overdraw their account—a transaction that would bring the account balance below zero is approved by the financial institution or the prepaid card provider at which the account is held. Typically, an overdraft fee is assessed for an overdraft transaction. Overdraft fees from checking accounts have become an important revenue source for financial institutions. According to industry reports, overdraft fees generated \$32 billion in 2013, down from a peak of \$37 billion in 2009 (Moeb's Services 2010 and 2013a). The median fee per overdraft transaction on checking accounts has gradually increased from \$26 in 2009 to \$30 in 2013 (Moeb's Services 2013b). Although analogous statistics for prepaid cards are unavailable, total overdraft fee revenue in the prepaid card industry might have increased due to the growing popularity of prepaid cards.² The cost burden of overdraft programs on checking and prepaid card accounts for consumers has attracted regulatory scrutiny and controversy.

To address consumer protection concerns and to curb the costs of overdraft programs on checking accounts for consumers, the Federal Reserve Board amended Regulation E in 2009 to require financial institutions to obtain affirmative consent of consumers (opt-in) before charging overdraft fees on ATM and point-of-sale debit card transactions. In 2009 and 2011, the Federal Reserve Board also amended Regulation DD to require financial institutions to disclose total overdraft fees on periodic account statements. In 2010 and 2011, supervisory guidance was issued by other financial agencies, such as the FDIC, the Office of Thrift Supervision (OTS), and the Office of Comptroller of the Currency (OCC).

² As explained later, only a few prepaid card products offer overdraft programs.

Right after these interventions, overdraft fee revenues from checking accounts fell, but more recently an upward trend has again emerged. To gain a deeper understanding of overdraft programs, the CFPB initiated an inquiry into financial institutions' overdraft programs for consumer checking accounts in 2012 and published the results in 2013 and 2014 (CFPB, 2013 and 2014). The CFPB's initial report noted that some progress has been made in overdraft practices in recent years, but it also observed that several concerns identified by the FDIC in its 2008 overdraft study—conducted well before these interventions—persist. In particular, the CFPB is concerned that a small but significant segment of consumers continued to incur a large number of overdraft fees and that a subset of consumers had their checking accounts closed involuntarily after overdrawing and sustaining negative account balances for an extended period of time.

These regulatory interventions, however, do not apply to GPR prepaid cards. In fact, only a few GPR prepaid card products actually offer overdraft programs.³ Those that do offer overdraft programs typically do so on an opt-in basis.⁴ The CFPB has recently proposed rules on prepaid cards. In the proposal, the CFPB allows GPR prepaid card providers to offer overdraft capability but requires them to treat overdrafts as credit.⁵

Consumer-advocacy organizations urge the CFPB to limit or ban overdraft fees charged to checking accounts or prepaid cards.⁶ They argue that overdrafts, in general, are set disproportionately to the amount of the underlying transaction and to the cost borne by financial institutions of covering the overdraft, and that high-cost overdraft loans are structured in a way

³ Only five of the 52 prepaid cards studied disclosed the availability of overdraft programs, according to the Pew Charitable Trusts (2012).

⁴ The authors find eight of 58 prepaid card products whose information is available as of August 2014 have overdraft programs. Seven of the eight products are offered by NetSpend. All eight products have opt-in based overdraft programs.

⁵ The CFPB expects to issue the final rule in January 2016.

⁶ See, for example, Center for Responsible Lending, Consumer Federation of America, and National Consumer Law Center (2012a and 2012b).

likely to lead to repeated loans, causing a “cycle of debt.” Their concerns about overdrafts on prepaid cards in particular include: (1) the practice of advertising a card as “prepaid” while including post-paid features like overdraft is deceptive; (2) prepaid card users are vulnerable consumers, trying to control their spending within their means; and (3) consumers who can handle credit (such as overdraft) are more likely to have access to checking accounts, credit cards, or other credit products, instead of depending on prepaid cards, and thus prepaid cards should be left for vulnerable consumers who cannot handle credit.

Opponents of the interventions, in contrast, argue that the growth of the availability and use of overdraft programs is consistent with consumer preferences.⁷ Overdraft programs are beneficial for liquidity-constrained consumers by providing access to short-term loans relatively more conveniently and less expensively than do currently available alternatives such as payday and auto title loans.

2.2 Previous literature

In the past several years, research on overdrafts has gradually increased, especially on checking accounts. In a two-part study, the FDIC analyzed various overdraft programs offered to checking account customers by financial institutions, as well as micro-level customer account and transaction data to examine the occurrence of overdraft activity and the characteristics of customer accounts that tend to incur the higher volume of overdraft fees (FDIC 2008). Similar to the FDIC’s study, the CFPB collected both institution-level and micro-level data to examine overdraft practices by financial institutions and overdraft activity and the associated fee burden for checking account holders after the recent regulatory interventions (CFPB, 2013 and 2014). Both studies found that one in four (or five) consumer accounts had at least one overdraft fee or

⁷ See, for example, Zywicki (2012).

non-sufficient funds (NSF) fee during the 12-month period, and nine (or eight) percent of accounts were heavy users of overdraft, incurring more than 10 overdraft or NSF fees.

The Independent Community Bankers of America (ICBA) conducted a consumer survey to better understand the drivers of overdrafts, such as consumers' preferences for and knowledge of overdrafts and their alternatives and consumers' account monitoring behavior (ICBA 2012). The survey results suggest that consumers using overdraft programs (i) are among the most knowledgeable of alternative services to avoid overdrafts, (ii) monitor their account balance more frequently than consumers who had never used overdrafts, and (iii) tend to use payday loans.

A few studies examined whether overdrafts are substitutes for payday loans. Zinman (2010) examined the effects of a newly introduced cap on the financial charges assessed on payday loans in Oregon using survey data of consumers from two states, Oregon and Washington. He found overdrafts on checking accounts are imperfect substitutes for payday loans. Morgan, Strain and Seblani (2012) examined the effects of payday loan regulations in various states—whether payday loans are banned or enabled—on returned checks and overdraft fee income at financial institutions. They found that both the number of returned checks and the amount of overdraft fee income decline when payday credit supply expands.

Stango and Zinman (2014) explored the correlation between checking account overdrafts and limited consumer attention. They found that consumers who took overdraft-related surveys more recently are less likely to pay an overdraft fee, suggesting consumers have a limited, time-varying attention to day-to-day household finance. Their results also suggest that attention shocks (such as taking an overdraft-related survey) may have a stronger effect on consumers with less education and lower financial literacy.

In contrast to the growing literature on checking account overdrafts, little research has been conducted on prepaid card overdrafts. As GPR prepaid cards have gained popularity more recently, the literature on prepaid cards that analyzes card usage and fee payments in general has emerged (e.g., Rhine et. al., 2007; Wilshusen et. al., 2012; Hayashi and Cuddy, 2014). No studies have yet analyzed the use of overdraft by GPR prepaid cardholders, although Hayashi and Cuddy (2014) included overdraft in their analysis as a variable to explain card usage behavior. To the best of our knowledge, this is the first paper to examine the overdraft use and associated fee payments by GPR prepaid cardholders.

3. NetSpend overdraft program and data

The analysis in this paper is based on data furnished by NetSpend, a leading prepaid card provider and one of very few prepaid card providers who offer overdraft programs. No other leading prepaid card provider (e.g., Green Dot, American Express, Chase, and other large banks) offers an overdraft program.⁸ In this section, we begin by describing the overdraft program offered by NetSpend during the 2011-2012 period, which corresponds to the period of our dataset. We then explain our dataset and report key summary statistics regarding overdrafts.

3.1 Overdraft program offered by NetSpend

Since January 2010, NetSpend has offered its overdraft program to its GPR prepaid cardholders on an opt-in basis.⁹ Thus, cardholders who want the overdraft capability must review and accept the terms of the program and enroll in the program (opt-in).¹⁰

⁸ The authors find Insight Card Services provides an overdraft program on its prepaid cards. However, the market share of Insight prepaid cards is likely to be smaller than those of leading prepaid card providers. Insight prepaid cards offer a remarkably similar overdraft program to NetSpend's, which is described below.

⁹ The description in this section is applicable only to the overdraft program offered to NetSpend-branded GPR prepaid cardholders. A few depository institutions issue NetSpend-branded GPR cards but at least one of them does not offer an overdraft program.

¹⁰ NetSpend also provides a free-of-charge, non-enrollment based overdraft buffer for up to \$10 in a negative balance to accounts that meet certain criteria.

Not all NetSpend cardholders are eligible for the overdraft program. To qualify, a cardholder must (1) receive an ACH (direct) deposit of at least \$200 every 30 days and (2) provide a valid email address so that NetSpend can provide notice when an overdraft transaction is made.¹¹ Eligibility for the program is determined on a monthly basis. If a cardholder cannot satisfy one or more conditions in a given month or has a negative balance for more than 30 days, the overdraft capability will be deactivated. Once deactivated, it can only be reactivated if the cardholder repeats all the aforementioned steps.

NetSpend's overdraft program is designed not only to allow cardholders to overdraw their account but also to prevent them from incurring overdraft fees as a result of overdrawing their account. To those who qualify for and opt in to the program, NetSpend does not assess an overdraft fee on any transaction that overdraws the cardholder account by \$10 or less.¹² Further, they are given 24 hours to resolve any pending transaction that overdraws their account by more than \$10—in other words, bring their balance back to zero or positive. If they are unable to do so, they must pay an overdraft fee of \$15. NetSpend allows cardholders who opted in to the program to overdraw their account up to a maximum overdraft amount, which is set at its discretion.¹³ Although a separate fee is assessed for each overdraft transaction, NetSpend caps these fees at three per month, or \$45.¹⁴

¹¹ Cardholders also must consent to the delivery of electronic communications. One such communication is a notice of “excessive use of overdraft” sent by NetSpend via email to cardholders for each batch of six overdraft fee payments they make. Once eligible, a cardholder must wait an additional 36 days before the overdraft capability is activated.

¹² In addition, NetSpend does not assess an overdraft fee on a transaction as long as the transaction keeps the account positive at the time of authorization even if it brings the balance negative at the time of settlement. NetSpend processes transactions in the order it receives them for settlement.

¹³ The maximum overdraft amount also includes fees (such as overdraft fees).

¹⁴ It is possible that a cardholder makes four or more overdraft transactions, each of which overdraws the cardholder account by more than \$10, in a month. But the cardholder is not charged more than \$45 overdraft fees in a month, due to the fee cap.

Once being assessed an overdraft fee, cardholders have a 30-day window in which to resolve their negative balance without further consequence. If it takes longer than 60 days, NetSpend permanently deactivates the overdraft capability on the account. Three negative-balance episodes each lasting more than 30 days also result in permanent deactivation of the overdraft capability.

To discourage cardholders from making excessive overdrafts, NetSpend imposes “cooling-off periods” on repeated users of overdrafts. After the first 12 overdraft fee payments, NetSpend suspends the cardholder’s overdraft capability for 30 days. For each additional batch of 12 overdraft fee payments, a 90-day suspension is imposed.

3.2 Data

The data provided by NetSpend contain all GPR prepaid accounts that were active over the one-year period between July 1, 2011 and June 30, 2012. An active account is defined as an account that made at least one debit transaction during the one-year timeframe. Among more than three million accounts included in the dataset, 39 percent of accounts were created prior to July 1, 2011 and the rest were created after that date.

The dataset is a rich source of account information. First, it includes overdraft information. Over the life of accounts, how many overdraft transactions each cardholder has made and how many overdraft fee payments the cardholder has incurred can be observed. We can also observe when the cardholder incurred the first overdraft fee.

Second, it contains information about reloads. In addition to the total number and value of loads over the life of the account, we can observe whether the account was ever reloaded, occasionally reloaded, or periodically reloaded. The sources of reloads are also observable:

whether the account was self-funded or received direct deposits by government or non-government entities.

Third, it provides information about account characteristics. We can observe the fee program selected by the cardholder (i.e., whether enrolled in a monthly purchase fee program or a per-transaction fee program). Types of card distributor (e.g., check casher, retail, tax refunds, etc.) enable us to know where the cardholder obtained their card. Whether the cardholder opted-in to or utilized services, such as emails, text-message alerts, customer service calls, and online account access portal, also can be observed.

Fourth, it includes aggregate transaction and fee payment information. The dataset contains the total number and value of debit transactions made over the course of card lifespan for each type of debit transactions—purchase, cash withdrawal (ATM and over the counter), bill payment via automated clearinghouse (ACH), and person-to-person transfer between NetSpend cardholders. It also contains the total number and value of fee payments for each fee category.

Fifth, the dataset contains important dates, such as the account creation date, the first dates of various types of load and debit transactions and fee payments, and the last date a debit transaction was made.

Finally, it includes each cardholder's zip code—no other information about the cardholder is available. To supplement cardholder characteristics, we use zip code level socio-demographic characteristics, such as the female share, distributions of race, age, income, education, marital status, and crime rates.

3.3 Summary statistics: Use of overdraft and incurred overdraft fees

Relatively few NetSpend cardholders ever qualify for the overdraft program.¹⁵ Among the three million cardholders in the data, 15 percent are estimated to meet all eligibility criteria for the program for almost the entire lifespan of the account (Chart 1).¹⁶ Of these longer-term eligible cardholders, 31 percent overdraw their accounts by more than \$10 at least once (*overdrafters*). Slightly more than 12 percent of overdrafters never incur overdraft fees. In total, a mere 4.5 percent of cardholders in the data ever overdraw their accounts by more than \$10 and 4.0 percent incur overdraft fees, suggesting that overdraft transactions (hereafter an overdraft transaction refers to the transaction that overdraws the account by more than \$10), as well as overdraft fee payments are a relatively unusual phenomenon among NetSpend cardholders.

Although overdraft transactions are relatively unusual among *all* cardholders, they are quite common for overdrafters. On average, overdrafters conduct 32.5 overdraft transactions over the course of the account lifespan (Table 1). Since we cannot observe the time period for which a cardholder opted in to the overdraft program, we use the “overdraft eligible period” to measure the intensity of overdraft usage. We define the overdraft eligible period as follows: if the first direct deposit date plus 36 days of waiting period is prior to January 1, 2010, then the overdraft eligible period is from January 1, 2010 to the last debit date; otherwise, it is from the first direct

¹⁵ As mentioned in Footnote 9, at least one NetSpend-branded GPR prepaid card issuer does not offer the overdraft program. Since our dataset does not include issuer information, we cannot distinguish cardholders based on their issuer. Thus, among those we estimate to be eligible or ineligible cardholders in this section are included cardholders who *would be* eligible or ineligible if they were offered the same overdraft program.

¹⁶ Four criteria used for the eligibility estimation are: (1) receiving direct deposits at least once a month; (2) \$200 or greater monthly average direct deposit amount; (3) email address provided to NetSpend; and (4) the card is active more than 36 days after the initial direct deposit date. The first two criteria may be too strict, especially for account holders who created their account before NetSpend introduced the overdraft program in January 2010. For at least a short period, however, 21 percent of cardholders are estimated to be eligible. For this eligibility estimation, we use two criteria: (1) at least two direct deposits in the lifespan of the account and (2) email address provided to NetSpend.

deposit date plus 36 days to the last debit date. On average, overdrafters conduct 2.5 overdraft transactions per overdraft eligible month.

As mentioned above, not all overdraft transactions result in an overdraft fee. As Chart 2 depicts, for most overdrafters the number of overdraft fee payments is much smaller than the number of overdraft transactions. Even among overdrafters who pay overdraft fees, they do so for only 43 percent of their overdraft transactions on average; and only 2 percent pay an overdraft fee for each of their overdraft transactions made over the course of the account lifespan.¹⁸ Among all overdrafters, the average overdraft fee incurred on an adjusted overdraft-eligible-monthly basis is \$12.95, and it increases to \$14.79 if excluding overdrafters who have never incurred overdraft fees (Table 1).

Among overdrafters, 12 percent of them never incurred overdraft fees (i.e., 0 fees), 50 percent incurred greater than 0 but less than 1 overdraft fees, 31 percent incurred one to two overdraft fees, and 7 percent incurred two or more overdraft fees per overdraft eligible month (Chart 3). Their number of overdraft transactions also varies. Not surprisingly, overdrafters who incurred two or greater overdraft fees used overdraft capability more intensely—by making 6.9 overdraft transactions per eligible month—than overdrafters who incurred less or no overdraft fees (Table 1). This group, however, did not make the largest number of overdraft transactions in the entire card lifespan; rather overdrafters who incur one to two overdraft fees per eligible month did, suggesting overdrafters who use overdraft the most intensively have a shorter card lifespan than overdrafters who modestly use overdraft.

A few observations can be made from these statistics. First, as the average number of overdraft transactions per overdraft eligible month indicates, many overdrafters make overdraft transactions regularly rather than sporadically. Second, as the total number of overdraft

¹⁸ This implies the majority of overdrafters avoided overdraft fees for some of their overdraft transactions.

transactions over the lifetime of the card account suggests, overdrafters, especially those who use overdraft capability moderately, keep using their prepaid cards for a longer period of time. Third, at least some overdrafters take advantage of the 24-hour window to resolve pending overdraft transactions so that they can avoid paying overdraft fees, as evidenced by the larger number of overdraft transactions than the number of overdraft fees.

These observations pose important questions to policymakers. To what extent can overdrafters' constant overdrawn of their account be explained by their preference for using an overdraft as a short-term loan mechanism over available alternatives such as payday and auto title loans? To what extent is their constant overdrawn and incurring of overdraft fees causing a "cycle of debt," wherein the fee burden tightens the account's already constrained liquidity and leads the cardholder to repeatedly overdraw? Do very short-term (24 hour) loans help maintain cash flow for cardholders or can they be avoided if cardholders pay more attention to their card account balance? The next section sheds light on these questions by comparing the behavior of overdrafters and non-overdrafters.

4. Overdrafters vs. non-overdrafters

This section compares overdrafters and non-overdrafters, both of whom are eligible for the overdraft program, in four areas: (1) effort to keep track of account balance; (2) fee burden and its potential effects on card use; (3) card lifespan; and (4) socio-demographic characteristics.

4.1 Effort to keep track of account balance

Consumers' limited attention has been touted as one of the causes of overdrafts.²⁰ From the NetSpend data, cardholders' monitoring of their account balance cannot be directly observed; however, whether cardholders opted in to (or used) services which enable them to view their

²⁰ See, for example, Stango and Zinman (2014).

balance—other than via the default periodical paper statements—is observable. Besides email communication, which is, by requirement, used by all cardholders who are eligible for the overdraft program, NetSpend provides a text message alert service and an online account access portal (similar to online banking) to its cardholders at no charge. Cardholders can also call the customer service line. While a call to the automated balance inquiries is free, each balance inquiry call to a representative (i.e., in-person) costs \$0.50.

To examine whether limited attention causes overdraft, it is ideal to compare behaviors of overdrafters and non-overdrafters, both of whom opted in to the overdraft program. Non-overdrafters who were eligible but did not opt in to the overdraft program could pay less attention to their account balance because they may keep a sufficient balance on their card or because they have no worries about incurring overdraft fees. From the data, however, we cannot tell whether cardholders who had never made overdraft transactions opted in to the overdraft program or not. Therefore, we instead use non-overdrafters who are eligible for the overdraft program as the control group. This comparison is still worthwhile because it provides rather strong evidence of overdrafters' limited attention if overdrafters were less likely to opt in to (or used) services such as a text alert service and/or online account access than the control group.

The data show that the share of cardholders who opted in to (or used) each of these services is higher among overdrafters than among non-overdrafters (Table 2). For the text message alert service, the share is significantly higher (95 vs. 86 percent, respectively). For online account access and customer service calls, the share differences are small; nevertheless, relatively more overdrafters use these services than non-overdrafters.

The share differences remain statistically significant even after controlling for other account characteristics. To examine what factors explain a given service cardholders opted in to,

we estimate binomial logit models. The marginal effects are reported in Table 3. If all other characteristics are identical for overdrafters and non-overdrafters, the probabilities of overdrafters' opting in to (or using) the text alert service, online account access portal, and customer service call center are higher than those of non-overdrafters by 7.4 percentage points for text alert, by 1.2 percentage points for online account access, and by 0.4 percentage points for customer service calls. These results suggest that overdrafters are at least better armed with tools that help them keep track of their account balance than are non-overdrafters.

To examine whether these services affect the number of overdraft fees overdrafters incur, we compare the share of overdrafters who opted in to each of these services across the four overdraft groups, which are divided by the number of overdraft fees per overdraft eligible month. While for online access and customer service call, the shares do not vary by group, the share of overdrafters' opting in to the text alert service varies (Table 2). Somewhat surprisingly, not only overdrafters who incur two or more overdraft fees per eligible month but also overdrafters who never incurred overdraft fees have lower opted-in text alert shares than the other two groups of overdrafters. The share difference is statistically significant, even after controlling for other account characteristics (Table 3). This suggests that overdrafters do not necessarily avoid incurring overdraft fees by receiving text alerts.

The NetSpend data also include various types of fee payments by cardholders, which reveal cardholders' balance inquiries via certain venues. Overdrafters make balance inquiries via ATM or by calling to a customer service representative slightly less often than do non-overdrafters (on average, 1.8 and 1.9 times per month by overdrafters and by non-overdrafters, respectively).²¹ However, the number of balance inquiries via text message and online account access, which

²¹ Even after controlling for other account characteristics, the difference in the number of balance inquiries via ATM and customer service calls between overdrafters and non-overdrafters is statistically significant.

cannot be observed from the data, could be greater for overdrafters than for non-overdrafters given that relatively more overdrafters opted in to those services.

On net, the data do not necessarily support the idea that overdrafters have limited attention relative to non-overdrafters. Further data and research on actual attention, however, are needed to answer this question definitively.

4.2 Fee burden and its potential effects on card use

How much more do overdrafters pay in fees relative to non-overdrafters? Obviously, overdraft fees will significantly contribute to the fee amount difference because non-overdrafters do not incur overdraft fees. Other fees will also contribute to the fee difference but to a lesser degree than overdraft fees because of their relatively smaller value—at \$15, the overdraft fee is one of the largest fees assessed by NetSpend. Since a negative balance close to the maximum overdraft amount may trigger more transactions declined, overdrafters may incur more decline fees. As mentioned above, overdrafters incur fewer balance inquiry fees than do non-overdrafters. If overdrafters make more ATM transactions than non-overdrafters, then overdrafters must incur more ATM fees. Unlike ATM transactions, purchase transactions do not necessarily increase fees. For those enrolled in a monthly fee program, the fee amount per month is constant (either \$4.95 or \$9.95, depending on direct deposit amount). Those who do not enroll in a monthly fee program incur a per transaction fee of \$1 for a signature transaction and \$2 for a PIN transaction. Thus, behavioral differences between overdrafters and non-overdrafters will also affect the total fee amount they incur.

Not surprisingly, the total fee amount incurred by overdrafters in an overdraft eligible month is greater than that of non-overdrafters.²² The average monthly total fee amount is \$32.10

²² To calculate fee amounts in an overdraft eligible month, we assume that overdraft fees were incurred only in overdraft eligible months, while other types of fees were evenly distributed across all months of the card lifespan.

for overdrafters and \$19.33 for non-overdrafters (Table 4). But, without overdraft fees (total – overdraft), the amount is surprisingly similar for overdrafters and non-overdrafters (\$19.14 vs. \$19.33). Fee amounts of each fee category, however, vary between overdrafters and non-overdrafters. As expected, the decline fee amount is greater for overdrafters. The ATM fee amount is also greater for overdrafters due to their greater number of ATM transactions (3.4 vs. 2.9 for non-overdrafters) (Table 6). The fee amount related to purchase transactions (per transaction fees and monthly fee program fee) is smaller for overdrafters (\$8.99 vs. \$10.90 for non-overdrafters), not because they make fewer purchase transactions but because relatively more overdrafters enroll in a monthly fee program than do non-overdrafters (82 vs. 62 percent) to avoid paying per transaction fees (Table 2).

To examine whether the fee amount differences remain qualitatively the same after controlling for other account characteristics, we conduct regression analysis using OLS models. The results are presented in Table 5. The sign of the coefficient for a dummy indicating overdrafters is consistent for all fee categories but “total – overdraft.” After controlling for other characteristics, overdrafters incur a slightly greater fee amount per month (by \$0.95) than do non-overdrafters even when excluding overdraft fees. For decline, balance inquiry, ATM, and other fees, the magnitude of the coefficient of overdrafters is qualitatively similar to the average fee difference between overdrafters and non-overdrafters observed in Table 4. However, for purchase-related fees, the magnitude of the coefficient is smaller after controlling for other characteristics than the average fee difference (-\$0.12 vs. -\$1.91=\$8.99-\$10.90), while for total fees, the magnitude is larger (\$13.84 vs. \$12.77=\$32.10-\$19.33).

The fee amounts vary among overdrafters. Interestingly, overdrafters who incur a greater number of overdraft fees in an overdraft eligible month also incur higher fee amounts for other

fee categories (Table 4). The difference in ATM fees is noteworthy. Overdrafters who incur two or greater overdraft fees per eligible month pay \$11.40 for their ATM use, while overdrafters who have never incurred overdraft fees pay \$6.89.²³

How does the fee burden affect card use, especially the debit amount? The monthly debit amount is positively correlated with the monthly overdraft fee amount as well as the monthly total fee amount. On average, overdrafters spend \$1,433 on their cards in a month, which is greater than \$1,206, the average monthly debit amount of non-overdrafters (Table 6). Overdrafters also load more funds on their cards per month than do non-overdrafters (\$1,501 vs. \$1,267, respectively). The excess monthly load amount after excluding the monthly debit and total fee amounts is slightly smaller for overdrafters than for non-overdrafters (\$35 and \$41).

Even after controlling for other account characteristics, the positive correlation between monthly debit/load amount and monthly total fee/overdraft fee amount holds, although the difference of monthly debit or load amount between overdrafters and non-overdrafters is less pronounced. OLS regressions suggest that if all other account characteristics are the same, overdrafters would have \$189 and \$193 greater monthly debit and load amounts respectively than non-overdrafters (Table 7), which are smaller than the difference in the average monthly debit and load amounts, \$227 ($=\$1,433-\$1,206$) and \$234 ($=\$1,501-\$1,267$), respectively. In contrast, the difference of average monthly balance becomes greater after controlling for other characteristics ($-\$10$ vs. $-\$6=\$35-\$41$).

Among overdrafters, those who incur more overdraft fees per overdraft eligible month generally spend more and load more. The average monthly debit and load amounts for two overdraft groups who incur one or more overdraft fees per month are greater than those for the

²³ These ATM fees are paid to card issuers. Cardholders may also be assessed a surcharge by some ATM owners. See Hayashi and Cuddy (2014).

other two overdrafter groups who incur less than one overdraft fee per eligible month (e.g., overdrafters who incur fewer than twelve overdraft fees in a year) (Table 6). The positive correlation between monthly debit/load amount and monthly overdraft fee amount is even stronger among overdrafters with negative average daily balances. The correlation coefficients exceed 0.27 among overdrafters with negative average daily balance whereas they are about 0.14 among overdrafters with positive average daily balance (Table 8).

The results suggest that the fee burden, in general, is not large enough to crowd out cardholders' spending on their card account for goods and services.²⁴ Multiple overdraft fee payments (up to three) per month tend to be made by cardholders whose monthly load amounts are relatively higher. Those cardholders spend more on their cards for goods and services than do overdrafters who make less than one overdraft fee payment per month and non-overdrafters.

4.3 Card lifespan

Is overdraft also positively correlated with card lifespan? To examine this question, we compute survival rates after the first eligible date for overdraft—either January 1, 2010 or the first direct deposit date plus 36 days, whichever is later—for overdrafters and non-overdrafters. The method used here is essentially the same as the one developed in Hayashi and Cuddy (2014).²⁵

Among eligible cardholders, overdrafters' card lifespan is generally longer than non-overdrafters'.²⁷ The median card lifespan after cardholders become eligible for overdraft is 660 days for overdrafters and 510 days for non-overdrafters (Table 9).

²⁴ NetSpend limits not just the number of overdraft fees assessed in a month but also the overdraft amount, inclusive of fees, in a month, which may help prevent cardholders from getting into a cycle of debt.

²⁵ For details, see Hayashi and Cuddy (2014).

²⁷ Cardholders who are eligible for the overdraft program keep their cards longer than non-eligible cardholders. This is because receiving direct deposits—one of the requirements for overdraft capability—is strongly positively correlated with card lifespan (Hayashi and Cuddy, 2014).

However, the causality is unclear. On the one hand, the use of overdraft may increase card lifespan—cardholders who make use of the overdraft capability of their card may become more loyal customers and keep using their card longer than those who do not take advantage of it. On the other hand, cardholders who keep their card for a longer period of time may be more likely to have at least one overdraft incident and to incur at least one overdraft fee than cardholders who keep their card for only a short period of time.

The NetSpend data provide some evidence that supports the second conjecture; however, the data cannot reject the first conjecture. Among overdrafters, those who have never incurred an overdraft fee have shorter card lifespan than other overdrafters (the median lifespan after they became eligible for overdraft is 450 days for the former and 720 days for the latter). Furthermore, for 35 percent of overdrafters who incurred overdraft fees, there is at least a one-year lag from the date they become eligible for overdraft to the date they incur the first overdraft fee. The lag is less than one year for the rest (less than three months for 35 percent and between three to twelve months for the remaining 30 percent). These findings may support the second conjecture—the longer the cardholders keep their card, the more likely it is that they make an overdraft transaction and incur an overdraft fee. The fact that overdrafters who have never incurred overdraft fees established their accounts relatively more recently (23 percent in 2012 and 41 percent in 2011) than other overdrafters (5 percent in 2012 and 31 percent in 2011) may further support the second conjecture.

The lag from the eligible date to the first overdraft fee date also affects card lifespan after the first overdraft fee. The longer the lag, the longer the card lifespan. In particular, the median card lifespan after the first overdraft fee is longer than 750 days for overdrafters with at least a one-year lag, 660 days for overdrafters with a three- to twelve-month lag, and 450 days for

overdrafters with less than a three-month lag. There is no simple explanation for this behavioral difference. One might speculate that overdrafters who have not incurred an overdraft fee for more than one year after becoming eligible to overdraft are “accidental” users—they unknowingly make a debit transaction which pushes their account balance below zero—rather than habitual users who purposely use overdraft. However, over the course of their entire card lifespan, these overdrafters, on average, overdraw their account 33 times with 13 of them resulting in overdraft fees. This makes the “accidental” hypothesis difficult to justify. In fact, their multiple overdraft transactions and longer account lifespan may instead support the first conjecture—cardholders who make use of the overdraft capability keep using their card longer.

We should note that one small group of overdrafters have significantly shorter median card lifespan than non-overdrafters. The group of overdrafters who incur two or more overdraft fees per overdraft eligible month has the median card lifespan of 240 days, which is less than the half of the median lifespan among non-overdrafters. Our data cannot provide a definitive answer to the question of why this group of overdrafters stopped using their card relatively quickly; however, this group has a significantly lower average lifetime account balance than the other three groups of overdrafters or non-overdrafters (Table 6). Indeed, about 75 percent of cardholders in this group have zero or negative lifetime account balance, while about 50 percent of cardholders in the other groups do likewise. Their negative balance might have resulted in a permanent deactivation of the overdraft capability and cardholders who need alternative short-term credit such as payday and car title loans might have stopped using the card. Cooling-off periods imposed by NetSpend after each batch of 12 overdraft fee payments are a mechanism to make the overdraft capability temporarily unavailable. But there is no spike in the number of

overdraft fee payments among overdrafters who stopped using their card, suggesting that may not be a cause.

In contrast to the group of overdrafters who incur two or more overdraft fees per overdraft eligible month, two other groups of overdrafters who incur more than zero but less than two overdraft fees per eligible month have much longer median lifespan than non-overdrafters. Because the former group accounts for only 7 percent of overdrafters, the group's shorter median lifespan has little effect on the overall overdrafters' median lifespan.

4.4 Socio-demographic characteristics

Are overdrafters different from non-overdrafters in terms of socio-demographic characteristics? Do overdrafters who incur two or more overdraft fees per overdraft eligible month have different socio-demographic characteristics than the other overdrafters? To examine these questions, we use cardholders' zip code level socio-demographic characteristics in three states—California, Florida, and Texas—which comprise 38 percent of all accounts in our overdraft-eligible sample.³⁰

Table 10 presents the marginal effects, derived by estimating binomial logit models. While gender and race are not statistically significantly correlated with being overdrafters, other characteristics are. Cardholders reside in zip codes where the share of Hispanic residents is high are less likely to be overdrafters. This may suggest that Hispanic cardholders are less likely to overdraw their account. The marginal effects of other variables may suggest that young, lower-income cardholders who are married, divorced, or separated are more likely to be overdrafters. Somewhat surprisingly, cardholders in zip codes where the share of residents with higher education degrees is high are more likely to be overdrafters. Overdrafters tend to reside in zip codes with higher violent crime rates but lower property crime rates. Both California and Florida

³⁰ See Hayashi and Cuddy (2014) for details about zip code level socio-demographic characteristics.

state dummies are negative, suggesting cardholders in these two states are less likely to overdraw their account than cardholders in Texas.

Overdrafters who incur two or more overdraft fees per eligible month are different from the other overdrafters in a few characteristics. Overdrafters in zip codes where the share of Hispanic residents is high tend to incur fewer overdraft fees. The greater the shares of younger residents and of divorced or separated residents in their zip code, the more likely the overdrafters incur two or more overdraft fees. Not only the share of a moderate income bracket (\$25,000 - \$75,000) but also the share of the highest income bracket (more than \$150,000) are positively correlated with overdrafters' incurring two or more overdraft fees. Among overdrafters, those in California and Florida are less likely to incur two or more overdraft fees than those in Texas.

Except for a few characteristics, such as higher education degrees and the highest income bracket, most characteristics have predictable correlations with being overdrafters or overdrafters who incur two or more overdraft fees. The effect of state dummies may represent cardholders' unobservable preferences for overdrafts or accessibility of alternative short-term credit, such as payday and car title loans.

5. Conclusion

Overdrafts are not a common phenomenon among GPR prepaid cardholders. Not many GPR prepaid cards offer overdraft programs. NetSpend is one of very few GPR prepaid card providers that offer overdraft programs, and its program has stringent eligibility requirements. Even among overdraft-eligible cardholders, a relatively small fraction of them ever actually overdraw their account. Nevertheless, a small percentage of GPR prepaid cardholders regularly make overdraft transactions and incur overdraft fees. These so-called overdrafters tend to incur a larger amount of fees but spend and load more funds on their card than do non-overdrafters,

indicating that the overdraft fee burden, in general, is not large enough to crowd out overdrafters' spending amount on their card account for goods and services. Moreover, overdrafters, especially those who incur a moderate number of overdraft fees per overdraft eligible month, continue using their card for a longer period of time than do non-overdrafters.

Whether cardholders' limited attention to their account balance causes overdrafts is inconclusive, but our analysis indicates that overdrafters are at least better armed with tools that help them keep track of their account balance than are non-overdrafters. Some overdrafters avoid overdraft fees by bringing their account balance back to zero or positive immediately after the overdraft transaction (within 24 hours). Furthermore, overdraft behavior varies by state, which may indicate accessibility of alternative short-term credit varies by state. These results suggest that some cardholders may be making a deliberate decision to overdraw their account and pay overdraft fees. Further research is required to examine whether, in aggregate, overdraft programs on GPR prepaid cards enhance or diminish the welfare of cardholders, many of whom are financially underserved consumers.

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Chart 1: Overdraft eligible and actual users

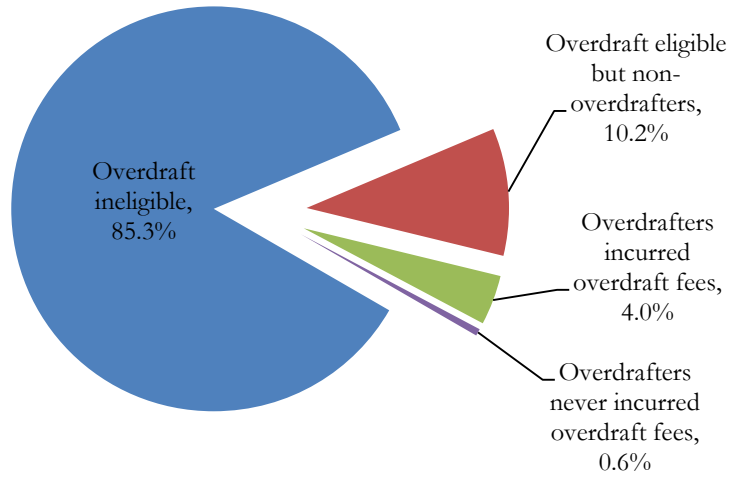


Table 1: Overdraft transactions and overdraft fees (average)

	Overdrafters					
	All	Never incurred fees	Incurred fees			
			All	Number of overdraft fees		
				2 or more	1 to 2	Greater than 0 & less than 1
Overdraft transactions entire card lifespan (#)	32.5	7.7	36.0	38.9	50.3	26.9
Overdraft transactions per eligible month (#)	2.5	1.8	2.6	6.9	3.6	1.5
Overdraft fee payments per eligible month (#)	0.9	0.0	1.0	2.4	1.4	0.5
Overdraft fee payments per eligible month (\$)	\$12.95	\$0.00	\$14.79	\$36.69	\$20.98	\$7.87

Chart 2: Number of overdraft fee payments versus overdraft transactions

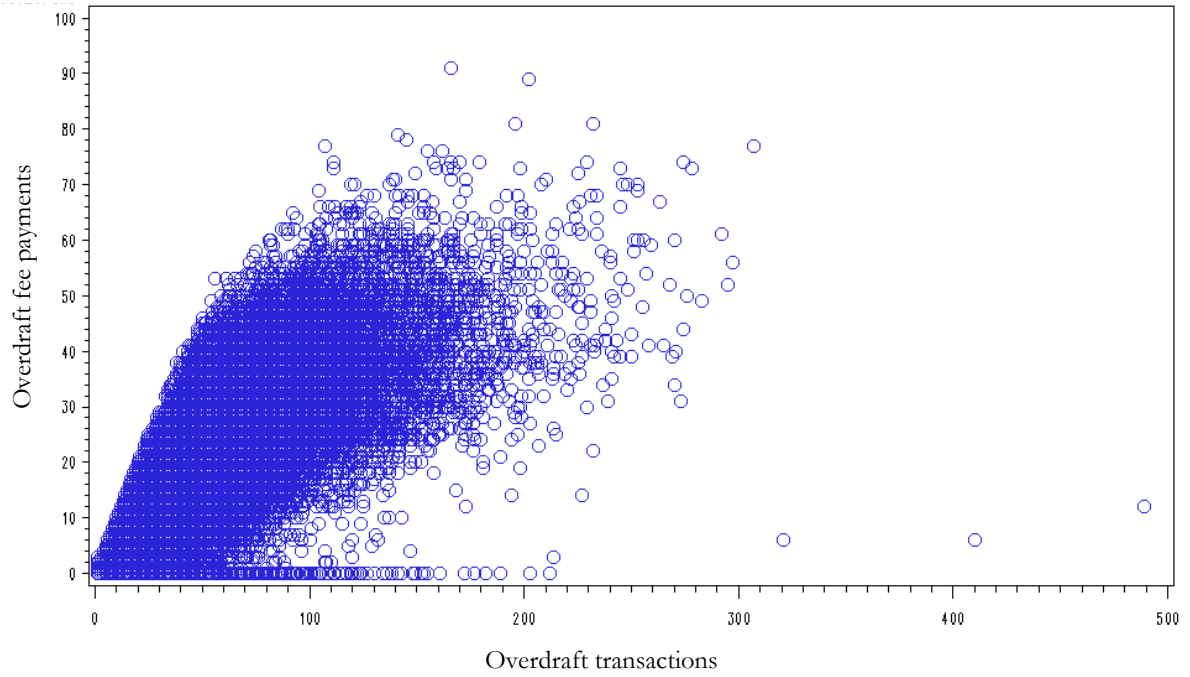


Chart 3: Overdrafters by number of overdraft fees per overdraft eligible month

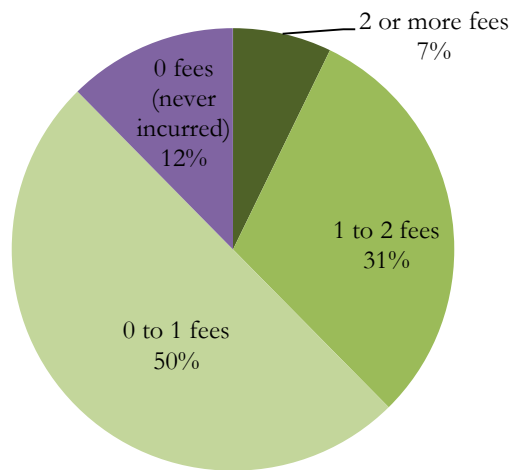


Table 2: Account characteristics

	Non-overdrafters	Overdrafters				
		All	Number of overdraft fees per eligible month			
			2 or more	1 to 2	0 to 1	0*
Services opted-in or used						
Text alert	86%	95%	92%	95%	95%	91%
Online access	98%	100%	99%	100%	100%	99%
Customer service call	98%	99%	99%	99%	99%	99%
Fee program type						
Monthly fee program	62%	82%	80%	83%	82%	78%
Per-transaction fee	38%	18%	20%	17%	18%	22%
Source of direct deposit						
Government	24%	31%	10%	27%	38%	25%
Non-government	76%	69%	90%	73%	62%	75%
Card distributor type						
Check casher	52%	59%	52%	62%	60%	53%
Direct (NetSpend)	34%	40%	46%	37%	39%	45%
Retail	8%	0%	1%	0%	0%	1%
Disbursement	3%	0%	0%	0%	0%	0%
Tax	0%	0%	0%	0%	0%	0%
Other	2%	1%	1%	1%	0%	1%

*: Never incurred overdraft fees.

Table 3: Binomial logit model: Marginal effects**A: Overdraft-eligible cardholders**

	Text alert		Online access		Customer service call	
Overdrafters	0.074***	(0.001)	0.012***	(0.000)	0.004***	(0.000)
Per-transaction fee	-0.065***	(0.001)	-0.008***	(0.000)	-0.003***	(0.000)
Government direct deposit	0.031***	(0.001)	-0.002***	(0.000)	0.013***	(0.000)
Card distributor type						
Direct (NetSpend)	-0.025***	(0.001)	0.005***	(0.000)	-0.009***	(0.000)
Retail	-0.079***	(0.002)	0.008***	(0.001)	-0.022***	(0.000)
Disbursement	-0.021***	(0.003)	0.003***	(0.001)	-0.006***	(0.001)
Tax	-0.005	(0.008)	0.000	(0.002)	-0.001	(0.003)
Other	-0.039***	(0.003)	-0.003***	(0.001)	-0.009***	(0.001)
Log-likelihood	-150,635		-33,456		-34,507	

B: Overdrafts only

	Text alert	
2 or more overdraft fees	-0.017***	(0.002)
Never incurred overdraft fees	-0.026***	(0.001)
Per-transaction fee	-0.037***	(0.001)
Government direct deposit	0.018***	(0.001)
Card distributor type		
Direct (NetSpend)	-0.016***	(0.001)
Retail	-0.050***	(0.005)
Disbursement	0.004	(0.050)
Tax	0.005	(0.039)
Other	-0.030***	(0.006)
Log-likelihood	-28,055	

Notes: The marginal effects are estimated when all variables are at their means. The model includes an intercept term, the number of debit transactions per month and shares of ATM transactions and person-to-person transfers in the debit transactions in number as independent variables. Standard errors are in (). *** Significant at 0.01 level.

Table 4: Fee amount in an overdraft eligible month (average)

	Non-overdrafters	Overdrafters				
		All	Number of overdraft fees per eligible month			
			2 or more	1 to 2	0 to 1	0*
Overdraft	\$0.00	\$12.95	\$36.69	\$20.98	\$7.87	\$0.00
Decline	\$0.29	\$0.70	\$1.43	\$0.97	\$0.50	\$0.39
Balance inquiry	\$0.96	\$0.89	\$0.89	\$0.93	\$0.90	\$0.77
ATM	\$7.05	\$8.46	\$11.40	\$9.89	\$7.56	\$6.89
Purchase-related	\$10.90	\$8.99	\$9.21	\$8.76	\$8.88	\$9.91
Others	\$0.13	\$0.10	\$0.07	\$0.10	\$0.10	\$0.10
Total	\$19.33	\$32.10	\$59.70	\$41.62	\$25.80	\$18.03
Total - Overdraft	\$19.33	\$19.14	\$23.01	\$20.64	\$17.94	\$18.03

*: Never incurred overdraft fees.

Table 5: OLS model: Monthly fee amounts

	Decline		Balance inquiry	
Overdrafters	0.378***	(0.002)	-0.069***	(0.005)
Per-transaction fee	-0.054***	(0.002)	0.111***	(0.005)
Government direct deposit	-0.052***	(0.002)	0.479***	(0.005)
Card distributor type				
Direct (NetSpend)	0.095***	(0.002)	-0.687***	(0.005)
Retail	0.011***	(0.004)	-0.238***	(0.009)
Disbursement	-0.014**	(0.006)	-0.193***	(0.014)
Tax	-0.055***	(0.020)	0.090**	(0.045)
Other	0.043***	(0.008)	-0.290***	(0.018)
Adjusted R-squared	0.182		0.142	

	ATM		Purchase-related		Others	
Overdrafters	0.777***	(0.019)	-0.124***	(0.030)	-0.011***	(0.004)
Per-transaction fee	-1.683***	(0.019)	8.762***	(0.031)	0.004	(0.004)
Government direct deposit	-2.977***	(0.019)	-2.232***	(0.031)	-0.057***	(0.004)
Card distributor type						
Direct (NetSpend)	0.280***	(0.018)	-1.041***	(0.029)	0.045***	(0.004)
Retail	-1.934***	(0.038)	-2.319***	(0.061)	0.074***	(0.008)
Disbursement	-0.384***	(0.057)	-0.237***	(0.091)	0.007	(0.012)
Tax	1.243***	(0.179)	-0.888***	(0.286)	0.022	(0.038)
Other	-0.096	(0.072)	-1.359***	(0.115)	0.006	(0.015)
Adjusted R-squared	0.297		0.192		0.010	

	Total		Total - Overdraft	
Overdrafters	13.839***	(0.048)	0.950***	(0.043)
Per-transaction fee	6.746***	(0.050)	7.139***	(0.044)
Government direct deposit	-6.009***	(0.050)	-4.839***	(0.044)
Card distributor type				
Direct (NetSpend)	-1.499***	(0.046)	-1.308***	(0.041)
Retail	-4.650***	(0.097)	-4.406***	(0.087)
Disbursement	-0.901***	(0.146)	-0.820***	(0.130)
Tax	0.313	(0.459)	0.412	(0.410)
Other	-1.654***	(0.185)	-1.696***	(0.165)
Adjusted R-squared	0.228		0.117	

Notes: The model includes an intercept term, dummies indicating opted-in text alert, online account access, and customer service calls and the shares of ATM transactions, bill payments, and person-to-person transfers in the debit transactions in number as independent variables. Standard errors are in (). *** Significant at 0.01 level; ** Significant at 0.05 level; and * Significant at 0.1 level.

Table 6: Monthly activities (average)

	Non-overdrafters	Overdrafters				
		All	Number of overdraft fees per month			
			2 or more	1 to 2	0 to 1	0*
Debits (\$)	\$1,206	\$1,433	\$1,457	\$1,565	\$1,395	\$1,251
Loads (\$)	\$1,267	\$1,501	\$1,526	\$1,638	\$1,459	\$1,315
Fees (\$)	\$19	\$32	\$60	\$42	\$26	\$18
Balance=Loads-Debits-Fees (\$)	\$41	\$35	\$9	\$32	\$38	\$46
ATM transactions (#)	2.9	3.4	4.6	4.0	3.1	2.8
Purchase transactions (#)	18.9	20.5	19.7	20.9	20.4	20.7

*: Never incurred overdraft fees.

Table 7: OLS model: Monthly debit amount, load amount, and balance

	Monthly debit amount		Monthly load amount		Monthly balance	
Overdrafters	188.75***	(2.78)	193.01***	(2.93)	-9.78***	(0.59)
Per-transaction fee	-275.78***	(2.86)	-279.16***	(3.02)	-10.13***	(0.61)
Government direct deposit	-332.20***	(2.86)	-338.93***	(3.01)	-0.98	(0.61)
Card distributor type						
Direct (NetSpend)	-175.62***	(2.65)	-178.20***	(2.80)	-1.15**	(0.56)
Retail	-118.97***	(5.50)	-115.53***	(5.80)	8.30***	(1.19)
Disbursement	95.83***	(8.21)	90.85***	(8.66)	-3.23*	(1.78)
Tax	89.19***	(26.34)	80.41***	(27.77)	-8.93	(5.61)
Other	-170.64***	(10.55)	-170.64***	(11.12)	0.46	(2.26)
Adjusted R-squared	0.089		0.082		0.215	

Notes: The model includes an intercept term, dummies indicating opted-in text alert, online account access, and customer service calls and the shares of ATM transactions, bill payments, and person-to-person transfers in the debit transactions in number as independent variables. Standard errors are in (). *** Significant at 0.01 level; ** Significant at 0.05 level; and * Significant at 0.1 level.

Table 8: Correlation coefficients between fee amounts and debit/load amounts

	Non-overdrafters	Overdrafters		
		All	Average daily balance	
			Positive	Negative
With total fee amount				
Debit amount	0.37	0.30	0.32	0.41
Load amount	0.37	0.30	0.33	0.42
With overdraft fee amount				
Debit amount	n.a.	0.09	0.14	0.27
Load amount	n.a.	0.09	0.14	0.28

Note: For all correlation coefficients, p-value is smaller than 0.0001.

Table 9: Card lifespan (median days)**A: After eligible date**

	Non-overdrafters	Overdrafters					
		All	Never incurred overdraft fees	Incurred overdraft fees			
				All	Number of overdraft fees per month		
					2 or more	1 to 2	0 to 1
All	510	660	450	720	240	750	840
< 3-month lag*	n.a.	n.a.	n.a.	480	240	600	480
3~12-month lag*	n.a.	n.a.	n.a.	840	420	>900	750
>=1 year lag*	n.a.	n.a.	n.a.	>900	.	>900	>900

Notes: n.a.: not applicable. *: Lag from the eligible date to the first overdraft date. The median day for overdrafters who incurred two or more overdraft fees per overdraft eligible month is not available due to insufficient observations.

B: After first overdraft fee date

	Overdrafters who incurred overdraft fees			
	All	Number of overdraft fees per month		
		2 or more	1 to 2	0 to 1
All	630	210	720	630
< 3-month lag*	450	210	570	450
3~12-month lag*	660	360	810	570
>=1 year lag*	>750	.	>750	>750

Notes: *: Lag from the eligible date to the first overdraft date. The median day for overdrafters who incurred two or more overdraft fees per overdraft eligible month is not available due to insufficient observations.

Table 10: Binomial Logit model: Marginal effects of zip code level socio-demographic characteristics

		Overdrafters		Overdrafters who incur 2 or more overdraft fees per eligible month	
Gender	Female	-0.027	(0.057)	0.015	(0.047)
Race	White	-0.022	(0.018)	0.002	(0.016)
	Black	-0.002	(0.020)	-0.028	(0.017)
	Asian	-0.010	(0.028)	0.016	(0.025)
Ethnicity	Hispanic	-0.062***	(0.010)	-0.029***	(0.009)
Age	24 and under	0.196***	(0.043)	0.113***	(0.037)
	45 and over	-0.120***	(0.040)	0.025	(0.034)
Marital status	Married	0.156***	(0.029)	-0.002	(0.024)
	Widowed	0.104	(0.111)	-0.016	(0.095)
	Divorced	0.153**	(0.071)	0.143**	(0.062)
	Separated	0.868***	(0.156)	0.375***	(0.132)
Education	Less than high school	-0.133***	(0.030)	0.013	(0.025)
	Associate, bachelor, or graduate	0.068**	(0.029)	-0.025	(0.024)
Annual income	Less than \$25,000	0.118***	(0.030)	-0.002	(0.025)
	\$25,000 - \$75,000	0.233***	(0.033)	0.074***	(0.028)
	More than \$150,000	0.001	(0.056)	0.109**	(0.048)
Crime incidents per 1,000 residents	Violent	0.034***	(0.009)	0.004	(0.008)
	Property	-0.005***	(0.001)	-0.001	(0.001)
State dummies	California	-0.064***	(0.004)	-0.008***	(0.004)
	Florida	-0.074***	(0.003)	-0.007***	(0.003)
Log-likelihood		-92,706		-12,929	
N		170,863		54,750	

Notes: The model includes an intercept term, dummies indicating receiving direct deposits from government, paying per transactions fees, opted-in to text alert, online account access, and customer service calls, obtained the card at check casher or directly from NetSpend, and the shares of ATM transactions and person-to-person transfers in the debit transactions in number as independent variables. Standard errors are in (). *** Significant at 0.01 level; ** Significant at 0.05 level; and * Significant at 0.1 level.

Appendix: Detailed statistics

Table A1: Overdraft transactions and overdraft fees

	Overdrafters					
	All	Never incurred fees	Incurred fees			
			All	Number of overdraft fees		
				2 or more	1 to 2	Greater than 0 & less than 1
Overdraft transactions entire card lifespan (#)						
Mean	32.5	7.7	36.0	38.9	50.3	26.9
75 th percentile	46.0	8.0	49.0	52.0	68.0	37.0
50 th	25.0	4.0	28.0	28.0	44.0	22.0
25 th	10.0	2.0	14.0	15.0	25.0	11.0
Overdraft transactions per eligible month (#)						
Mean	2.5	1.8	2.6	6.9	3.6	1.5
75 th	3.3	2.1	3.4	8.0	4.2	1.9
50 th	1.9	0.8	2.0	6.0	3.2	1.3
25 th	1.0	0.2	1.1	4.5	2.4	0.7
Overdraft fee payments per eligible month (#)						
Mean	0.9	0.0	1.0	2.4	1.4	0.5
75 th	1.3	0.0	1.4	2.6	1.6	0.8
50 th	0.8	0.0	0.9	2.3	1.4	0.5
25 th	0.3	0.0	0.5	2.1	1.2	0.3
Overdraft fee payments per eligible month (\$)						
Mean	\$12.95	\$0.00	\$14.79	\$36.69	\$20.98	\$7.87
75 th	\$19.29	\$0.00	\$20.60	\$39.56	\$24.20	\$11.58
50 th	\$11.62	\$0.00	\$13.30	\$34.62	\$20.37	\$7.97
25 th	\$4.25	\$0.00	\$7.06	\$31.69	\$17.36	\$4.19

Table A2: Fee amount in an overdraft eligible month

	Non-overdrafters			
	Mean	25 th percentile	50 th	75 th
Overdraft	\$0.00	\$0.00	\$0.00	\$0.00
Decline	\$0.29	\$0.00	\$0.14	\$0.37
Balance inquiry	\$0.96	\$0.10	\$0.37	\$1.16
ATM	\$7.05	\$2.39	\$5.49	\$9.82
Purchase-related	\$10.90	\$5.01	\$8.02	\$12.59
Others	\$0.13	\$0.00	\$0.00	\$0.01
Total	\$19.33	\$10.23	\$15.96	\$24.39
Total - Overdraft	\$19.33	\$10.23	\$15.96	\$24.39

	Overdrafters			
	Mean	25 th percentile	50 th	75 th
Overdraft	\$12.95	\$4.25	\$11.62	\$19.29
Decline	\$0.70	\$0.13	\$0.41	\$0.92
Balance inquiry	\$0.89	\$0.11	\$0.33	\$1.04
ATM	\$8.46	\$3.68	\$6.98	\$11.53
Purchase-related	\$8.99	\$4.90	\$6.80	\$9.92
Others	\$0.10	\$0.00	\$0.00	\$0.00
Total	\$32.10	\$19.79	\$29.49	\$41.41
Total - Overdraft	\$19.14	\$11.25	\$16.44	\$23.80

Table A3: Monthly activities

	Non-overdrafters	Overdrafters					
		All	Number of overdraft fees per month				
			2 or more	1 to 2	0 to 1	0*	
Debits (\$)							
Mean	\$1,206	\$1,433	\$1,457	\$1,565	\$1,395	\$1,251	
75 th percentile	\$1,564	\$1,870	\$1,877	\$2,019	\$1,818	\$1,624	
50 th	\$987	\$1,241	\$1,302	\$1,411	\$1,181	\$1,025	
25 th	\$634	\$777	\$862	\$914	\$744	\$657	
Loads (\$)							
Mean	\$1,267	\$1,501	\$1,526	\$1,638	\$1,459	\$1,315	
75 th percentile	\$1,633	\$1,949	\$1,959	\$2,102	\$1,892	\$1,704	
50 th	\$1,037	\$1,303	\$1,365	\$1,482	\$1,240	\$1,079	
25 th	\$668	\$823	\$910	\$966	\$786	\$694	
Fees (\$)							
Mean	\$19	\$32	\$60	\$42	\$26	\$18	
75 th percentile	\$24	\$41	\$67	\$48	\$31	\$22	
50 th	\$16	\$29	\$57	\$39	\$24	\$15	
25 th	\$10	\$20	\$49	\$33	\$18	\$10	
Balance=Loads-Debits-Fees (\$)							
Mean	\$41	\$35	\$9	\$32	\$38	\$46	
75 th percentile	\$24	\$33	\$0	\$28	\$36	\$41	
50 th	\$0	\$-2	-\$23	-\$6	\$0	\$2	
25 th	-\$4	-\$14	-\$40	-\$18	-\$9	-\$6	
ATM transactions (#)							
Mean	2.9	3.4	4.6	4.0	3.1	2.8	
75 th percentile	4.0	4.6	6.3	5.3	4.1	3.8	
50 th	2.3	2.8	4.0	3.5	2.5	2.2	
25 th	1.1	1.5	2.3	2.0	1.4	1.0	
Purchase transactions (#)							
Mean	18.9	20.5	19.7	20.9	20.4	20.7	
75 th percentile	26.0	28.3	26.8	28.6	28.3	28.4	
50 th	14.7	16.8	16.6	17.7	16.3	16.6	
25 th	7.6	8.9	9.5	9.7	8.4	8.7	

*: Never incurred overdraft fees.