Consumers' Use of Prepaid Cards: A Transaction-Based Analysis

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August 2012

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Summary: Open-loop prepaid cards are becoming a mainstream payment instrument in the United States. In addition, businesses and governments increasingly view them as a less expensive alternative to checks for disbursing payroll and benefits.

There are few studies that examine how consumers actually use prepaid cards, the revenues generated, and the resulting costs cardholders incur. This information gap poses a challenge for an industry in the early stages of refining its business models. It also poses a challenge for policymakers seeking to design cost-effective consumer protections for these products.

We analyze an anonymized data set of more than 280 million transactions made on more than 3 million cards issued by Meta Payment Systems. While the data have limitations and are not necessarily representative of the entire market, they can be used to establish a number of important stylized facts about the life cycle of prepaid cards.

We report detailed statistics on the longevity of prepaid cards and the intensity of their use, including the frequency and value of spending, the composition of spending at merchants, ATM withdrawals, and reloading of value onto cards. We identify cards that are likely enrolled in direct deposit and contrast usage of those cards with other cards in the data. We calculate statistics on revenues earned via consumer fees and the composition of those fees. We also estimate interchange revenues earned and thus quantify the significance of this funding source to the prepaid business model.

Keywords: General-purpose reloadable prepaid cards, payroll cards, direct deposit
JEL Classification Numbers: D12, D14, D18, E42

The authors wish to acknowledge and thank Meta Payment Systems (MPS), its project leader, Mick Conlin (senior vice president of product and marketing), and his colleagues at MPS for their contributions to this paper. Several years ago, MPS recognized the need for robust benchmarks on prepaid card usage and the role those metrics could play in improving the understanding of the products, the industry, and a number of policy questions. To inform market participants, researchers, and policymakers, MPS generously offered the data used in this paper and also provided substantial technical assistance. Over the course of several years, Mick and his colleagues have been extraordinarily generous with their time and expertise.

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1. Introduction[1]

Today in the United States, credit cards and debit cards are mature payment instruments used by hundreds of millions of consumers. Prepaid cards use the existing payment card infrastructure to offer payment functionality similar to debit cards to consumers who either do not have debit or credit cards or who prefer not to use them for at least some of their transactions.

While prepaid cards account for a small share of all consumer payments in the U.S., they are no longer so small that they can be ignored in the aggregate statistics. According to the most recent edition of the Federal Reserve System's payments study, in 2009 there were 6 billion prepaid card transactions, valued at more than $140 billion in the U.S. Prepaid transactions are growing substantially faster than transactions on debit and credit cards (Figure 1.1). Prepaid cards are also replacing the remaining paper checks used to disburse Social Security disability, unemployment insurance, food stamps, and other government benefits.[2]

This study focuses primarily on a specific segment — *open-loop reloadable* prepaid cards. These are prepaid cards that carry one of the major payment card network brands and can be used to make purchases at any merchant that accepts that card brand.[3] They can also be used to obtain cash at an ATM or as part of a PIN debit purchase at the point of sale. In order to make purchases or withdraw cash, value must first be loaded onto the card, hence, the label *prepaid*. Additional value can be loaded onto the card via electronic funds transfer (including direct deposit) or via a terminal at a retail location that is part of a *reload network*.

[1] We thank Geoff Gerdes of the Board of Governors, Renee Goodheart and Dana Ziv of FIS Global, Fumiko Hayashi of the Federal Reserve Bank of Kansas City, Michael Moebs of Moebs $ervices Inc., Tim Sloane of Mercator Advisory Group, and David Stewart of McKinsey & Company for sharing data with us. This paper has benefited from presentations at conferences organized by the Center for Financial Services Innovation and the Network Branded Prepaid Card Association, the ATM, Debit & Prepaid Forum, the Card Forum and Expo, and workshops at the Ford Foundation, FDIC, the Bank of Canada, and the Consumer Financial Protection Bureau.

[2] See Herbst-Murphy (2012) and Federal Reserve System (2012).

[3] These cards are also described as *network branded* prepaid cards.

Today, these open-loop prepaid cards account for about 30 percent of the prepaid transactions identified in the Federal Reserve payments study. This segment is growing much more rapidly than are prepaid cards in general (Figure 1.2). Much of this paper will study two major sub-categories of open-loop prepaid cards. The first sub-category is *general-purpose* cards, which are intended for everyday use in a manner similar to an ordinary debit card. The second is *payroll cards*, which are a substitute for issuing a paper check to an employee who is not being paid via direct deposit into a checking or savings account.

While the popularity of prepaid cards may be a relatively recent phenomenon, they are not a recent invention. Referred to as "stored-value cards" a decade ago, they have evolved gradually over time. Over the years, prepaid cards have been the subject of regulatory scrutiny at the state and federal levels. Federal initiatives have focused on regulations to address concerns about money laundering, pricing and disclosures for gift cards, deposit insurance, and consumer protections for recipients of payroll cards.[4] More recently, the Consumer Financial Protection Bureau published an advance notice of proposed rulemaking to consider potential new regulations for general-purpose prepaid cards.[5]

Over the years, a number of studies of prepaid cards have been produced. Some of those are reviewed in Section 2. Nevertheless, there remains much to be learned about the prepaid business model, which depends significantly on how consumers actually use these cards. That is the principal focus of this paper. We analyze more than 280 million transactions on more than 3 million prepaid cards issued by Meta Payment Systems in over a dozen programs. How these cards are used determines the revenues earned by the prepaid card issuer and the costs incurred by the cardholder. We examine those patterns in considerable detail.

[4] For an overview of regulations that govern prepaid cards, see Keitel (2011a).

[5] See 77 *Federal Register* (May 24, 2012), pp. 30923-5.

While we cannot be certain that these data are representative of experience for the industry as a whole, we believe the statistics presented here will advance our understanding of prepaid cards and the way they are used. We summarize just a few key findings here:

- Prepaid cards offer much of the functionality of checking accounts, but that does not mean the underlying economics are the same. A typical prepaid card in the data is active for six months or less, a small fraction of the longevity seen with consumer checking accounts. As a result, account acquisition strategy and the recovery of fixed and variable costs are likely different than for checking accounts.
- For the median or typical prepaid card in the data set, the number and value of transactions is modest. That is also true for the value of funds loaded onto the card. There is very considerable variation in the usage of cards across an entire portfolio. For many of the statistics we calculate, usage has a U-shaped pattern; that is, a sizable share of the portfolio is used very little, while a smaller share of the portfolio (usually the top 20 percent of cards) is used intensively.
- Because prepaid cards are essentially transactional products, the patterns just described in terms of usage translate into the revenues earned by the prepaid card issuer as well as the costs incurred by the cardholder. For the typical prepaid card in the data, the issuer revenues and cardholder costs per active card month that we observe are at most $12 and generally lower in most programs.[6] Even among the most actively used prepaid cards, issuer revenues and cardholder costs are generally less than $20 per month.
- An extremely important distinction for the prepaid cards we study is the presence (or lack thereof) of repeated value loads that appear to reflect direct deposit. While uncommon, prepaid cards with such patterns remain active more than twice as long and have 10 times or

[6] For reasons we make explicit later in the paper, issuer revenues and cardholder costs are not the same. Also, as we make clear throughout the paper, all our statistics are based on what we can observe or estimate from the transaction data. If there are additional revenues or costs that can't be inferred from the transactional data, we cannot take those into account. See Section 3.4 for details.

more purchase and other activity than other cards in the same program category. As a result, these cards typically generate at least four times more revenue for the prepaid card issuer. For these cards, average cardholder costs per active card month are about two times higher than for other cards in the same program category. This difference in cardholder costs is a result of the much higher transaction activity on those cards. Comparing the differences in card usage and costs, it is clear that cardholder cost per transaction is generally lower for cards with regularly scheduled value loads than for other cards in the same program category.

- Our calculations for issuer revenues include estimates of the revenues earned from interchange fees on point-of-sale purchases. While not as important as cardholder fees, interchange revenues account for more than one-fifth of the issuer revenues we observe in the general-purpose programs and almost half of revenues in the payroll programs. According to our estimates, interchange fees paid by the prepaid issuer to owners of ATMs are not insignificant.
- To the extent they are used by consumers, most of the prepaid cards in the data are used for both cash withdrawals and purchases of goods and services. Depending on the type of prepaid card, cash withdrawals account for about one-third to one-half of the value taken off the card. The majority of purchase transactions occur at grocery stores, fast food restaurants, and gas stations. This suggests that prepaid cards are used primarily to purchase nondurable goods. Many prepaid cards in the data set are also used to pay bills.
- The mix of fees paid by cardholders to the prepaid issuer in the data varies by type of card. In value terms, the most significant fees incurred by cardholders include maintenance fees (primarily in certain general-purpose card programs) and ATM withdrawal fees, which account for a sizable share of fees in all programs.
- Cardholders may also pay ATM surcharges, which are set and received by the owners of the ATMs they use. ATM surcharges are not uncommon in the data we study. Depending on the

type of program, surcharges account for about 15 to 40 percent of the cardholder costs we observe.

The remainder of the paper is organized as follows. Section 2 provides a brief overview of the existing literature on prepaid cards. Section 3 describes the data used in this paper and the statistics we can generate from the data. It also describes some of the limitations of the data, which are important for interpreting the results reported in subsequent sections of the paper. Section 4 provides a detailed examination of prepaid card usage patterns, including longevity, the number and value of purchases, ATM withdrawals, the mix of retailers where purchases occur, bill payments, and funds loaded onto the cards. The significance of direct deposit for these and other measures of usage is also explored. In most cases, we present statistics for the typical (median) card for a program category as well as measures of variation across the entire portfolio. In a similar vein, Section 5 presents the resulting statistics on cardholder fees earned by the prepaid card issuer, interchange revenues earned on point-of-sale (POS) transactions, and interchange paid by the prepaid issuer to owners of ATMs. Statistics describing the composition of cardholder fees for each of the major categories of cards are also presented. The frequency and value of ATM surcharges, which are set and earned by ATM owners, is also documented. The section concludes by presenting information about the level and sources of revenues earned by the prepaid card issuer as well as the level and composition of costs incurred by cardholders. Section 6 concludes and offers suggestions for further research. Section 7 provides additional details about the data and how our statistics are constructed. All figures and tables can be found at the end of the paper, and they are labeled to reflect where they are discussed in the text.

2. Previous Literature

A significant amount of the existing literature on prepaid cards has been produced by a number of consulting firms that focus on consumer payments. For example, the Aite Group (2012) has published data on the demographics of prepaid card users. The Mercator Advisory Group has published a series of reports on market sizing and forecasts for various segments of prepaid

cards.[7] Javelin Strategy & Research has published results from several surveys of consumers that examine factors that influence consumers' choice of payment and banking products, including prepaid cards.[8]

As noted in the introduction, prepaid cards have been developing for more than a decade. Over this period, both the Payment Cards Center (PCC) and the Center for Financial Services Innovation (CFSI) have published a number of studies of prepaid cards. For example, CFSI has produced several papers based on surveys and interviews with prepaid card users.[9] Among its research, PCC has documented emerging applications of prepaid cards, including government benefits, disaster relief, and medical savings accounts.[10]

As the market for prepaid cards has grown, these products have begun to receive attention in academic research. For example, Romich et al. (2009) present results from interviews with customers of two prepaid companies. The authors found that the following features were especially valued by cardholders: convenience, ubiquity of acceptance, immediate access to funds and account information, simplicity and transparency of fees, cost effectiveness relative to the available alternatives, and built-in discipline due to the inability to overdraw.

A number of studies examine the costs consumers incur to use an open-loop prepaid card and compare those to costs associated with a basic checking account. A common methodology used is to apply the fee schedule for specific prepaid cards to a set of assumptions about the level and composition of a typical cardholder's monthly activity.[11] Others are based on the examples of a few consumers.[12] It is interesting to compare the results of those studies to the distribution of estimates in this paper, which are based on actual activity of many cardholders.

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[7] The most recent examples are Sloane (2011a, 2011b).

[8] For example, see Javelin Strategy & Research (2011) and (2012).

[9] See Center for Financial Services Innovation (2009) and Schneider (2009).

[10] See Cheney and Rhine (2006) and Kjos (2008).

[11] See, for example, Bretton Woods Inc. (2012) and Consumers Union (2012).

[12] Examples include NBPCA (2010) and Schneider (2009).

Only a handful of previous studies examine how a significant number of consumers actually use their prepaid cards. Rhine et al. (2007) examined the transactions of 500 randomly selected cardholders from each of four providers of open-loop, general-purpose prepaid cards. For these 2000 cardholders, the study collected monthly transaction data for 12 months from 2005 to 2006. On a monthly basis, cardholders spent almost all of the funds loaded onto their cards via purchase transactions at the point of sale. This led the authors to conclude that cardholders likely viewed prepaid cards as substitutes for cash and checking accounts. Interestingly, the authors encountered a number of the same complications and data limitations in their study as we did in ours. In particular, they observed a lack of standardization in data fields reported across different issuers and processors, limited demographic information about cardholders and marketing campaigns, and limited visibility into card balances.

Cole et al. (2008) worked with prepaid transaction data similar to the data used in this paper, but they used them for a very different purpose. The authors examined the significance of credit constraints among consumers identified by their decision to obtain an income tax refund anticipation loan whose proceeds were used to fund a prepaid card. The authors used a large sample of data on spending by more than 1.5 million individuals who received their tax refund via an H&R Block Emerald Card during the period October 2006 through April 2007. The authors observed spending patterns and the composition of spending by merchant category. Even though cardholders obtained their refunds through an expedited method, 27 percent of their cards remained active for more than a day, registering a balance of $5 after three months. In terms of the composition of spending, 56 percent of clients withdrew cash via ATMs, a value comparable to what we report for payroll and web GPR cardholders in Section 4. Consistent with what we found in our analysis, grocery stores represented the single largest merchant category for purchases and the majority of all purchases were for nondurables. This was true even for the spending immediately following receipt of the tax refunds.

In recent years there has been vigorous discussion of the appropriate consumer protections for open-loop prepaid cards. The existing framework, as well as debates about the future, is discussed in Keitel (2011a) and Zywicki (2012).[13] There have also been a number of proposals for establishing concrete best practices for the prepaid card market.[14] The information contained in this paper should contribute to those discussions.

3. Data

The analysis in this paper is based on an examination of a large data set of anonymized prepaid card transactions provided to us by Meta Payment Systems. In this section, we describe the characteristics of the data and the transformations necessary to conduct the analysis. The results of the analysis are presented in Sections 4 and 5, and a more detailed discussion of the data treatment can be found in Section 7, the appendix to the paper.

3.1 The Role of Meta Payment Systems in the Data Stream

Meta Payment Systems (MPS), a division of the federally chartered savings bank MetaBank, furnished the data for this project. MPS has four major business lines: prepaid sponsorship, credit sponsorship, ATM sponsorship, and program management. MPS provided the anonymized data through its prepaid card business segment, a segment in which it is an industry leader.[15]

MPS issued the cards for all of the programs in the data set. For one of the programs, MPS served as card issuer and program manager. In the traditional model of prepaid sponsorship, the program manager and card issuer have a contract in which the issuer agrees to provide the bank identification number (BIN) for the program and monitor regulatory compliance and oversight, in exchange for fee income and indemnification from risk. In addition, under this model, the processor and issuer have a contract to exchange data. In the data stream for the

[13] For a discussion specific to disbursement of unemployment benefits on prepaid cards, see Saunders (2011).

[14] See Center for Financial Services Innovation (2012) and Parzick and Schneider (2012).

[15] MPS ranked first in the Nilson Report's list (Issue 975, July 2011) of top U.S. prepaid issuers for 2010, with more than 28 million cards issued on which consumers made 347 million transactions totaling $11.5 billion.

transactions in this paper, MPS received information from several different processors with differing formats for presenting the data. The information provided by MPS for this paper was limited to account and transaction data and did not include any data about the identity of the cardholders or the card programs.

It is very important to keep in mind that, in a typical prepaid card program, the totality of revenues earned from prepaid cards is shared among a number of organizations that are necessary to acquire and serve customers.[16] In some prepaid card programs, all of these providers are part of the same firm. In others, independent firms are linked via a set of contractual relationships. Those contracts define how revenues are shared across the various participants. In the transactional data we study, there is no information about such allocations. With this in mind, and to simplify exposition, we simply refer to revenues that flow to the prepaid issuer.

3.2 Description of the Data Provided by MPS

The data set contains more than 280 million anonymized prepaid card transactions made on more than 3 million cards that were issued in 15 prepaid card programs. The data set includes transactions on cards issued over a six-year period that encompasses the most recent business cycle. But most of the transactions we observe occurred in the last two years of the data set: 2009 and 2010.

Table 3.1 shows the grouping of programs in the data set by card type, method of enrollment, and method of distribution. Among three of the programs in the data set, consumers purchased their general-purpose reloadable (GPR) cards via the web. In six programs, cards were purchased through a variety of brick-and-mortar retailers, including grocery stores, pharmacies, and check cashing outlets. In one program, GPR cards were sold to consumers at the branches of a financial institution. For the remaining five card programs that include three payroll programs, one flexible spending account program, and one transit program, the enrollment of cardholders occurred via their employers. In terms of card distribution, cardholders received personalized

[16] For a discussion of the participants in the prepaid card value chain, see Keitel (2011b).

cards via mail in all of the programs in the data set except one.[17] In the financial institution program, customers received their cards in the branches at which the cards were purchased.

Throughout this paper, we have grouped cards in 14 of these programs into five categories to describe card use.[18] We do this for several reasons. First, a limiting factor of these data is that we do not have demographic or financial information about the cardholders. All we know about them is their ZIP code and that they obtained a card from a specific program. Also, we don't observe the marketing information for the programs in the data set, which might help us to characterize the kinds of consumers the program was designed to attract. Instead, we use the type of card and the means of distribution as a proxy for what managers of card programs offer and what consumers seek.

Second, as shown in Table 3.1, most of the transactions in the data set occur on cards in the payroll programs. The composition of cards in the data is probably not representative of the prepaid market as a whole.[19] But we can address this concern, at least in part, by presenting separate statistics on transaction behavior in each program category of prepaid cards. We believe that, controlling for card type and distribution channel, our statistics are likely to reflect patterns similar to those found for comparable cards offered by other issuers (or across the industry).

Another important qualification for the data we analyze here is that we observe transaction behavior on individual prepaid cards but not for individual cardholders. It is possible that more than one prepaid card in the data set was obtained by the same consumer. While we have unique randomized card numbers, we do not have a unique anonymized consumer identifier that would permit us to evaluate how a given cardholder uses all of his or her cards. Of course, a

[17] For prepaid cards distributed via retail locations, it is not uncommon for the consumer to purchase a card with single load functionality and then provide the card issuer with identifying information in order to receive a reloadable version of the card via mail. One reason for this two-step process is that it ensures the prepaid card issuer has sufficient information about their customers to satisfy regulations established to prevent money laundering.

[18] Hereafter, we exclude the transit card program from the analysis presented in this paper.

[19] According to the Mercator Advisory Group, payroll cards accounted for about 14 percent of value loads on open-loop prepaid cards in 2010 (see Sloane 2011a).

more general concern in analyses such as this is that this card activity may not represent all spending (purchase and cash withdrawal activity) by the consumer; the consumer may have additional prepaid cards or other kinds of transaction accounts with alternative providers. But we don't observe this information.

To summarize, the results in the paper are based on an analysis of transaction activity on individual prepaid cards in the data set. We can locate cards by the ZIP code of the individual obtaining the prepaid card. The card activity information in the data set includes the date of the transaction, the type of transaction, the dollar amount of the transaction, a merchant category code that allows us to classify the type of retailer at which the transaction was conducted, an alphanumeric field that often contains the merchant's name or other descriptors of the transaction, and a network code indicating the network over which the transaction was processed.

3.3 The Geography of Prepaid Cards in the Data Set

Figures 3.1 through 3.3 plot the geographic distribution of the retail and web general-purpose reloadable (GPR) cards and payroll cards in the data set in 2010 at the county level. Note that the number of cards is normalized by population to suggest a sense of the local market penetration of prepaid cards.

Figure 3.1 shows the distribution of retail GPR cards across the country. There are cards in most counties, but, as expected, the distribution is far from uniform. There is a concentration in the West and in Florida that likely results from the specific geographic footprint of the retail companies where these cards were purchased.

Figure 3.2 shows that cards distributed via the web GPR programs appear in more counties, and the distribution of cards per 10,000 of population is more uniform. This is not surprising given that this mode of distribution does not depend on the retail footprint of brick-

and-mortar storefronts. Still, the web distribution shows some relative concentration in the South and Southeast in a pattern similar to the FDIC's survey data on underbanked consumers.[20]

A concentration of prepaid cards in the South and Southeast is also evident in Figure 3.3, which presents the geographic coverage for the payroll cards in the data set. This concentration is driven by the geographic location of the establishments that provide payroll cards to some of their employees.[21] In some counties, there is more than one payroll card for every 100 persons. Given that these data are from a single provider and that this market is still quite young, achieving a 1 percent penetration rate is a significant milestone.

3.4 Cleaning the Data for Analysis and Accounting for Data Limitations

Our analysis is based on only those cards for which we see some evidence that a consumer used the card at least once. With this in mind, we identified cards in the data set for which money was loaded on or taken off via consumer-initiated transactions. These transactions include value loads, purchases, transfers, and cash withdrawals.

Second, most of the statistics presented in this paper require that we observe all or nearly all of the transactions that will ever occur on a given card. This means that we should not include in those statistics prepaid cards that became active just before the end of the time span of the data, which is December 2010. It's likely that most of those cards remained active into 2011, but we don't observe transactions in that year. To address this form of truncation bias, we exclude from the analysis cards issued within an interval of time prior to December 2010 that is shorter than the median active life span of cards in that program.[22]

In addition to the qualifications noted in Section 3.2, a number of other data limitations affect the measures we can construct and present with confidence. They may also influence how

[20] For a comparison, see the FDIC's National Survey of Unbanked and Underbanked Households (2009), p. 19.

[21] It has been suggested that these patterns may also be influenced by variation in state laws regulating payroll cards. For further information, see the American Payroll Association's website, http://www.americanpayroll.org/.

[22] For details on our truncation adjustments, see the data appendix (Section 7).

our statistics should be interpreted. For example, in some programs — possibly in some retail GPR programs — we are not certain that we observe the first value load onto the prepaid card and/or any associated fee for activating the card. As a consequence, without making relatively strong assumptions, we are not certain we can calculate the actual absolute balance on a given card. For this reason, the analysis presented here does not include information on balances.[23]

Also, if we don't observe card activation fees in the card transaction stream, we may understate cardholder costs (see Section 5) by the amount of the activation fee for that program. We think this is relatively more likely for cards marketed via retail channels.

Similarly, consumers can reload their prepaid cards at a retail location, and this may entail a reload fee that is paid by the consumer. But it is possible the reload fee appears on the retailer's system and not in the transaction stream that we observe. To the extent this does occur, our estimate of cardholder costs may be understated for some programs.

Some data points from other sources may be useful for thinking about reload costs on open-loop prepaid cards. According to Sloane (2012), about 35 percent of the value of reloads conducted by the consumer is funded via cash or check. It is likely that most of that reload activity occurs at a retail location. But it is also very likely that the mix of reload volume varies considerably across prepaid programs; therefore, such a statistic may not be indicative of the pattern in any particular program.

Bretton Woods Inc. (2012) estimates prepaid cardholder costs based on explicit assumptions about the mix and intensity of card use. In that study, it is assumed that reload fees and certain other fees are incurred for general-purpose prepaid cards without direct deposit and that the consumer conducts two reloads each month. In its survey of program costs, reload fees for non-direct-deposit cards vary from about $1 to $5. In the programs that Bretton Woods

[23] The difficulty lies in potentially imputing an initial value load on a prepaid card when we are not sure if the first value load is included in the data. In a data set that exhibits abundant heterogeneity, we would have to either assume a common initial value load or a draw from the distribution of value loads we do observe.

studies, assuming two reloads per month, the average monthly difference in cardholder costs for cards with and without direct deposit is $7.22.

For several reasons, this number cannot simply be added to the estimates reported in this paper. To the extent that reload fees are incorporated into the transaction stream we study, adding an estimated cost from outside the data would likely double count the costs incurred by cardholders. In addition, reload fees and practices may be different for the programs we study and the ones used in the Bretton Woods study. The mix of reload activity may also vary in the programs we study.[24] Some of the cards in the data we study appear to have direct deposit (see Section 4.5) and likely do not incur any reload fees. There is also considerable variation in reload activity among cards in the data we study (see Section 4.4). For the vast majority of cards in the data studied here, reload frequency is well below the two transactions per month assumed by Bretton Woods.[25]

In Section 5, we attempt to take into account the role that interchange fees play in the revenues and costs of the prepaid issuer. We don't observe interchange fees directly. Instead we estimate them using a combination of the network and merchant category codes and published interchange fee schedules.[26] Because our information is incomplete, there is some subjectivity in these estimates. Nevertheless, we feel they provide a useful first approximation for understanding the role interchange plays in the prepaid business model.

There are two additional sources of uncertainty in the data. The presence of direct deposit onto prepaid cards is extremely important for explaining how those cards are used by consumers (see Section 4 for an attempt to quantify this effect). But the data do not provide a clear indicator for direct deposit. Rather, we categorize cards as having direct deposit if we can identify patterns

[24] Unfortunately, we cannot generally determine if the consumer has reloaded his or her card via the Internet or at a retail location or the source of funds used to reload the card.

[25] This can be seen in Table 5.9, which is discussed in Section 5.5.

[26] Details on the construction of our interchange revenue estimates are found in the data appendix (Section 7).

of value loads at periodic intervals where the value loads don't end in ".00." This approach should produce relatively few "false positives" but possibly more "false negatives."[27]

A second source of uncertainty is associated with the specificity of information about the nature of a fee being charged to the consumer. In some years, for some programs, there are detailed codes that permit us to identify the nature of almost all fees charged to the consumers. For other programs, these codes are less precise or missing. There are some consumer actions with which we can clearly associate a fee (ATM withdrawals, for example). Others must be inferred by their magnitude. But many prepaid card fee schedules have similar fee amounts for a variety of consumer actions, a fact that complicates the assignment of a fee to a particular category. As a consequence, we are able to report a finer breakdown of the composition of fees among cards in the payroll programs than for cards in the GPR programs. Note that this complication affects the determination of the composition of fees. It has no effect on our estimates of the level of fees being charged.

For the rest of the discussion in this paper, all calculations are based on the subset of cards we have just described. A more detailed description of the steps employed to create the data set used for the analysis in the paper is available in the data appendix (Section 7).

[27] Consider the example of parents giving their child a prepaid card for use at college and scheduling a $250 value at 30-day intervals. Our methodology would not identify this pattern as direct deposit.

4. How Do Consumers Use Prepaid Cards?

In this section we describe how long consumers use their prepaid cards, the intensity of their use, and the composition of transactions they engage in. As noted in the introduction and again in Section 3, it is important to keep in mind that the data set is not necessarily representative of the industry as a whole. Nevertheless, based on conversations with a number of market participants, it appears that the statistics we present here are not atypical. Most of the statistics presented in the tables are broken out by program category, reflecting our intuition about how cards are marketed and the purposes that lead consumers to take up these cards.

4.1 The Life Span of Prepaid Cards

For the purposes of this paper, we calculate the active life of prepaid cards based on the first and last dates of activity on the card.[28] This information is presented in Table 4.1. In general, the life span of prepaid cards is short, often less than six months. This is an important observation, since the cost of acquiring *active* card accounts must be amortized over this period, which is likely much shorter than for most checking accounts or bank-issued credit cards. In other words, any fixed costs associated with establishing a reloadable prepaid card used by a consumer must be recovered over a time span that is only 5 to 15 percent that of a typical checking account.[29]

As Table 4.1 makes clear, there is considerable variation in the life span of cards across program types: GPR cards marketed through retailers are typically active for about two months, while cards marketed via a website last about six months. Payroll cards are typically active for just over four months. In the program for which GPR cards are marketed via a financial

[28] For these calculations, we include transactions initiated by the consumer and any fees charged. We do not include adjustments or write-offs.

[29] According to McKinsey & Company's Consumer Financial Life Survey, in 2011 the median age of consumers' primary transaction account was 10 years. Kiser (2002) reports a similar value based on questions asked in 1999 vintages of the Michigan Surveys of Consumers.

institution, the active life of cards is typically six months. In the one GPR program linked to a flexible spending account, the card lasts well more than a year.[30]

We also explore the consistency with which consumers use their cards. Table 4.1 presents two measures of inactivity on prepaid cards. These measures represent periods of time *before* the consumer ceases to use the card altogether but nevertheless transacts infrequently. The second column of the table reports that the median value of the *longest* spell of inactivity on a payroll card in the data is 14 days, a period that happens to correspond to a commonly used payroll cycle. GPR cards distributed via the web or retail locations typically have maximum periods of inactivity that last about a month; for cards distributed via the financial institution channel, it is about 1.5 months. Not surprisingly, the longest intervals of dormancy occur among FSA cards, where value loads may be less frequent and where consumers tend to group their eligible transactions.

The third column of Table 4.1 reports the share of prepaid cards in a given category that have a period of dormancy longer than 90 days. For payroll and the retail or web GPR cards, this occurs in less than a fifth of the cards in the data. Higher shares of cards with such long dormancies occur among cards distributed via the financial institution (45 percent) and especially among FSA cards (80 percent). These patterns are important, since they influence the profitability of prepaid cards as well as account management strategy.

4.2 Purchase Activity

Table 4.2a presents statistics on purchases over the life of the prepaid cards in the data set.[31] A typical (median) prepaid card in these programs is not used for a large number of purchases. This statistic is better explored by examining the shares of prepaid cards allocated into different

[30] Note there is significant variation in life span *within* these categories (not shown). Median active life varies from about three to 13 months in the web programs and from 13 to 150 days in the retail programs. Median active life in the payroll programs varies from two to six months.

[31] The numbers in Table 4.2a exclude ATM cash withdrawals. Cash withdrawals are addressed in Table 4.3.

categories of purchase transaction frequency ranging from zero to more than 50 over the life of the card. This breakdown illustrates a bimodal pattern in the usage of prepaid cards — the largest shares of cards in most program categories are hardly used (five or fewer purchase transactions) or are used quite intensively (51 or more purchase transactions). This U-shaped pattern of activity appears in many of the statistics we calculate, and it is also important for understanding the revenues earned from a portfolio of prepaid cards as well as costs incurred by consumers when using their cards (see Section 5).

Note that there are significant variations across program categories in the shares of cards that are either barely used or that are used intensively. The majority of GPR cards distributed through retail channels are used for five or fewer purchases. That is also true of GPR cards in the FSA program. In contrast, about a third of cards distributed via the web and payroll channels have so few purchase transactions. More than a quarter of GPR cards distributed via the web have more than 50 purchase transactions; a third of payroll cards have this much activity. In contrast, only 11 percent of GPR cards distributed via retailers have more than 50 purchase transactions. For whatever reasons, consumers clearly use GPR cards distributed in these different channels in different ways. This may depend on how the cards were marketed to those consumers or on differences in the reasons why consumers sought these cards.[32]

Table 4.2b presents statistics for the total dollar value of purchases on prepaid cards over their lifetimes. Again, typical (median) purchase volume is modest. It is highest for cards distributed via the web and payroll programs (just under $500) and much lower for GPR cards distributed through retailers (about $120). There is considerable variation in purchase volume across card programs within the same categories presented in the table. For example, for the several retail programs in the data, median purchase volume over the life of a card varies from as little as $25 to as much as $175. Among cards distributed via one of the three web programs,

[32] We cannot say more with the data at hand, because we don't have information that describes the cardholders and we don't have access to the marketing information used for these different card programs.

median purchase volume varies from $175 to about $550. The variation is greatest among the three payroll programs: Median purchase volume varies from $300 to just over $1,000.

The other columns in Table 4.2b help to explain the variations in typical purchase activity across program categories. These patterns are generally comparable to the statistics presented for the number of purchases in Table 4.2a. For example, more than one-third of GPR cards distributed through retailers have cumulative purchases of less than $50. Less than 20 percent of those cards have cumulative purchase volume of more than $1,000. By comparison, 21 percent of cards distributed via the web have purchase volume less than $50 and 37 percent have total purchase volume of more than $1,000. In this respect, consumers' use of payroll cards is more similar to that of the GPR cards distributed via the web than to those distributed via retailers.

Next, we turn to cash withdrawals from prepaid cards, which are described in Table 4.3. These statistics make clear that the ability to obtain cash from prepaid cards is important to many consumers.[33] More than 60 percent of payroll cards and GPR cards distributed via the web have at least one cash withdrawal over the active life of the card. But this proportion is significantly lower for GPR cards distributed via retailers or a financial institution, possibly for different reasons. As noted earlier, the retail GPR cards tend to be shorter lived products. It is also the case that less value is typically loaded onto retail cards (see Section 4.4). While this is purely conjecture on our part, it is possible that consumers who obtain their GPR cards from a financial institution are more likely to obtain their cash via means other than their prepaid card.

Among cards that are used for at least one cash withdrawal, the median number of withdrawals is small. This frequency corresponds to about one to two withdrawals per month over the typical life of these cards. However, the value of cash withdrawals is not insubstantial, either in absolute terms or as a share of total spending on these cards. On the other hand, the last column of the table makes clear that most of the prepaid cards in the data set are also used for

[33] Note that cards in the FSA program do not permit cash withdrawals.

purchases of goods and services. For most cardholders, then, both features appear to be important. As an example, we calculated the proportion of payroll cards in which 80 percent or more of the value taken off the card occurred via a cash withdrawal. Cards used in this way are essentially a plastic equivalent of cashing a paycheck. We found that 16 percent of payroll cards in the data were used in this way.

Note that the information presented in Table 4.3 does not reflect cash that consumers may obtain via PIN transactions at the point of sale because we cannot identify the cash component of those transactions. Thus, the importance of cash withdrawals to consumers using GPR cards is somewhat understated by this table. However, there is reason to believe that the degree of understatement is not severe. Tabulations from the Federal Reserve's 2010 depository institutions payments study suggest that ATM withdrawals account for 85 percent of the number (and 95 percent of the value) of cash withdrawals using debit/ATM cards.[34] If a similar pattern holds for prepaid cards, the information contained in Table 4.3 accounts for a large share of cash withdrawals made using these cards.[35]

4.3 Composition of Purchases

In this section, we explore the mix of retailers where the prepaid cardholders in the data set transact. As described in Section 3, we do this by tracking the four-digit merchant category codes (MCC) contained in the transaction stream. Statistics for the most important categories of merchants are presented in Table 4.4. Purchases at three types of stores (grocery, service stations, and fast food) alone account for about half of all purchase transactions and about a third of transaction value in the data set. Restaurants, telecommunications, and utilities are also well

[34] We thank Geoff Gerdes and Matt Hayward of the Federal Reserve Board for sharing this unpublished tabulation.

[35] On the other hand, there are plausible reasons to think that prepaid cardholders in the data examined here may rely more on cash back at the point of sale. That is because they appear to incur more fees (ATM withdrawal fees and ATM surcharges) than seems typical for checking account holders using their ATM cards. See Section 5.3.

represented in the transaction data. In short, the composition of stores where these prepaid cards are used suggests that most purchases consist of nondurable goods and services.

There is some variation in the mix of retailers used by prepaid cardholders depending on the distribution channel of the card. Not surprisingly, the vast majority of transactions on the prepaid card linked to an FSA program (not shown) occur among providers of medical services (dentists, drug stores, doctors, and other medical services).

Overall, bill payments (not shown) account for roughly 10 percent of transactions and a higher share of purchase volume among prepaid cards in the data set.[36] But there is considerable variation across card programs in the proportion of cards with at least one bill payment (ranging from 20 to 60 percent of cards across most programs).

We investigated whether the mix of purchases on prepaid cards that were used for six months or longer tended to change over the life of the card. We compared the transaction shares for the most important retailer categories over the first three months of card use to those shares over the subsequent three months. We found very little difference in those purchase patterns.

4.4 Adding Value to the Card

A prepaid card cannot be used for purchases (or cash withdrawals) if there is no value loaded on the card. As noted in Section 3, it may be the case that for cards in some of the programs, (cards distributed via retailers, for example) we do not observe the first value load onto the card. But we do observe value loads thereafter. Tables 4.5a and 4.5b present the median number and value of these loads by distribution channel as well as a breakdown of the shares of cards that fall into various categories of load intensity.

In the data set, the typical number of value loads over the life of a prepaid card is modest, ranging from a median of one among GPR cards distributed via retailers to as many as five

[36] We identify bill payments as transactions either coded as a bill payment or associated with certain merchant codes that involve paying a regular bill (e.g., telecommunications) or occasional bills (e.g., doctors' bills). A complete list of codes used in our definition is found in the data appendix (Section 7).

among payroll cards. We observe a U-shaped bimodal distribution for the number of value loads that is similar to what we observed for the number of purchases in Table 4.2a. More than 90 percent of prepaid cards associated with the FSA account had three or fewer value loads, which likely reflects how those programs are administered. More than 70 percent of the GPR cards distributed by retailers have three or fewer loads; 50 percent of those cards have at most one value load. In contrast, more than 58 percent of payroll cards and 43 percent of GPR cards distributed via the web have at least four value loads; a significant share of cards in these programs have at least eight value loads.

While cards in the FSA program have relatively few value loads, it is clear that these are for relatively large amounts. Table 4.5b shows that these cards typically have the largest cumulative amount loaded. More than two-thirds of those cards have $1,000 or more loaded onto them while they are active. In contrast, a typical GPR card obtained at a retailer in the data has about $200 in value loaded over its active life. One-quarter of those cards have $1,000 or more in loads, while another quarter have less than $50 in loads. In contrast, 45 percent of GPR cards obtained through the web have $1,000 or more in value loads, as do a majority of the payroll cards. This is reflected in the median cumulative value of loads for these cards, almost $800 for web GPR cards and almost $1,300 for payroll cards. These are not insubstantial funds from the perspective of the consumer.

Table 4.5c describes the relationship between the number and typical size of value loads on prepaid cards in the data set. One might suspect an inverse relationship between the frequency and size of value loads, but that is not the case for these cards: Median values of load amounts are generally higher for cards that have more value loads over the life of the card. This suggests a relationship between the intensity and longevity of these prepaid cards and the circumstances of the cardholder. Without additional information about cardholders, however, there is little more we can say.

4.5 The Significance of Regularly Scheduled Value Loads

As mentioned in the introduction, direct deposit of funds onto prepaid cards is an extremely important characteristic for explaining how long those cards will remain active and the intensity of their use.[37] In Section 3 we pointed out that, with the exception of payroll cards, we do not directly identify which cards are receiving direct deposit of payroll or funds from other sources. Instead, we identify a certain number of value loads that occur at certain frequencies.[38] Using these criteria, we can segment prepaid cards into those that we think receive direct deposit and those that do not and compare these two groups of cards. The results are presented in Table 4.6.

In principle, all payroll cards are enrolled in direct deposit of wages and salaries. Nevertheless, for the purposes of comparison, statistics for payroll cards are restricted to only those cards that satisfy the same criteria we apply to the other card programs in the data set.[39] As shown in Table 4.6, this restriction eliminates nearly half the payroll cards from the calculations, in part because those cards did not remain active sufficiently long to identify multiple value loads.[40] The remaining cards, however, last for nearly twice as long as payroll cards in general (see Table 4.1) and account for the vast majority of transactions in these programs. They typically have three times as many purchase transactions, purchase volume, deposits, and value of deposits as payroll cards in general in the data set.

In the other categories of prepaid cards presented in Table 4.6, the disparities between cards with apparent direct deposit and other cards are even more pronounced. Only a small share of the various categories of GPR cards appear to have direct deposit. But unlike with payroll

[37] Keitel (2012) provides some additional evidence for this claim, based on data shared by another company.

[38] Cards are categorized as receiving direct deposit if we observe more than four value loads at weekly intervals, more than two loads at bi-weekly intervals, or more than one load at monthly intervals, for an amount not ending in ".00."

[39] One consequence of our identification criteria is that it selects out GPR prepaid cards with a very short life span. By applying the same criteria to payroll cards, we help to control for this potential confounding effect when comparing the effects of direct deposit on different types of prepaid cards.

[40] Recall that over 40 percent of payroll cards in the data have fewer than four value loads (see Table 4.5a).

cards, the consumer chooses to set up regularly scheduled value loads onto these cards, which makes the characteristics of their use all the more interesting. Retail cards with apparent direct deposit typically remain active for more than a year and receive 24 deposits and are used in more than 120 purchase transactions. Total purchases approach $3,500 and total deposits exceed $9,500. Nearly all of those cards have at least one cash withdrawal. The median number of those withdrawals is 31, which is approximately one for every 12 days in the life of the card. More than $4,000 in value is taken off the card in the form of cash withdrawals.

A larger share (nearly one-fifth) of GPR cards obtained through the web apparently have direct deposit. They do not last quite as long as the comparable retail GPR cards, but they have more purchase transactions and transaction volume. The very small share of GPR cards marketed through financial institutions that have direct deposit according to our definition last longer and typically exhibit more purchase and load behavior than any other cards in the data.

The transaction activity depicted for prepaid cards with apparent direct deposit in Table 4.6 looks something like the transaction behavior we might expect in a consumer's basic checking account. These cards are clearly important for the consumers who obtain them, and they are almost certainly the most profitable accounts in these programs. Yet, outside of the payroll programs, they represent only a small proportion of active GPR cards. And while these cards are used much longer than prepaid cards in general, their life span remains only about one-tenth that of the median consumer checking account.

5. Revenue Earned on Prepaid Cards

Having documented how consumers are using prepaid cards in these data, we turn to the revenue this activity generates, who pays for it, and who receives it. We proceed in a series of steps. First, we present statistics on the aggregate fees paid by cardholders to the prepaid card issuer. We then decompose these fees into the most common ones that cardholders pay. Next, we provide statistics on the frequency and magnitude of ATM surcharges that cardholders pay, but which are determined and received by the owner of the ATM. Then, we provide a rough estimate

of the interchange revenue that is earned and/or paid by the prepaid card issuer. Finally, we pull all these data together to provide an overall picture of the revenue and costs of the prepaid cards in the data set.

In the tables described in this section, we usually present the data in two ways. The first approach reports revenues earned over the life of a prepaid card, which is an important metric for market participants. Understanding the revenues generated over the life of a prepaid card is important for thinking about how the fixed cost of acquiring active prepaid card accounts can be recovered. The second approach reports fees paid per active card month, which is a straightforward measure of the costs a consumer incurs for using and maintaining one of these cards.

As we did with our measures of card activity, we often present statistics that convey the variation across the portfolio of cards in each of the card categories. We do that by dividing cards in each category into five groups (quintiles) sorted on the basis of some measure of intensity or longevity. This information should contribute to a better understanding of the distribution of revenues generated across a card portfolio and the implications for the profitability of the portfolio. Similarly, we present statistics that illustrate the variation in cardholder costs, which depends on both fee schedules and the different ways in which cardholders use their prepaid cards.

Once again, it is important to acknowledge some of the limitations of the data.[41] First, the data are not necessarily representative of the industry as a whole. Second, we have varying degrees of visibility into the fees charged on these prepaid cards. In particular, for at least some programs, we may not observe all card activation fees or fees associated with reloading cards at a physical location. Third, our breakdown of the composition of fees for GPR programs is less precise than it is for the payroll programs. Finally, we do not directly observe interchange earned

[41] These are reviewed more extensively in Section 3 of this paper.

on point-of-sale transactions. Instead, we estimate those amounts using the information in the transaction stream and published interchange fee schedules of the various debit networks.

5.1 Cardholder Fees Earned by the Prepaid Card Issuer

In this subsection, we provide estimates of the revenues earned by prepaid card issuers from cardholder fees. Table 5.1 presents median values of cardholder fee revenue earned for each of five quintiles of cards sorted according to one of four obvious variations in their use: total cardholder fees, the active life of cards, the number of transactions made, and the number of cash withdrawals from the cards. Note that the values reflected in this table do not include ATM surcharges paid by consumers and received by the ATM owner. Nor do they include interchange earned or paid (those components are addressed in Sections 5.3 and 5.4).

The shaded values in Panel A of the table represent the median values of cardholder fees earned on cards in each of the four program categories. Over the life of a prepaid card, the median cardholder fees earned vary from about $4 to $42. On a per active card month basis, this represents $2 to $10 charged to cardholders each month.[42] As the table makes clear, there is a clear rank ordering of the card program categories in terms of revenues earned by prepaid issuers from cardholder fees. Prepaid cards linked to the FSA program (not shown) generate the smallest amount of revenues, followed by payroll cards, followed by GPR cards distributed via the financial institution.[43] This is not surprising given that the FSA card program generates relatively few transactions and both the FSA and payroll card programs may recover some costs from the employer. GPR cards distributed via the web generate the most revenues directly from cardholders and more than GPR cards distributed via retailers.[44] The sorts based on longevity and other measures of consumer activity suggest that much, but not all, of the difference in cardholder

[42] As described in the appendix, the median card in terms of revenues over the life of a card is not typically the same card as the one identified as the median of revenues per active card month.

[43] We don't include cards associated with the FSA program in the table because less than 10 percent of those cards in the data set incur any cardholder fees.

[44] One caveat to this rank ordering is that we may not observe all of the fees consumers pay when they activate (or reload) their cards at certain merchant locations.

fees earned in retail versus web GPR programs is explained by differences in the way consumers use cards in those programs. As the tables in Section 4 make clear, the web GPR cards tend to be used longer and more intensively than are most retail GPR cards.

Within the different program types, there is considerable variation in the median cardholder fees generated over the life of the card in the individual programs (this variation cannot be observed from the table). Median cardholder fees earned among the three web GPR card programs, for example, vary from about $20 to $60. Much of this disparity is explained by the underlying difference in the longevity of cards in the different programs. Median revenues from cardholder fees per active card month are $10 to $12 among the web GPR programs. The individual retail GPR programs also vary significantly in terms of median revenue per card ($2 to $27). But unlike the web GPR programs, there is more variation in median cardholder fees per active card month ($2 to $12). Among the payroll programs, median cardholder fees in one program are $0, while in the others it varies from $12 to $20 (or $4 to $7 per active card month).[45]

The statistics presented by quintiles show there is considerable variation in the revenues generated on different prepaid cards *within* these card portfolios. The simplest way to see this is to sort the data by the total revenues earned from cardholder fees (Panel A in Table 5.1). For example, in the web GPR category, among the 20 percent of cards generating the most revenues reported in the fifth quintile column, a typical card yields $177 over its life, or just under $13 per active card month. In the bottom quintile of cards in this category, slightly less than $7 is earned per card, which represents less than $2 per active card month. Thus, the top fifth of revenue-producing web GPR cards are generating four times the revenue as a typical web GPR card in the portfolio and 25 times more than the cards in the bottom fifth of revenues. Similar variations occur in the other programs. Note that at least 10 percent of GPR cards distributed by the

[45] In one of the payroll programs, cardholder fees are charged on, at most, 40 percent of active cards.

financial institution and at least 30 percent of payroll cards in the data set generate no revenues from fees paid by cardholders. These statistics make clear that the prepaid business model must take into account not only the economics associated with a typical card in the portfolio but also the very significant heterogeneity across cards *within* the same card portfolio.

In Panel B of Table 5.1, cards are sorted by the number of days in which they are active. It is hardly surprising to see that cards that last longer generate more revenues from cardholder fees than shorter lived cards. But there is an important difference between Panels A and B in the pattern of revenues per active card month. In Panel A, these naturally increase as we move across the revenue quintiles. For several program types (web GPR, FI GPR, and payroll), however, median revenue per card month falls as we move across the quintiles of card life span as reported in Panel B. All else equal, median monthly cardholder fees in those programs tend to fall when the cards are used longer. Note the exception to this observation occurs among GPR cards distributed via retailers, where revenues per active card month rise over the first four quintiles of card life.

One reason that card revenues per active month may fall is that consumers may be using them less intensively over time. So in Panel C of Table 5.1, we sort cards by the number of consumer-initiated transactions over the life of the card. The patterns here correspond more closely to those observed in Panel A. This is not a surprising result given that prepaid cards are a transactional product and a significant share of revenues is generated by transaction fees (see Section 5.2). On a per active card month basis, revenues typically generated on the most actively used cards are about $12 or less. Note that among GPR cards distributed via the web, cards with the fewest transactions still generate about $6 per active card month because a monthly maintenance fee is not uncommon in those programs.

In the next section, we show that fees charged for accessing ATMs account for a significant share of cardholder fees charged by the prepaid card issuer.[46] So in Panel D of the table, we also sort cards by the number of ATM withdrawals. With a few exceptions, the results are generally similar to the patterns observed when we sort by total revenues or the transactions initiated by the cardholder (Panels A and C). For example, revenues generated on payroll cards are closely related to the number of ATM withdrawals because fees associated with those withdrawals account for the majority of fee revenues observed in those programs (see Section 5.2). That does not mean payroll cards are more expensive in terms of cardholder fees; in the data, payroll cards usually generate smaller revenues from cardholder fees than cards in the retail or web GPR programs. Note that among GPR cards distributed via the financial institution, there is a random relationship between the number of cash withdrawals and revenues generated because cash withdrawals on these cards are less common and maintenance fees are a more important source of revenues in this program.

Table 4.6 demonstrates that there are dramatic differences in the life span and utilization of prepaid cards, depending on whether the cards receive regularly scheduled value loads (e.g., direct deposit). How do these differences translate into cardholder fees earned by the prepaid card issuer? Table 5.2 shows that the median value of cardholder fees received over the life of the card is at least three times higher when we can detect a reload pattern that is consistent with direct deposit. It is very likely that these cards are some of the most profitable ones in these programs.

5.2 Composition of Cardholder Fees Earned by the Prepaid Card Issuer

In this section, we decompose the aggregate cardholder fees described in the previous section into distinct categories of fees that are paid by the consumer to the card issuer. Note that ATM

[46] These are fees that are charged by and received by the card issuer and are distinct from ATM surcharges that are set and received by the ATM owner (see Section 5.3). ATM withdrawal fees charged by a prepaid card issuer are analogous to the "foreign fee" that may appear on a consumer's monthly checking account statement when he or she uses an out-of-network ATM.

surcharges and interchange fees are not included in the analysis presented in this subsection but in Sections 5.3 and 5.4, respectively

For the reasons described in Section 3, we begin with a breakdown of fees charged in the payroll card programs in 2010. For those programs, after 2009, we have the best indicators of the types of fees being charged. These are presented as two pie charts in Figure 5.1. Panel A shows the composition of the *number* of fees charged, while Panel B shows the composition of fees in terms of their *dollar value*.[47]

As Panel A makes clear, the most common fees charged to cardholders are for PIN purchases at the point of sale (POS) and for ATM withdrawals. These alone account for 80 percent of the number of fees charged. Less frequently occurring fees include balance inquiry, ATM declines, and account maintenance fees. A different picture is seen in Panel B, where fees are presented on a dollar value basis. ATM withdrawal fees account for the majority (54 percent) of cardholder fees, followed by PIN POS fees (14 percent). Balance inquiry and maintenance fees account for about 10 percent each of cardholder fees.

It is clear from these charts that accessing cash via ATMs is the most important determinant of cardholder fees charged by the payroll card issuer. These fees, in turn, are used to offset the cost of making ATM access available, through contracts with ATM networks and interchange fees that are paid to the ATM owner.[48] ATM withdrawal fees vary from $1.50 to $2.25 in the data set, which is roughly in line with the average foreign ATM fee ($1.65) charged for debit transactions in 2010.[49]

[47] The average values of specific fees per active card month are included at the bottom of each figure to provide a way of comparing the relative magnitudes of these fees across the different program categories.

[48] Recall that unlike at the point of sale, where interchange flows from the merchant to the card issuer, at ATMs interchange flows from the card issuer to the owner of the ATM. This covers some of the cost of deploying and maintaining the ATM.

[49] See Oliver Wyman (2011). It should be noted, however, that some consumer checking accounts do not charge a foreign ATM fee.

From Table 5.1, it is clear that the level of cardholder fees paid by consumers to issuers in the payroll programs is significantly different from those in the various GPR programs. Figures 5.2 to 5.4 show that there are also differences between payroll programs and the GPR programs in terms of the composition of cardholder fees paid by consumers. That comparison is somewhat complicated because the data set does not provide as much detail on the specific types of fees charged on cards in the GPR programs. Nevertheless, using fee schedules and other information in the transaction stream, we are able to separate card fees into several discrete groups (details of our approach are found in the data appendix).

While ATM withdrawal fees account for a significant share of the number of cardholder fees, these shares are smaller in the GPR card programs than among the payroll cards. They account for an even smaller share of the dollar value of fees charged. In the web GPR programs, for example, ATM withdrawal fees represent slightly more than a quarter of the value of all fees charged, as compared to 54 percent among payroll cards in the data set. Those shares are even smaller in the retail and FI GPR programs.

On the other hand, origination and maintenance fees account for a larger share of the value of fees in many of the GPR programs than among payroll cards in the data set. This is especially the case for the web and FI GPR programs, where these fees account for the majority of fee revenues paid by cardholders. Among cards in the retail GPR programs, origination and maintenance fees account for a smaller share (28 percent) of cardholder fee revenues.[50]

What is clear from all of the figures is that transaction and certain other fees account for the majority of all fees charged to prepaid cardholders in the data set.[51] But these fees are typically smaller than fees charged for ATM withdrawals, account opening, or account

[50] But we are not certain we are capturing all origination fees for GPR cards obtained through a retail location.

[51] The most common of these fees, to the extent we can distinguish them in the data set, are PIN POS purchase fees. Other fees in this category for the (nonpayroll) GPR programs include fees for balance inquiries at ATMs, paper statements, and calls to a live customer service agent.

maintenance. As a result, taken together, transaction and other fees account for only about 36 percent of the value of fees charged to cardholders in the payroll programs. Their significance in the GPR programs varies considerably. They account for a smaller share of cardholder fees in the web and FI GPR program categories (22 and 13 percent, respectively). In contrast, transaction and other fees appear to account for the majority of cardholder fee revenues (55 percent) among cards in the retail GPR programs.

5.3 ATM Surcharges Paid by Cardholders

Table 4.3 shows that cash withdrawals account for a significant amount of transaction activity on prepaid cards in the data set. What portion of those withdrawals incurs a surcharge, which is a fee set and received by the ATM owner?

Table 5.3 shows that, for the prepaid cards in the data set, there appears to be an ATM surcharge in approximately four out of every five cash withdrawals.[52] There is some variation in this rate across programs. It is highest among GPR cards distributed via the web (94 percent) and lowest among the payroll programs (78 percent). The average ATM surcharge in the data was $2.21; the most common surcharge amount was $2.00.

Looking across the various card programs, roughly 95 percent of active cards used to withdraw cash at an ATM have had at least one surcharge on an ATM transaction. But there are exceptions to this characterization. In one of the retail programs, more than a quarter of cards with at least one ATM withdrawal have never incurred a surcharge. And among GPR cards distributed via a financial institution, about 12 percent of active cards have never incurred a surcharge.

We do not know if the surcharge rate we observe in these data is typical for prepaid cards in general. Even among checking accounts, it is difficult to get a sense of the proportion of ATM

[52] By way of comparison, the estimates constructed by Bretton Woods (2012) assume that 80 percent of ATM withdrawals on general-purpose prepaid cards are at out-of-network ATMs. These would likely result in ATM withdrawal fees as well as an ATM surcharge.

withdrawals from those accounts that incur surcharges. Recent data from McKinsey & Company suggest that about a third of ATM withdrawals from checking accounts occur at "foreign" ATMs, and this may be a potential upper bound for the surcharge frequency on those accounts.[53] It would not be surprising to observe a discrepancy in surcharge rates for ATM withdrawals from prepaid cards and checking accounts. Given the much longer life span of checking accounts and the generally higher balances held in those accounts, it is easier to recoup the costs associated with supporting, or contracting with, an ATM network.[54]

Table 5.4 presents the average value of ATM withdrawal fees and ATM surcharges for cards with at least one ATM withdrawal, for each of the program categories. Averages are presented for the entire the life of the card and on a per active card month basis. ATM withdrawal fees are paid to the prepaid issuer and, based on the averages, range from about $2.00 to $3.50 per active card month.[55] ATM surcharges paid to ATM owners are a bit higher; the averages vary from about $2.00 to $5.00 a month. The difference between these two sets of fees is largest among the payroll programs. This is interesting given that a smaller share of ATM withdrawals on payroll cards incur a surcharge than in most of the other programs. This discrepancy is likely due to the common practice of waiving withdrawal fees for the first ATM withdrawal in every pay cycle.

5.4 Interchange Fees

In this section, we report estimates of the interchange fees that are either received or paid for prepaid cards. We do not directly observe these amounts, so we estimate them based on the available network interchange fee schedules, network codes that help us to distinguish between

[53] This statistic is from the first quarter 2012 edition of McKinsey & Company's payments map. We think this represents an upper bound because some checking accounts reimburse customers for some or all surcharges incurred.

[54] A majority of debit card issuers participate in some form of surcharge-free network (Oliver Wyman, 2011, p. 160).

[55] The discrepancy in values for ATM withdrawal fees presented in Figures 5.1 to 5.4 and in Table 5.4 occurs because the averages reported in Table 5.4 are limited to cards with at least one ATM transaction.

PIN and signature transactions, and, where relevant, the merchant code of the retailer where the purchase was made. But there remains some subjectivity in these estimates because we usually cannot determine the size of the retailer and some interchange schedules vary by merchant size. Other schedules vary according to the type of authorization process used, and we don't observe this information in the data set.[56] So it may be that our estimates of interchange are somewhat higher or lower than what actually occurs. Nevertheless, the values presented here are informative for thinking about the significance of interchange as a source of revenue for prepaid card issuers.

Table 5.5 presents measures of the *gross* interchange revenue earned on consumer purchase transactions. These don't include any network or switch fees that a prepaid card issuer may incur, and we have excluded from the table interchange fees paid to ATM owners for cash withdrawal transactions (we address those in Table 5.6). The table is organized identically to the first three panels of Table 5.1 to facilitate comparisons, that is, median values of interchange earned over the life of prepaid cards and on the basis of active card months.

The middle quintile of Panel A in Table 5.5 presents the median amounts of interchange earned on prepaid cards in each of the five major program types we study in the paper. These are modest amounts: $1 to $5 per card, or less than $1.50 per active card month in the data set. This reflects the modest amount of transaction activity on a typical prepaid card in these portfolios (see Tables 4.2a and 4.2b). Interchange is earned on the number and dollar value of transactions, and Panel A of Table 5.5 makes clear that most of this revenue is earned on 40 percent or less of the active cards in the portfolio. Even among cards in the highest quintile, on a per active card month basis, gross interchange revenues are less than $7 per month.

Panel B confirms that prepaid cards that last longer tend to earn more interchange over the entire life of the card in the payroll, retail, and web GPR categories. The pattern is

[56] For additional details on the construction of these estimates, see the data appendix.

inconsistent among cards in the FSA or FI GPR categories. In addition, there is at best a weak relationship between card longevity and interchange revenues earned in a typical month of activity. In other words, the active life of a card and the intensity of card use over the *entire* life of the card are not very highly correlated.

Sorting by the number of cardholder transactions in Panel C essentially reproduces the results found in Panel A. This pattern follows from the mechanical relationship between the number and value of transactions and the interchange revenues they produce. Even among the prepaid cards in the highest quintile of transactions, median gross interchange revenues are $5 or less per month.

Table 5.6 presents our estimate of the cost of interchange *paid* by the prepaid card issuer to ATM owners over the life of the card. In this case, we sort cards in terms of the number of cash withdrawals. As the table makes clear, interchange paid to ATM owners for a typical prepaid card is usually modest (ranging from $1 to $4). As Table 4.3 makes clear, that is because the number of cash withdrawals on a prepaid card is typically modest (3 to 7). But there is significant variation in the number of ATM transactions across cards within the same program. A typical prepaid card in the top quintile of these transactions costs the prepaid card issuer anywhere from $12 to $27. Such costs likely consume a significant share of the revenues earned by the prepaid card issuer for those cards.

5.5 Synthesis

In this subsection, we pull together the threads developed in the previous sections to present a more complete picture of the net revenues earned on prepaid cards and the associated costs paid by cardholders. The accounting is a little complicated because not all revenues earned by the card issuer are paid directly by cardholders. Conversely, not all fees paid by cardholders are paid to the prepaid card issuer. In addition, it is possible that in some programs (payroll, for example) another party (such as an employer) is contributing revenues that are not captured by the information in the data set. And, as noted in Section 3, it is not impossible that there are sources

of revenues or other costs incurred by cardholders that we do not observe in the transaction stream.

Before presenting the analysis we emphasize that this information can inform, but not answer, a number of larger questions of interest. For example, while we develop measures of revenues that the prepaid issuer earns on its cards, we have no information on fixed and variable program costs that would be necessary to draw any conclusions about profitability. For consumers, we provide some information on the costs they incur to use a prepaid card, but we don't have information about the actual value they obtain from these cards. We simply observe that many cardholders are apparently willing to incur these costs, which is suggestive of the value they obtain as well as the alternatives available to them. Without additional information about these consumers and the options available to them, we cannot say more in this discussion.

Table 5.7 presents average values by program category and provides a sense of the composition of revenues earned by the prepaid issuer over the life of the card. Given the cost of acquiring active card users, this is a useful metric for understanding the resources available to support the fixed and variable costs associated with these prepaid programs. Thus, for cards used at least once by a consumer, the associated gross revenues (line 3) accruing to the prepaid issuer, on average, ranges from $41 to $99. Cards in the web GPR program, on average, generate about twice as much revenue over the life of the card as we observe in the other program categories. This difference is due largely to the combination of longer card life and more activity on the cards documented in Table 4.2 and maintenance fees (Figure 5.2), which are not uncommon on these cards.

There are interesting differences in the composition of revenues earned by the prepaid issuer in these different program categories. For the web and retail GPR categories, about three quarters of the issuer's revenues are earned from fees charged to cardholders; the remainder is earned on interchange fees from point-of-sale transactions. Interchange is relatively more important for cards issued in the FI GPR program and especially among payroll cards, where they

account for 45 percent of the issuer's gross revenues we can observe or estimate with the data set. On average, interchange fees paid to ATM owners represent about 4 to 7 percent of the issuer's gross revenues in the various GPR programs but as much as 13 percent in the payroll programs.

The columns on the right side of Table 5.7 present average values for all active prepaid cards divided into two categories based on our identification of direct deposit on those cards.[57] Given the significance of direct deposit documented earlier in the paper, it is hardly surprising to observe that cards with direct deposit generate four to five times more revenue, on average, than cards without direct deposit. Indeed, given that most indicators of activity on prepaid cards with direct deposit are 10 or more times larger than for other cards (Table 4.6), we expected this difference to be even larger. There are also important differences in the composition of revenues earned by the issuer. In relative terms, interchange earned on point-of-sale transactions account for more of the issuer's revenue among cards with direct deposit than for other cards. Part, but not all, of this disparity is driven by the fact that the majority of cards with direct deposit in the data are payroll cards.

Table 5.8 presents average values of monthly cardholder costs across the different program categories and a decomposition of those costs into cardholder fees paid to the issuer as well as interchange surcharges that are paid to the ATM owner. Total cardholder costs per active card month ranges from about $3 to $10. Cards in the web GPR programs are relatively more costly, primarily because of fees paid by the cardholder to the prepaid issuer. As with the preceding tables, the amount of fees paid depends on a combination of the program's fee schedule and cardholder activity.

ATM surcharges represent a minority of total cardholder costs. As a share of cardholder costs, they are smallest among the retail GPR cards (about 16 percent) and highest among payroll

[57] Recall that we categorize cards as receiving direct deposit if we observe more than four value loads at weekly intervals, more than two loads at bi-weekly intervals, or more than one load at monthly intervals, for an amount not ending in ".00."

cards (42 percent). The latter is due in large part to the relatively small amount of cardholder fees charged on the payroll cards, as documented in Table 5.1.

The columns on the right side of Table 5.8 present average monthly cardholder costs for all active prepaid cards with and without direct deposit. On average, cards with direct deposit incur costs that are about twice as large as the average for cards without direct deposit. Those costs should be compared to the differences in most indicators of activity for cards with and without direct deposit (Table 4.6). In general, prepaid cards with direct deposit are used much longer and much more intensively than other cards in the same programs.

In both relative and absolute terms, the difference in cardholder fees between cards with and without direct deposit is smaller than the difference in ATM surcharges for two reasons. First, as mentioned above, most cards with direct deposit are payroll cards, which tend to generate smaller cardholder fees (Table 5.2) than most cards in the other categories. Second, as Table 4.6 makes clear, cards with direct deposit are used for many more cash withdrawals than cards without direct deposit. The result is a somewhat higher amount of ATM surcharges.

Given the abundant variation in the life span and usage of prepaid cards in the data, it is worthwhile to explore the variation in average cardholder costs. This is done in Table 5.9 by sorting prepaid cards in each of the program categories by total cardholder costs and presenting average values for each quintile of that distribution. Since it is important to compare the costs that consumers incur with the activities that generate those costs, the table also includes the average number of transactions, cash withdrawals, and value loads for each quintile. Consistent with the preceding table, the statistics are presented in terms of costs per active card month.[58]

Among cards in the bottom 20 percent of cardholder costs, consumers are paying $2 or less per month in the web and retail GPR programs and essentially nothing in the FI GPR and payroll program categories. On the other hand, with one exception, this group of cardholders is

[58] To be precise, for each card program category, we take the mean of costs or some other measure and divide this value by the mean life span (in months) of active cards in that category.

not using the cards very much. The exception is among payroll cardholders who, in this first quintile, are making more than one purchase a week. Among cards with the highest 20 percent of cardholder costs, on average, consumers are paying $9 to $17.50 a month in cardholder fees and ATM surcharges. Total cardholder costs in this quintile are about twice as large in the web GPR and payroll program categories as those we observe for the FI GPR category. But, as can be seen in the table, cardholder activity on web GPR and payroll cards is significantly higher than it is among cards in the other programs. The average dollar value of funds loaded onto prepaid cards in the top quintile of cardholder costs is about $900 to $1,000 per month in the web GPR and payroll program categories; the average is about half that in the retail and FI GPR programs. Value loads are generally much smaller in the other cost quintiles.

6. Conclusions and Suggestions for Further Research

The market for open-loop reloadable prepaid cards has reached a stage of development where it is growing rapidly into a mass market (or near-mass-market) product. We are reaching a point where our current understanding of the business model has been outstripped by the growth of the business. But, as this paper suggests, we can make significant strides in understanding these products by examining the ordinary data that are produced in the process of serving the consumer. For at least one market participant, we can generate significant insights simply by examining transaction behavior and the revenue and fees those transactions generate.

To summarize based on the data analyzed in this paper, prepaid cards are typically short-lived products. Most cards are used for six months or less. A typical prepaid card is used for a modest amount of transactions, but there is considerable variation in the intensity of card use within a portfolio of cards. The same can be said for value loads. As a consequence, the revenues earned from cardholder and interchange fees on a typical card will be a few dollars to as much as $12 a month, depending on the type of prepaid card. Cardholder costs exhibit similar patterns. The average cardholder costs we observe in the data vary from $5 to about $11 per month, depending on the program category. The presence of regularly scheduled value loads (e.g., direct

deposit), while uncommon, is associated with prepaid cards that are active for much longer periods and are used much more intensively by the cardholder. Those cards also generate much more revenue for the prepaid issuer. Most cardholders use their cards both for making purchases at the point of sale and for making cash withdrawals. Most purchases occur at stores that principally sell nondurable goods. Cash withdrawals account for a significant share of value taken off prepaid cards in these data, as much as 50 percent among the payroll cards. Interchange is an important source of revenues for the prepaid issuer, accounting for a fifth or more of revenues. Conversely, ATM surcharges, set and received by ATM owners, account for a significant share (15 to 40 percent depending on the program category in the data) of the costs consumers incur on their prepaid cards.

A number of significant limitations to the data could be overcome in future research. First, we cannot verify that the data analyzed here are representative of the market. Thus, we and the reader must be cautious about generalizing our conclusions to the market as a whole when the external validity of these results is not clearly established.

Second, as noted earlier, while we have unique identifiers for specific prepaid cards, we do not have a unique identifier for the cardholder. In addition, we have no information about the cardholder other than his or her ZIP code. If we could associate more than one prepaid card with an anonymized consumer in the data, we could study whether consumers use these cards serially (obtaining and discarding a card and then obtaining another) or in parallel (obtaining and using several cards at once, possibly for different purposes). This information would be useful for verifying (or rejecting) the anecdotal claims that some consumers use prepaid cards as a modern means of "envelope budgeting."[59]

[59] We might also be able to investigate whether consumers view reload of an existing card or the purchase of a new card as close substitutes. This could be important for thinking about account acquisition strategy and the management of existing accounts in a portfolio.

A third limitation, which is endemic to most data used in studying consumer payments, is that we don't have information that tells us about the alternative payment choices available to the consumer, their cost, or any information about the consumer's preferences over those choices.[60] This complicates our ability to assess the value that consumers place on the prepaid cards they obtain and use. To the extent that consumers obtain one of these cards and use it for a significant period of time, this suggests it is preferable to the alternatives available to them.

Still, much more could be learned about the contribution of this product in the menu of available (or unavailable) alternatives if we knew more about the cardholder and the choices he or she could have made. For example, it is clear from these data that there is a significant amount of exit by cardholders; most discontinue using the cards and they typically do so not long after acquiring the card. As a research and a policy question, it is important to understand whether this is a choice motivated by (1) a temporary need for the functionality the card provides, (2) a preference among cardholders to obtain new prepaid cards rather than to extend the life of their existing cards, or (3) whether, having gone through the experience of using the card, the consumer has opted for an alternative form of payment. That is not a question we can answer with the data at hand.

Finally, while we have produced a significant amount of information about revenues earned on prepaid cards and the distribution of those revenues across a portfolio of cards, we do not have any information on the associated cost structure of these programs. Further advances in understanding the prepaid business model will require a much better understanding of the cost and means of acquiring new active accounts and the fixed and variable costs of servicing those accounts. All of these limitations to our investigation here suggest promising avenues for future research.

[60] There are exceptions to this characterization, including the Visa payment panel study (see Herbst-Murphy, 2010) and the Federal Reserve Bank of Boston's survey of consumer payment choice (Foster et al., 2011). Much can and will be learned from these data in the future.

7. Data Appendix

The following paragraphs provide additional information about the data and analysis.

7.1 Cleaning the Data Set Prior to Analysis

The data set provided to us by Meta Payment Systems (MPS) consists of 296 million transactions made on 3.2 million prepaid cards in 15 different programs over the period 2005 through the end of 2010. For the cards in the data set, we observe a flow of money onto or off of the card through consumer-initiated transactions. Such transactions include value loads, purchases, cash withdrawals, and transfers. Our definition of consumer-initiated transactions does not include transactions that are a function of account management, such as fees, authorizations, and adjustments. We trimmed the data set to remove cards representing the top and bottom 1 percent of final balances in each program. In other words, we removed from the analysis some cards with unusually high or low (negative) balances that could affect the representativeness of the statistics we report.[61] The data set used in our analysis consists of 283 million transactions conducted on 3.1 million cards.

7.2 Truncation Adjustments

For many of the statistics reported in Sections 4 and 5, we remove from those calculations cards that are likely to suffer from truncation bias. The essential issue is that the data set ends with transactions that occurred in December 2010. But a number of cards in the data set became active only a few months prior to that date. Many of those cards remained active after December 2010, but we don't observe those transactions. If we include those cards in our calculations of activity and revenues over the life of cards, a number of our statistics will be biased downward.

To avoid this, we adopted a simple correction for truncation bias. First, for each program, we calculate the median length of card activity on all cards that became active before

[61] These terminal values ranged from a low of -$17,000 to a high of more than $16,000. Note, this step is performed on ending balances that we calculate by subtracting all outflows of cash off the card from all inflows of cash onto the card given the transactions in the data. Note that we don't otherwise use this derived balance variable in the analysis because we are not certain we observe the initial balance on certain cards.

July 2009. Then, we successively add the cards becoming active in each of the months following July 2009 until December 2010 and calculate a median length of card activity after the addition of each month's new cards. In these estimates we define card activity as any consumer-initiated transactions plus fees charged to the consumer. We do not include adjustments or write-offs in our definition of card activity.

Next, for each month after July 2009, we compare the median length of card activity in a program with the length of time that would elapse between the end of the following month and December 31, 2010 (the end of the data). As long as the median length of card activity in the program is less than the interval of time remaining between the following month and December 31, 2010, we include those cards and continue the iteration into the next month. Once we reach the month in which the median length of card activity in the program exceeds the length of time that remains between the following month and December 31, we stop. All calculations that involve measures of activity or revenues over the life of the card will exclude vintages of cards in a program that begin after that termination date.

Thus, for example, if the median length of card activity on vintages of cards in a program up to and including September 2010 is 70 days, then we would exclude from our calculations cards that first became active after September 1, 2010, because 70 days is greater than the 61 days between the end of October and December 31, 2010.

There are certainly more sophisticated ways of adjusting for truncation bias. But for the purpose of the analysis conducted in this paper, this adjustment should be quite robust. It also has the virtue of simplicity.

7.3 Average Ticket Size

The statistics for average ticket size by merchant category reported in Table 4.4 were calculated for all transactions among cards in the program categories. These were not calculated at the level of specific cards and do not measure the level of activity over the life of the card, so we did not use a truncation adjustment for that calculation.

7.4 Bill Payments

For this paper, we define "bill payments" using a set of codes in the data. These include payments initiated through some kind of bill payment site or service, which are identified as a "bill pay" transaction code in the data. We also include purchases made at specific merchant category codes that will have a high proportion of payments for services, many of them recurring. We included the following merchant category codes: telecommunications service; computer network services; wire, money orders; cable/satellite, other TV; utilities; drugs, drug proprietaries; direct marketing – subscription; fuel dealers (nonautomotive); non-FI money orders; insurance underwriting premiums; doctors; dentists; osteopaths; chiropractors; optometrists/ophthalmologists; opticians; chiropodists/podiatrists; nursing/personal care; hospitals; medical and dental labs; medical services; elementary/secondary schools; colleges, universities; correspondence schools; business/secretarial schools; vocational trade schools; educational services; child-care services; court costs; and tax payments.

7.5 Direct Deposit

The data set does not contain an explicit identifier for cards that are enrolled in direct deposit. To investigate the significance of direct deposit in the data, we developed a simple algorithm for classifying cards into one of two groups. In the first, we include all cards for which we observe one of the following patterns: (1) more than four loads at a weekly frequency, (2) more than two loads at a biweekly frequency, or (3) more than one load at a monthly frequency. To be conservative, the algorithm requires that the identified value loads involve some amount less than $1 (i.e., the transaction amount ends with something other than ".00"). We classify those cards as "direct deposit" cards. The remaining cards we classify as not having "direct deposit." Our algorithm should easily detect regular deposits of wages, salaries, and benefits. It will not detect regularly scheduled value loads ending in ".00" (transferring an allowance, for example).

It is important to note that our algorithm imposes some selection bias because, in order to detect the patterns required by the algorithm, the card must remain active for a sufficiently long

period of time. Thus, one of the reasons why there are such large differences in the characteristics of cards with and without "direct deposit" is that the algorithm will assign cards with a very short life span to the non-direct-deposit group. There is also a treatment effect associated with direct deposit (consumers who make these arrangements really do use these cards more intensively), but we do not have a way of distinguishing treatment from selection in Table 4.6 and the subsequent tables that refer to direct deposit.

The cards that we classify as having direct deposit typically have a much longer life span than other cards in the same program. In all our tabulations that segment by this classification, we use a separate truncation adjustment for cards with direct deposit to reduce the possibility of downward bias in calculations that would occur if we truncated using the shorter median active card life calculated for all cards in the program.

7.6 Cardholder Fees Reported in Table 5.1

Table 5.1 introduces estimates of net cardholder fees paid by the consumer to the prepaid issuer.[62] We exclude from these estimates cardholder fees incurred more than 90 days after the *last* consumer-initiated transaction because we are fairly confident fees charged after that point are not actually paid by the consumer. It is also consistent with accounting practices for at least some prepaid card issuers.[63] As a robustness check, we constructed statistics on all fees charged on the card until the balance permanently falls below -$300.[64] The results were very similar.

The table presents median cardholder fees earned over the life of the card and per active card month. The latter statistic is calculated for each card by dividing total cardholder fees by the number of 30-day increments for which the card is active (we round up by one increment for

[62] Defined as outflows netted by inflow reversals.

[63] See, for example, the section "Reserve for Uncollectible Overdrawn Accounts" on page 34 of Form 10-K for the Green Dot Corporation for the fiscal year ended December 31, 2011.

[64] In this case we used the transaction data to construct a running balance on each prepaid card. We chose the -$300 value to allow for the possibility that we did not observe the first value load on the card at the time it was activated. This criterion affects only 6.9 percent of cards and 5.5 percent of cardholder fees in the data.

cards whose days of activity divided by 30 includes a remainder) and taking the median of that derived variable. Because we are reporting medians in the table, for each quintile, the card with the median revenue over its entire life will not typically be the same card with the median revenue per active card month.

7.7 Classification of Cardholder Fees

As mentioned in the text, there are varying degrees of precision in identifying the exact nature of a fee charged in different programs or within a given program over time. In most instances, we rely on several steps to identify card fees and we describe that process here.

One of the more important fees to measure is the ATM withdrawal fee that is often charged by a prepaid card issuer when a consumer uses an out-of-network ATM. We can identify cash withdrawals from the coding of transaction type in the data. We then attempt to detect any associated fee charged for that withdrawal. In some instances, we use a descriptor specific to ATM fees in the merchant name field. In other cases, we examine all fees charged to the prepaid card on the same day as the cash withdrawal and identify any withdrawal fee based on its size, compared to a program's fee schedule provided to us by MPS. ATM withdrawal fees are typically $1 to $2, but there are other fees of a similar magnitude in some program fee schedules. When the number of fees in this range charged on a given day is not greater than the number of cash withdrawals, we call those fees "ATM withdrawal fees." When there are more fees of this magnitude than cash withdrawals on a given day, we assume that the first ATM withdrawal fee incurred is the one with the highest dollar value and add lower dollar value fees until their number equals the number of cash withdrawals.

To construct the pie charts presented in Figures 5.1 to 5.4, we employed two methods to calculate the relative proportions of different types of fees charged on cards in the different program categories. Especially for 2010, within the payroll programs, the merchant name field fee descriptors are sufficiently precise that we can use them to calculate the number and value of specific fee transactions for each fee type.

Unfortunately, for the GPR program categories, we could not rely on information in the merchant name field. As a result, our classification of fees is not as fine as we report for the payroll cards. Still, we are able to separate out specific fees. The calculation of ATM withdrawal fees is described above. We were also able to identify activation and monthly maintenance fees charged based on their frequency and size, as compared to the program-specific fee schedules provided to us by MPS. Since we were able to calculate the sum of all fees charged on a card, we defined a residual (total fees less activation, maintenance, and ATM withdrawal fees) as "Transaction and Other Fees." We believe the largest number of those fees will include PIN point-of-sale purchase fees.

7.8 ATM Surcharges

Surcharges on ATM withdrawals are detected from the value of the withdrawal. The standard denominations disbursed from ATMs are $10, $20, $50, and $100. Consumers withdraw cash in multiples of those increments, which makes it possible to detect particular amounts between zero and $5 added on to the withdrawal amount as a surcharge.[65] The statistics in Tables 5.3, 5.4, 5.8, and 5.9 were derived from the frequency and value of surcharges identified in this manner.

7.9 Interchange Revenue from Point-of-Sale Transactions

As discussed in Sections 3.4 and 5.4, these data don't include an explicit field describing the interchange earned on specific prepaid card transactions. Instead, we constructed estimates of these revenues using published interchange fee schedules for debit networks and using the merchant and network codes available in the data. Unfortunately, those variables are not sufficient to assign specific transactions to specific interchange fee tiers that may depend on the size of the merchant or the method of authorization.

For signature purchase transactions, we use a weighted average of three different interchange rates for those networks based on an assumption about the mix of retail merchant

[65] For example, the components of a cash withdrawal for $52.50 include $50 taken out by the cardholder plus a $2.50 surcharge.

tiers as follows.[66] A 60 percent weight was placed on the interchange formula associated with retail transactions at the largest merchants. A 20 percent weight was placed on a slightly higher interchange rate applied to other merchants. The remaining 20 percent weight was applied to a substantially higher interchange rate identified in network interchange schedules as representing either smaller merchants or less secure forms of authorization (e.g., a card-not-present transaction).

For PIN purchase transactions, we applied a weighted average of two interchange formulas for retail transactions for each debit network we identified in the data. A 60 percent weight was placed on the interchange formula for larger merchants. The remaining 40 percent weight was placed on the somewhat higher base interchange rate offered to merchants.

The preceding weights were chosen through a process of iteration. Having assumed a particular mix of interchange fee schedules, it is possible to derive an estimate of the overall "yield" on the dollar value of purchase transactions. Working with MPS, we were able to identify a set of weights that approximated the overall yield MPS earned on its prepaid card portfolio. It should be noted that more than one set of weights can be constructed that would result in the same estimated yield. For the purposes of this paper, such indeterminacy is not important. But the weights described here should not be interpreted literally to reflect the actual mix found in MPS's portfolio of prepaid cards.

We estimated the aggregate interchange earned on each program over several years. We also calculated the interchange earned on individual cards and followed a procedure similar to the one used for fees in breaking the cards into quintiles to examine how interchange is affected by the level of consumer activity.

[66] A breakdown of signature and PIN purchase transactions shares for each program category is found in Table 7.1

7.10 ATM Interchange and Switch Fees

Using published network schedules, we calculated the associated interchange and switch fee paid by the prepaid issuer to the ATM owner for every ATM withdrawal made by a cardholder. Statistics based on these estimates were constructed for Tables 5.6 and 5.7.

7.11 Prepaid Issuer Revenue and Cardholder Costs

We combine the various revenues earned on prepaid cards and the associated costs to the cardholder by merging into one data set the calculations of fee volume, POS interchange, ATM interchange, ATM surcharges, and activity level variables for each card. Tables 5.7, 5.8, and 5.9 present the average revenues and costs over the life of the card, per active card month, and in quintiles sorted by cardholder costs. The latter two are calculated as the revenue or cost means over the life of the card, divided by the mean active life in months for cards in that category. Additionally, in Table 5.9, the mean active life in months is measured separately for the cards in each quintile.

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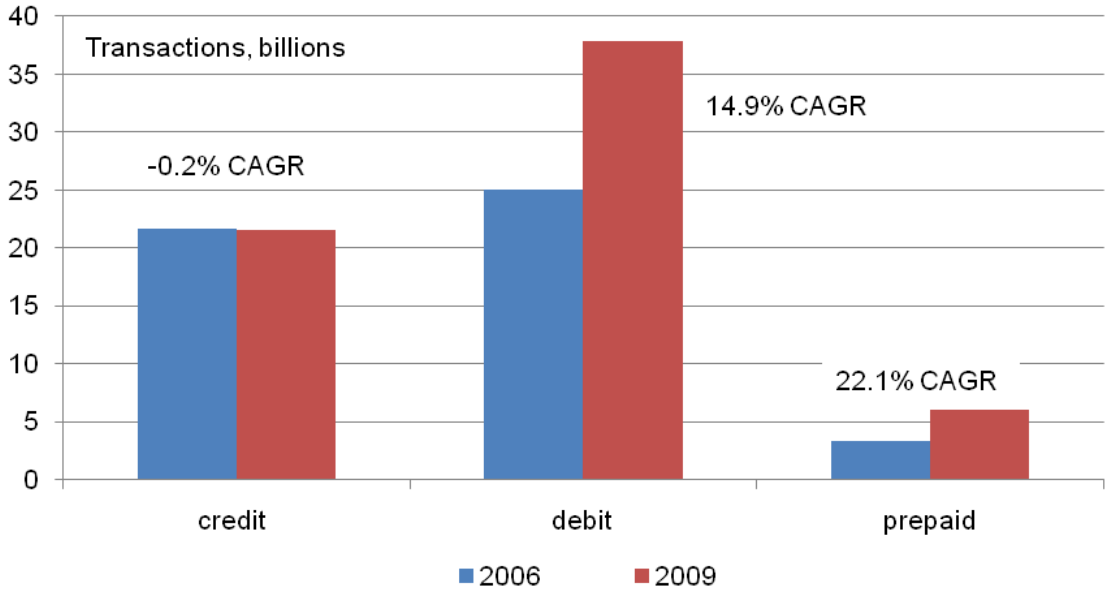
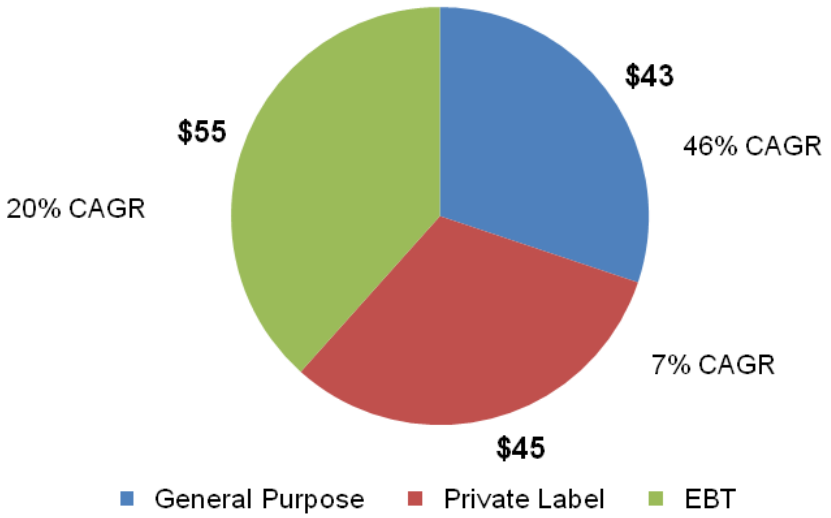
Figure 1.1 Aggregate Statistics on Credit, Debit, and Prepaid Card Transactions*



Source: The 2010 Federal Reserve Payments Study.

* Compound annual growth rates (CAGR) are calculated for the years 2006-2009.

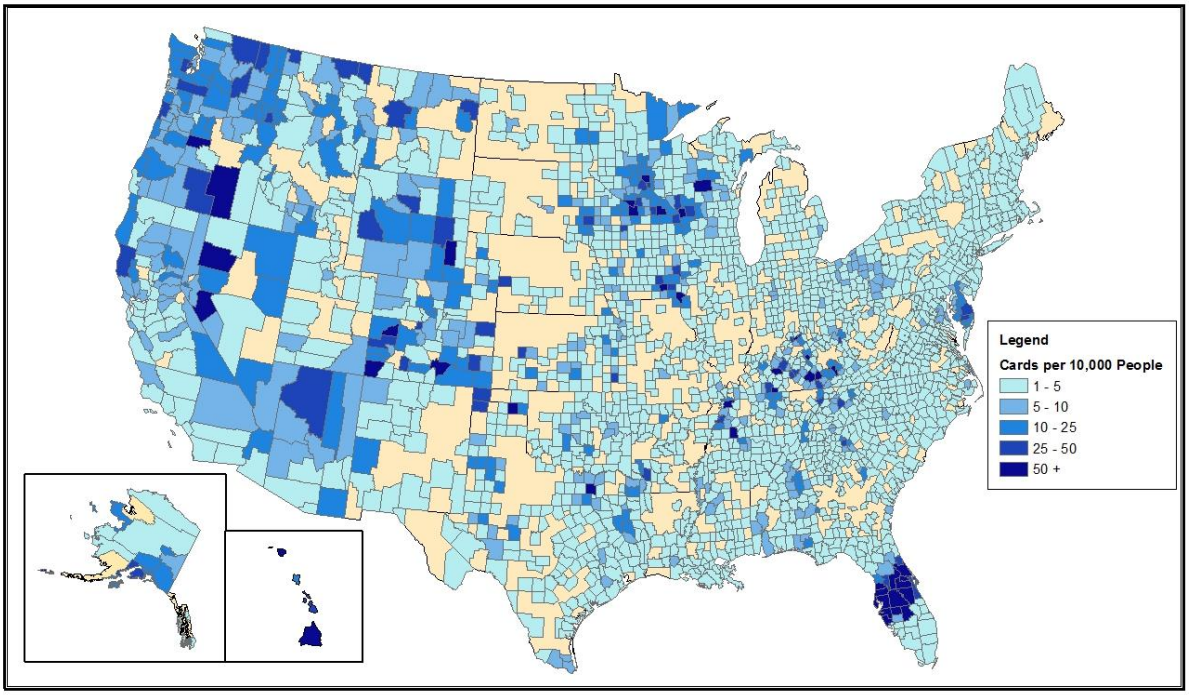
Figure 1.2 Composition of Transaction Volume in the Prepaid Card Market*



Source: The 2010 Federal Reserve Payments Study.

* Dollars are in billions. Growth rates are calculated for the years 2006-2009. EBT refers to the disbursement of government benefits via prepaid card.

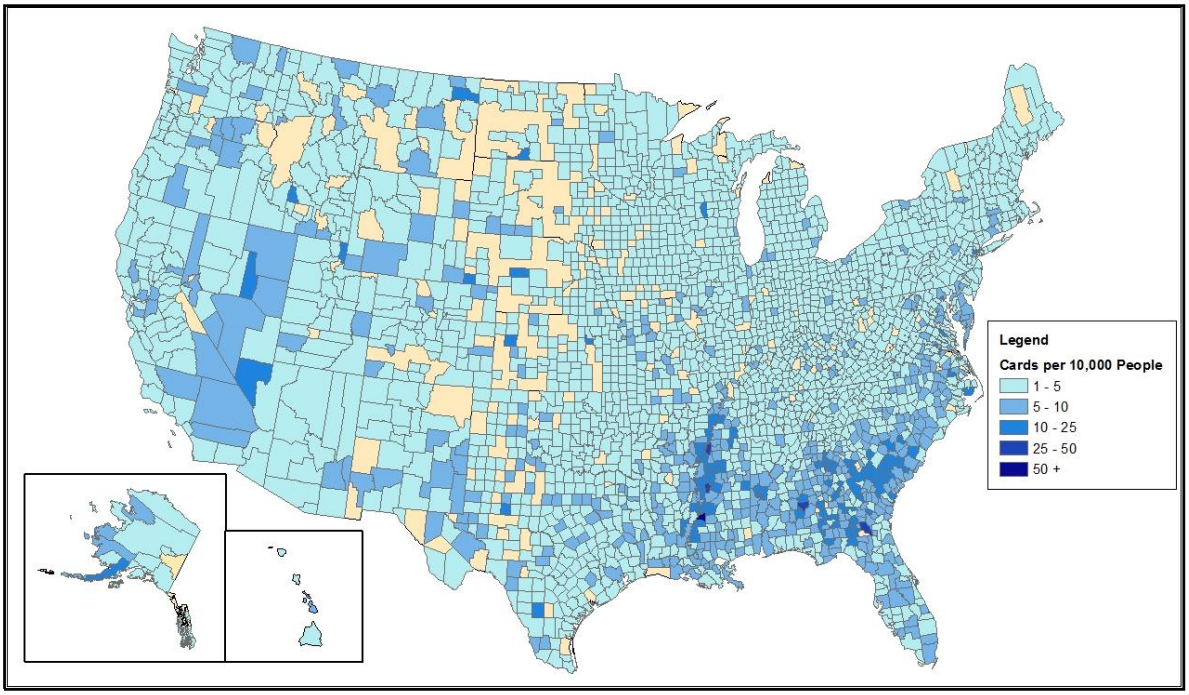
Figure 3.1 Number of Active Retail GPR Cards[1] per 10,000 Population in 2010[2]



[1] The data in this map depict the cards distributed via retailers in six programs offered by one prepaid card issuer. Since these cards are a portion of the retail cards in one company's portfolio, the patterns depicted here may not be representative of the prepaid industry as a whole.

[2] This map is based on county population as reported in the 2000 census.

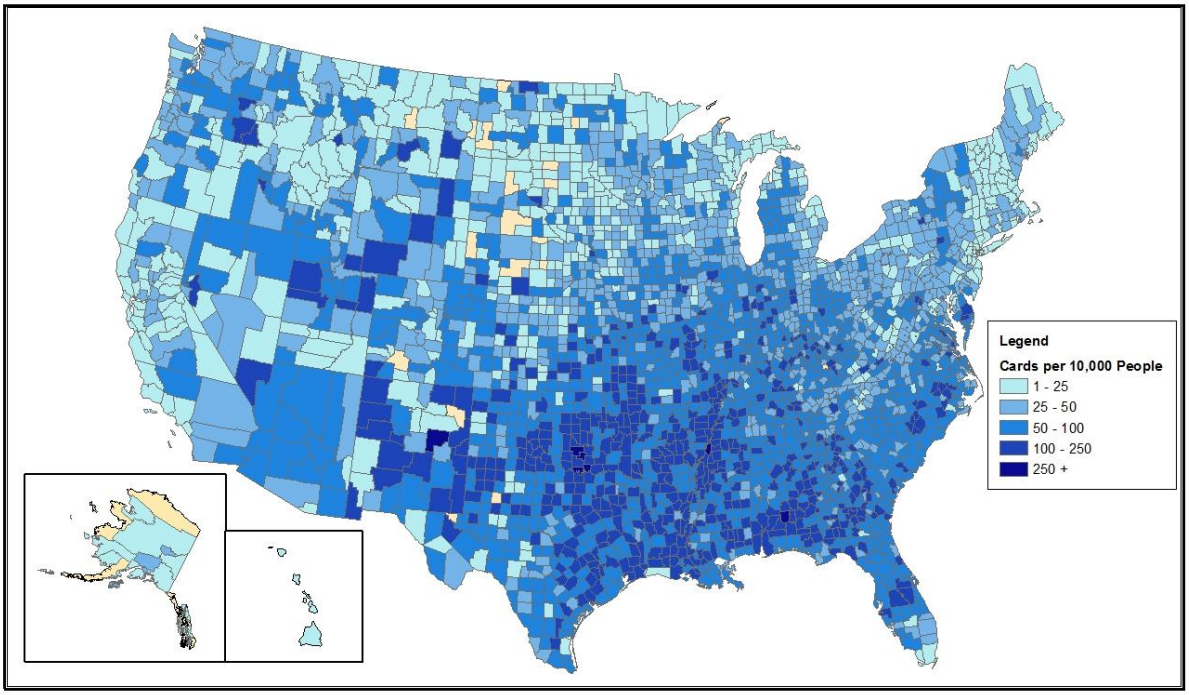
Figure 3.2 Number of Active Web GPR Cards[1] per 10,000 Population in 2010[2]



[1] The data in this map depict the cards purchased via the Internet in three programs offered by one prepaid card issuer. Since these cards are a portion of the web cards in one company's portfolio, the patterns depicted here may not be representative of the prepaid industry as a whole.

[2] This map is based on county population as reported in the 2000 census.

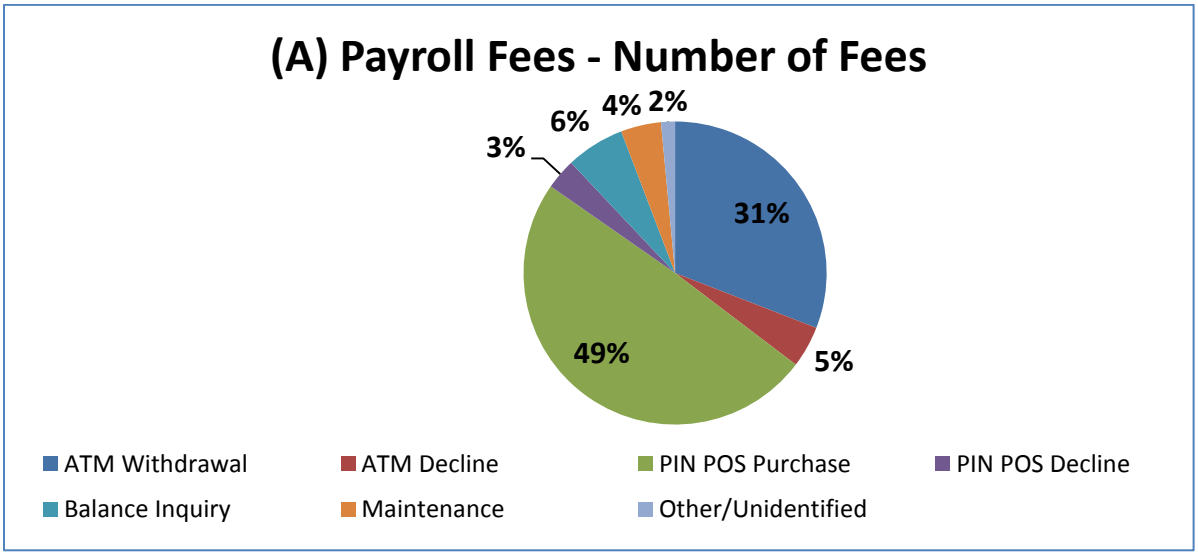
Figure 3.3 Number of Active Payroll Cards[1] per 10,000 Population in 2010[2]

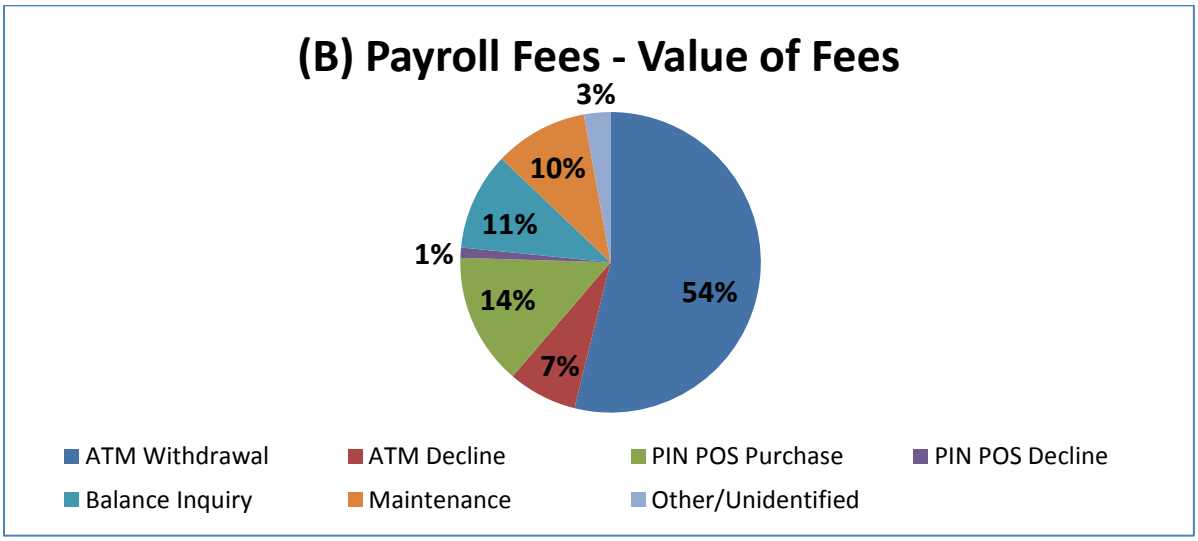


[1] The data in this map depict the cards distributed via employers in three programs offered by one prepaid card issuer. Since these cards are a portion of the payroll cards in one company's portfolio, the patterns depicted here may not be representative of the prepaid industry as a whole.

[2] This map is based on county population as reported in the 2000 census.

Figure 5.1 Composition of Fees in Payroll Programs in 2010*



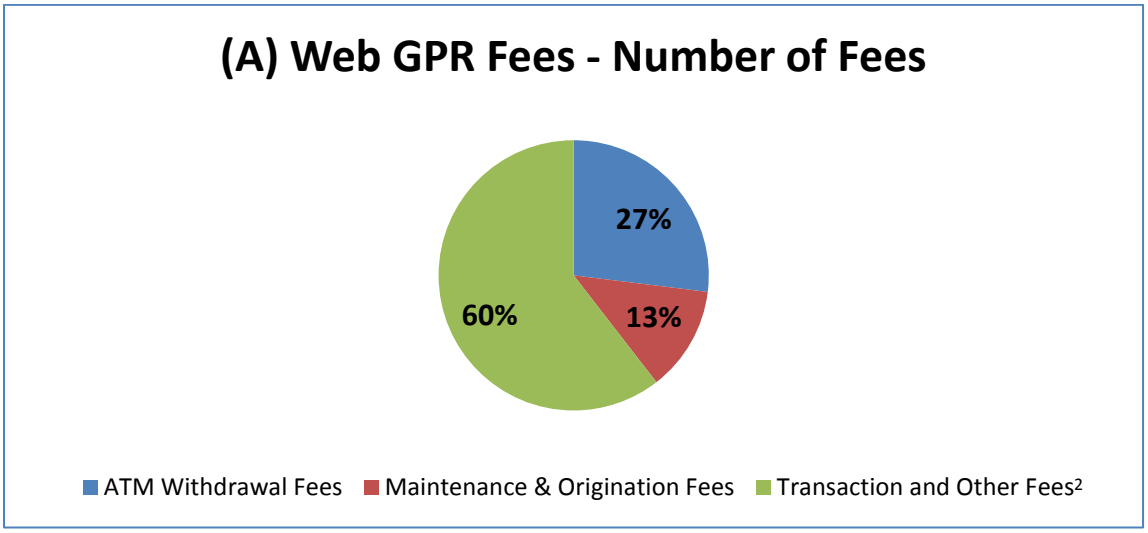


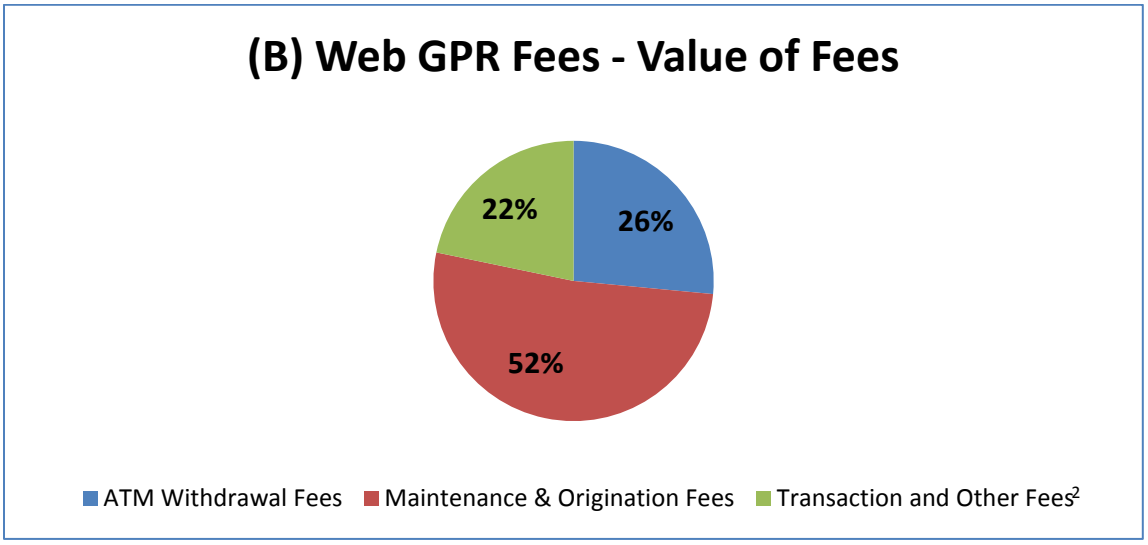
Average Cardholder Fees — Payroll Card Programs	Monthly Amount
ATM Withdrawal Fees	$1.92
ATM Decline Fees	$0.30
PIN POS Purchase Fees	$0.55
PIN POS Decline Fees	$0.05
Balance Inquiry Fees	$0.38
Maintenance Fees	$0.39

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3.

* We only observe fees that take value off the card. As a result, we may not observe all card activation fees or fees for reloads conducted at certain retail locations. The charts do not include ATM surcharges set and received by ATM owners.

Figure 5.2: Composition of Fees in Web GPR Programs[1]





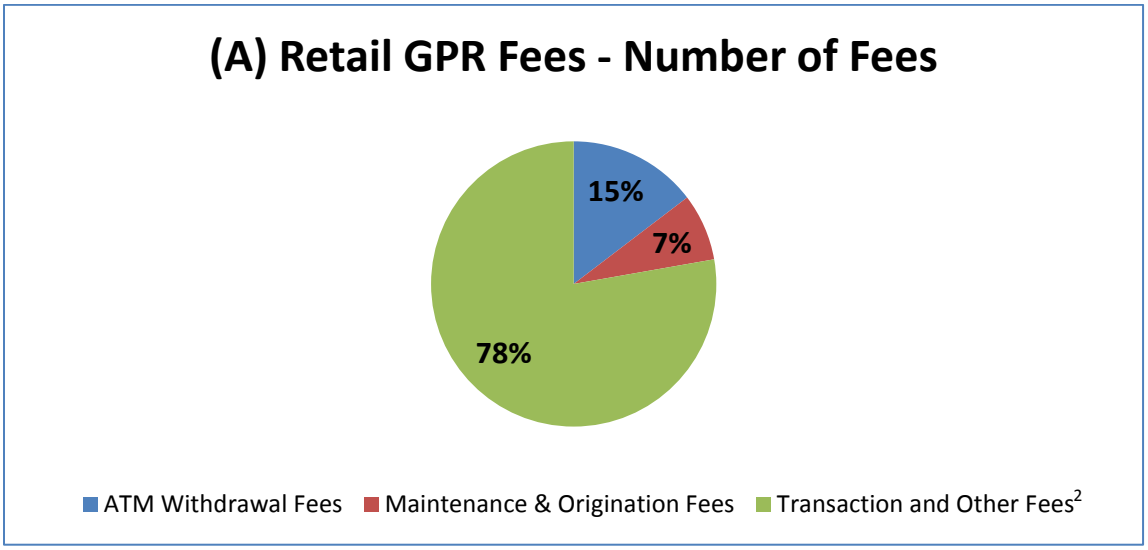
Average Cardholder Fees — Web GPR Card Programs	Monthly Amount
Maintenance and Origination Fees	$4.22
ATM Withdrawal Fees	$2.16
Transaction and Other Fees[2]	$1.77

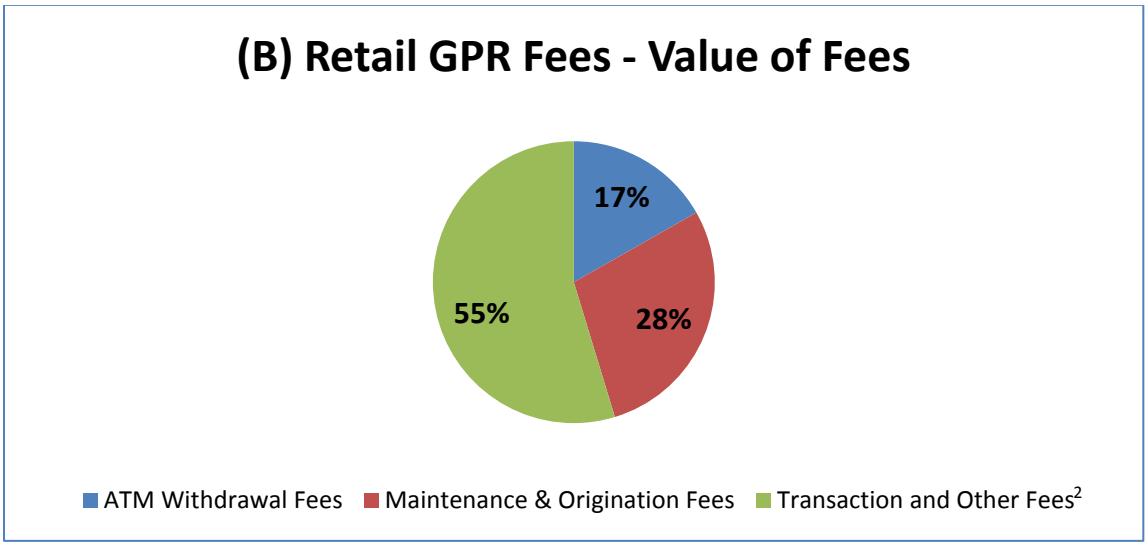
Notes: Statistics are calculated for the universe of prepaid cards described in Section 3.

[1] We only observe fees that take value off the card. As a result, we may not observe all card activation fees or fees for reloads conducted at certain retail locations. The charts do not include ATM surcharges set and received by ATM owners.

[2] Calculated as the residual of all fees less origination, maintenance, and ATM withdrawal fees. These include, for example, fees for point-of-sale transactions, balance inquiries, paper statements, and calls to a live customer service agent.

Figure 5.3: Composition of Fees in Retail GPR Programs[1]





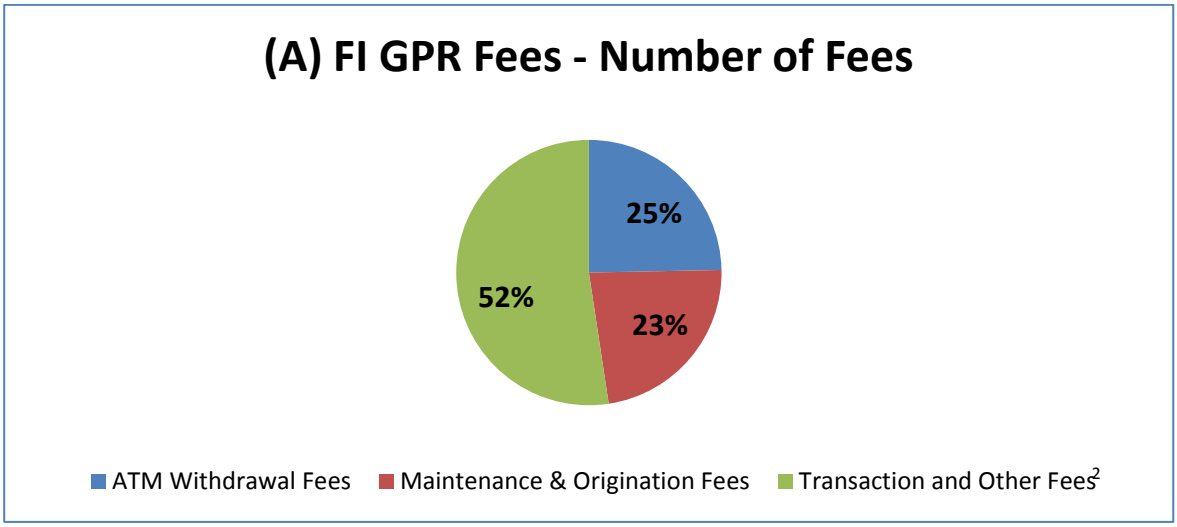
Average Cardholder Fees — Retail GPR Card Programs	Monthly Amount
Maintenance and Origination Fees	$2.10
ATM Withdrawal Fees	$1.24
Transaction and Other Fees[2]	$4.03

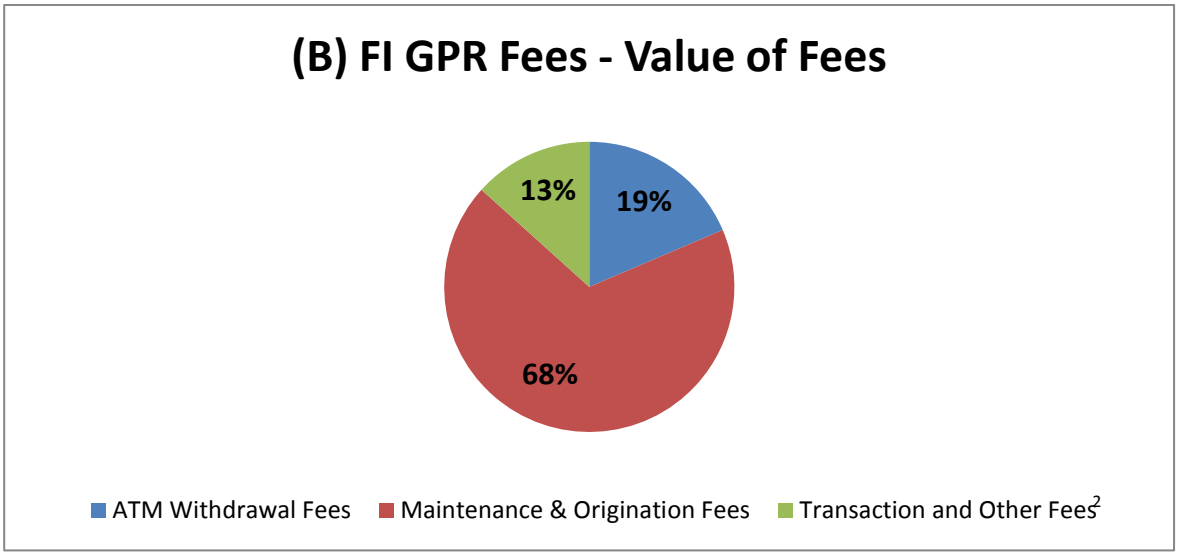
Notes: Statistics are calculated for the universe of prepaid cards described in Section 3.

[1] We only observe fees that take value off the card. As a result, we may not observe all card activation fees or fees for reloads conducted at certain retail locations. The charts do not include ATM surcharges set and received by ATM owners.

[2] Calculated as the residual of all fees less origination, maintenance, and ATM withdrawal fees. These include, for example, fees for point-of-sale transactions, balance inquiries, paper statements, and calls to a live customer service agent.

Figure 5.4: Composition of Fees in FI GPR Program[1]





Average Cardholder Fees — FI GPR Card Program	Monthly Amount
Maintenance and Origination Fees	$1.77
ATM Withdrawal Fees	$0.48
Transaction and Other Fees[2]	$0.35

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3.

[1] We only observe fees that take value off the card. As a result, we may not observe all card activation fees or fees for reloads conducted at certain retail locations. The charts do not include ATM surcharges set and received by ATM owners.

[2] Calculated as the residual of all fees less origination, maintenance, and ATM withdrawal fees. These include, for example, fees for point of sale transactions, balance inquiries, paper statements, and calls to a live customer service agent.

Table 3.1 Distribution of Card Programs

Program Type	Number of Programs	Program Launch Year	Enrollment Method	Distribution Method	Percent of Cards	Percent of Transactions
Web GPR	3	2005, 2007(2)	Via web	Mail	10	15
Retail GPR	6	2004, 2005(2), 2007, 2008, 2009	Via retailer	Mail	15	10
Financial Institution GPR	1	2007	Via financial institution	Financial Institution Branch	< 1	< 1
Payroll	3	2007(2), 2009	Via employer	Mail	63	74
Flexible Spending Account	1	2005	Via employer	Mail	2	1
Transit	1	2009	Via employer	Mail	9	< 1

Table 4.1 Length of Card Activity and Dormancy

Program Type	Active Card Life (days, median)[1]	Longest Period of Inactivity (days, median)[2]	Cards Dormant 90+ Days (percent)[3]
Web GPR	184	31	19.7
Retail GPR	63	27	15.6
FI GPR	189	49	45.4
Payroll	132	14	13.6
FSA	515	158	80.2

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3.

[1] Number of days between a card's first and last transaction.

[2] Defined as the longest period of inactivity between consumer-initiated transactions on a given card.

[3] Share of cards in the program category with at least one interval of inactivity longer than 90 days, which ends with a consumer-initiated transaction.

Table 4.2a Number of Purchases

		Purchases over the Life of the Card (percent of cards)				
Program Type*	**Number of Purchases (Median)**	**0 - 5**	**6 - 10**	**11 - 25**	**26-50**	**>50**
Web GPR	14	32.2	11.8	17.2	12.2	26.7
Retail GPR	4	54.7	12.2	13.7	7.9	11.4
FI GPR	8	42.5	13.5	19.8	10.4	13.8
Payroll	19	32.4	8.4	13.9	12.0	33.3
FSA	2	57.2	8.8	17.7	11.4	5.0

Table 4.2b Dollar Value of Purchases

		Purchase Volume over the Life of the Card (percent of cards)				
Program Type*	**Total Purchase Volume (Median)**	**< $50**	**$50-$200**	**$200-$500**	**$500-$1,000**	**> $1,000**
Web GPR	$471.43	21.4	15.6	14.1	11.7	37.2
Retail GPR	118.90	37.9	20.4	14.4	9.1	18.1
FI GPR	272.47	28.6	16.6	17.3	13.2	24.4
Payroll	492.32	25.0	11.4	13.9	11.8	37.9
FSA	168.34	45.5	5.6	10.6	13.0	25.3

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3. Purchases do not include cash (e.g., ATM) withdrawals or returns.

*Note that the card programs are not equally mature in terms of the number of quarters during which they appear in the data set and this might contribute to differences in intensity of card use across programs.

Table 4.3 Cash Withdrawals[1]

Program Type	**Cards with at Least One Cash Withdrawal (Percent)**	**Cash Withdrawals (Median)[2]**	**Total Value of Cash Withdrawals (Median)[2]**	**Cash Withdrawal Share (percent)[2,3]**
Web GPR	62.3	6	$764	40.8
Retail GPR	38.7	3	264	44.1
FI GPR	29.1	3	383	33.5
Payroll	63.8	7	825	50.1

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3.

[1] These values exclude cash back at the point of sale, which we cannot distinguish in the data set.

[2] Calculated for those cards with at least one cash withdrawal.

[3] The sum of all cash withdrawals divided by the sum of all consumer-initiated transactions.

Table 4.4 Composition of Purchases

Transactions by Merchant Type	Web GPR	Retail GPR	FI GPR	Payroll
Share of Cards with a Transaction at:	**Percent**			
Grocery Store	62.2	39.9	50.6	68.7
Service Stations	62.7	44.0	45.2	61.1
Restaurants	41.6	22.9	35.6	41.3
Fast Food	56.1	35.7	40.2	58.8
Telecommunications	36.7	19.0	16.5	22.2
Utilities	19.2	10.6	6.7	10.9
Share of Transactions:	**Percent**			
Grocery Store	15.7	12.8	14.2	24.9
Service Stations	17.4	16.6	19.1	18.0
Restaurants	6.0	5.0	7.4	4.3
Fast Food	13.7	11.5	12.6	16.2
Telecommunications	3.4	3.6	2.1	1.4
Utilities	1.2	1.4	0.7	0.5
Share of Purchase Volume:	**Percent**			
Grocery Store	21.1	12.7	15.1	46.1
Service Stations	6.7	5.6	8.5	5.9
Restaurants	3.7	3.1	4.6	2.4
Fast Food	3.4	2.9	3.1	3.8
Telecommunications	6.4	6.9	4.5	2.8
Utilities	4.2	4.3	2.5	1.8
Average Ticket:	**Dollars**			
Grocery Store	49.82	36.18	42.75	61.46
Service Stations	14.40	12.32	17.93	10.94
Restaurants	22.97	22.99	25.38	18.93
Fast Food	9.21	9.34	9.94	7.86
Telecommunications	69.50	70.14	87.43	67.59
Utilities	129.47	111.55	140.15	110.60

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3.

Table 4.5a Number of Value Loads

		Number of Loads over the Life of the Card (percent of cards)				
Program Type[2]	**Number of Loads[1] (Median)**	**1**	**2 - 3**	**4 - 5**	**6 -7**	**> 7**
Web GPR	3	37.8	18.5	8.4	5.6	29.7
Retail GPR	1	50.3	19.8	7.3	4.4	18.3
FI GPR	2	32.9	38.7	8.1	3.8	16.5
Payroll	5	28.8	12.8	8.4	6.3	43.7
FSA	2	41.2	51.5	3.4	0.4	3.5

Table 4.5b Dollar Value of Loads

		Value Loads over the Life of the Card (percent of cards)				
Program Type[2]	**Total Value of Loads[1] (Median)**	**< $50**	**$50-$200**	**$200-$500**	**$500-$1,000**	**> $1,000**
Web GPR	$780	18.1	12.6	12.2	11.2	45.9
Retail GPR	$217	24.9	22.4	17.1	11.4	24.3
FI GPR	$400	12.5	20.7	21.3	15.4	30.1
Payroll	$1,284	18.5	6.7	10.4	10.5	54.0
FSA	$1,507	1.1	2.7	10.6	18.0	67.7

Table 4.5c Median Load Amounts

	Number of Loads over the Life of the Card				
Program Type[2]	**1**	**2 - 3**	**4 - 5**	**6 -7**	**> 7**
Web GPR	$155	$170	$200	$228	$300
Retail GPR	$60	$100	$105	$117	$174
FI GPR	$104	$140	$112	$141	$200
Payroll	$190	$215	$247	$261	$356

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3.

[1] It is possible that we do not observe the first value load on some prepaid cards in the data set.

[2] Note that the card programs are not equally mature in terms of the number of quarters during which they appear in the data set and this might contribute to differences in intensity in load activity across programs.

Table 4.6 Prepaid Cards with and Without Direct Deposit[1,2]

	Web GPR		Retail GPR		FI GPR		Payroll
Direct Deposit?[1]	**Yes[1]**	**No**	**Yes[1]**	**No**	**Yes[1]**	**No**	**Yes[1]**
Medians or Percent							
Share of Cards (percent)	18%		5%		4%		51%
Active Life (days)	354	153	382	59	416	179	257
Purchases (median)	140	9	121	4	159	7	59
Total Value of Purchases (median)	$4,565	$277	$3,497	$103	$4,918	$247	$1,153
Loads (median)	19	2	24	1	25	2	14
Total Value of Loads (median)	$9,460	$427	$9,543	$200	$9,737	$353	$4,065
Share of Direct Deposit Cards with at least 1 Cash Withdrawal (percent)	98%		95%		93%		88%
Cash Withdrawals (median)	29	4	31	2	26	3	18
Total Value of Cash Withdrawals (median)	$3,853	$398	$4,376	$204	$3,484	$300	$2,236

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3.

[1] Cards are categorized as receiving direct deposit if we observe more than four value loads at weekly intervals, more than two loads at bi-weekly intervals, or more than one load at monthly intervals, for an amount not ending in ".00."

[2] While all payroll cards are, in principle, enrolled in direct deposit, for the purposes of comparisons to the other categories, we only report the statistics for payroll that satisfy our definition of direct deposit.

Table 5.1 Revenue Earned by the Prepaid Card Issuer from Cardholder Fees (medians)*

	Panel A: Cards Sorted by Total Fee Revenue Earned over the Life of the Card									
	1st Quintile		2nd Quintile		3rd Quintile		4th Quintile		5th Quintile	
Program Type	revenue per card	monthly revenue	revenue per card	monthly revenue	revenue per card	monthly revenue	revenue per card	monthly revenue	revenue per card	monthly revenue
Web GPR	$6.65	$1.93	$26.85	$8.27	**$42.20**	**$10.20**	$71.95	$10.36	$176.50	$12.59
Retail GPR	$0.75	$0.50	$5.25	$3.40	**$12.00**	**$5.98**	$25.80	$6.55	$82.60	$9.91
FI GPR	$0.00	$0.00	$7.95	$7.95	**$12.95**	**$7.95**	$23.85	$7.95	$60.53	$7.45
Payroll	$0.00	$0.00	$0.00	$0.00	**$4.25**	**$1.75**	$18.25	$4.63	$74.61	$9.40
Panel B: Cards Sorted by Active Card Life										
Web GPR	$12.95	$10.95	$35.00	$10.65	$49.70	$9.69	$75.90	$8.10	$139.75	$6.77
Retail GPR	$1.70	$1.70	$4.50	$3.95	$12.03	$4.97	$25.00	$5.59	$66.15	$5.02
FI GPR	$7.95	$7.95	$10.45	$7.95	$15.90	$6.30	$25.50	$4.39	$31.98	$1.93
Payroll	$0.00	$0.00	$3.00	$2.00	$11.22	$3.00	$18.00	$2.33	$20.14	$1.43
Panel C: Cards Sorted by Total Cardholder Transactions										
Web GPR	$13.45	$5.98	$29.85	$8.15	$39.85	$8.88	$65.20	$9.45	$165.70	$12.17
Retail GPR	$4.95	$2.48	$3.85	$2.51	$7.95	$4.28	$21.68	$5.90	$79.20	$9.33
FI GPR	$7.95	$0.88	$7.95	$5.30	$11.70	$6.46	$15.90	$6.48	$47.70	$6.62
Payroll	$0.00	$0.00	$1.75	$0.83	$6.50	$2.00	$21.26	$3.70	$42.00	$3.94
Panel D: Cards Sorted by ATM Withdrawals										
Web GPR	$29.95	$6.05	$20.00	$6.48	$36.10	$8.59	$54.44	$10.48	$156.35	$13.82
Retail GPR	$3.40	$2.25	$9.40	$3.27	$11.90	$4.25	$15.40	$5.30	$62.17	$11.00
FI GPR	$9.45	$7.95	$15.90	$7.95	$0.00	$0.00	$9.45	$3.98	$33.93	$8.81
Payroll	$0.00	$0.00	$0.00	$0.00	$3.69	$1.80	$17.75	$4.44	$71.75	$8.21

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3. The shaded values represent the median values of cardholder fees for each program category.

* We only observe fees that take value off the card. As a result, we may not observe all card activation fees or fees for reloads conducted at certain retail locations. Also, these values do not include ATM surcharges, which are set and received by ATM owners.

Table 5.2 Revenue Earned by the Prepaid Card Issuer from Cardholder Fees, for cards with and Without Direct Deposit (medians)[1,2]

	Revenue Earned over the Life of the Card	
Program Type	**Cards with Direct Deposit**	**Cards Without Direct Deposit**
Web GPR	$133.65	$36.80
Retail GPR	$152.80	$11.95
FI GPR	$93.75	$11.45
Payroll	$19.25	$0.25

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3.

[1] Cards are categorized as receiving direct deposit if we observe more than four value loads at weekly intervals, more than two loads at bi-weekly intervals, or more than one load at monthly intervals, for an amount not ending in ".00."

[2] We only observe fees that take value off the card. As a result, we may not observe all card activation fees or fees for reloads conducted at certain retail locations. Also, these values do not include ATM surcharges, which are set and received by ATM owners.

Table 5.3 Frequency of Surcharges on Cash Withdrawals*

Program Type	**Percent of Cash Withdrawals with a Surcharge Amount**
Web GPR	94.1
Retail GPR	80.2
FI GPR	87.8
Payroll	78.1
All Programs	81.1

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3.

* The proportion of cash withdrawals for amounts that end with values other than "0.00."

Table 5.4 Cardholder Cost to Access ATMs[1]

	Charged by Prepaid Card Issuer		Charged by ATM Owner	
	Average ATM Fees[2]		Average ATM Surcharges[2]	
Program Type	**Over the Life of the Card**	**Per Active Card Month[2]**	**Over the Life of the Card**	**Per Active Card Month[2]**
Web GPR	$32.32	$3.47	$35.60	$3.82
Retail GPR	$15.26	$3.21	$17.21	$3.62
FI GPR	$16.99	$1.69	$19.88	$1.97
Payroll	$22.24	$3.70	$29.76	$4.95

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3.

[1] All values are calculated for cards with at least one cash withdrawal.

[2] These are values for fees charged over the life of the card, normalized by the active life of the card.

Table 5.5 Estimated Point-of-Sale Interchange Revenue Earned by Prepaid Card Issuer (medians)*

	Panel A: Cards Sorted by Gross Interchange Revenue Earned									
	1st Quintile		2nd Quintile		3rd Quintile		4th Quintile		5th Quintile	
Program Type	revenue per card	monthly revenue	revenue per card	monthly revenue	revenue per card	monthly revenue	revenue per card	monthly revenue	revenue per card	monthly revenue
Web GPR	$0.19	$0.03	$1.56	$0.35	**$5.18**	**$0.89**	$15.71	$1.91	$62.86	$4.95
Retail GPR	$0.00	$0.00	$0.46	$0.26	**$1.61**	**$0.87**	$5.12	$1.40	$25.41	$3.09
FI GPR	$0.00	$0.00	$0.93	$0.15	**$3.45**	**$0.88**	$8.76	$1.96	$32.84	$4.57
Payroll	$0.00	$0.00	$1.07	$0.50	**$4.78**	**$1.37**	$16.05	$2.52	$63.75	$6.29
FSA	$0.00	$0.00	$0.00	$0.00	**$2.06**	**$0.18**	$9.26	$0.60	$24.52	$1.42
Panel B: Cards Sorted by Active Card Life										
Web GPR	$1.06	$0.80	$2.62	$0.70	$6.46	$0.98	$12.43	$1.04	$25.36	$1.07
Retail GPR	$0.27	$0.27	$1.02	$0.84	$1.46	$0.54	$3.51	$0.59	$15.46	$1.09
FI GPR	$2.69	$2.53	$4.53	$1.69	$3.23	$0.49	$7.93	$0.59	$1.62	$0.06
Payroll	$0.36	$0.36	$2.41	$1.37	$8.19	$1.73	$13.89	$1.55	$34.61	$2.23
FSA	$0.00	$0.00	$3.46	$0.34	$0.91	$0.05	$0.00	$0.00	$13.64	$0.65
Panel C: Cards Sorted by Total Cardholder Transactions										
Web GPR	$0.24	$0.05	$1.51	$0.34	$4.88	$0.84	$14.91	$1.84	$61.89	$4.68
Retail GPR	$0.00	$0.00	$0.44	$0.26	$1.33	$0.61	$4.59	$1.14	$24.52	$2.80
FI GPR	$0.00	$0.00	$1.04	$0.16	$3.21	$0.81	$7.63	$1.87	$30.77	$3.95
Payroll	$0.00	$0.00	$1.16	$0.58	$4.76	$1.25	$15.33	$2.46	$61.40	$5.99
FSA	$0.00	$0.00	$0.00	$0.00	$1.67	$0.15	$8.23	$0.55	$21.40	$1.18

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3. The shaded values represent the median values of POS interchange fees for each program category. See the data appendix for a description of our estimation approach.

* Excludes any network or switch fees and interchange fees paid by card issuers to ATM owners. Revenues per card are the estimated POS interchange revenues over the life of the prepaid card. Monthly revenues are calculated by dividing revenue over the life of the card by the number of months the card is active and taking the median of that derived variable.

Table 5.6 Estimated Interchange Paid to ATM Owners over the Life of the Card (medians)*

Program Type	Prepaid Cards Sorted by Number of Cash Withdrawals				
	1st Quintile	2nd Quintile	3rd Quintile	4th Quintile	5th Quintile
Web GPR	$0.56	$1.67	$3.37	$8.33	$27.19
Retail GPR	$0.54	$0.56	$1.23	$3.21	$12.32
FI GPR	$0.54	$1.08	$1.68	$3.76	$15.12
Payroll	$0.56	$1.67	$3.90	$9.40	$25.31

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3. The shaded values represent the median values of ATM interchange paid for each program category. See the data appendix for a description of our estimation approach.

* These are fees paid by the prepaid card issuer. They also include any switch fees paid by the card issuer.

Table 5.7 Average Prepaid Issuer Revenues for Active Prepaid Cards[1]

		Values over the Life of the Prepaid Card					
						Direct Deposit?[2]	
		Web GPR	Retail GPR	FI GPR	Payroll	Yes	No
	Revenue and Cost:						
1	Cardholder Fees[1]	$76.00	$35.04	$26.13	$25.79	$59.25	$15.68
2	Interchange Received	$23.35	$10.47	$15.34	$21.03	$40.02	$5.74
3	Gross Revenue (1+2)	$99.35	$45.50	$41.47	$46.82	$99.27	$21.42
4	Interchange Paid	$6.41	$1.98	$1.70	$6.11	$12.02	$1.07
5	Net Revenue (3-4)	$92.95	$43.52	$39.77	$40.71	$87.25	$20.34
		Composition of Revenues					
	Share of Gross Revenue:						
	Cardholder Fees (1÷3)	76.5%	77.0%	63.0%	55.1%	59.7%	73.2%
	Interchange Received (2÷3)	23.5%	23.0%	37.0%	44.9%	40.3%	26.8%
	Interchange Paid (4÷3)	-6.5%	-4.4%	-4.1%	-13.0%	-12.1%	-5.0%

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3. Averages are taken only over cards that were active at some point in time. Thus, the values are not affected by the proportion of cards that were *never* used by consumers.

[1] We only observe fees that take value off the card. As a result, we may not observe all card activation fees or fees for reloads conducted at certain retail locations. Also, these values do not include ATM surcharges, which are set and received by ATM owners. Those are presented in Table 5.8.

[2] Cards are categorized as receiving direct deposit if we observe more than four value loads at weekly intervals, more than two loads at bi-weekly intervals, or more than one load at monthly intervals, for an amount not ending in ".00."The values presented here are averages taken over all categories of cards and are thus heavily influenced by the performance of payroll cards in the data set.

Table 5.8 Average Cardholder Costs (per active card month)[1]

		Values per Month of Active Card Life					
						Direct Deposit?[4]	
		Web GPR	Retail GPR	FI GPR	Payroll	Yes	No
	Received by Prepaid Issuer:						
1	Cardholder Fees[2]	$8.16	$7.36	$2.60	$4.29	$6.60	$3.96
	Received by ATM Owners:						
2	ATM Surcharges[3]	$2.38	$1.39	$0.56	$3.09	$4.13	$0.92
3	Cardholder Costs	$10.54	$8.76	$3.16	$7.38	$10.72	$4.88
		Composition of Cardholder Costs					
	Share of Cardholder Cost:						
	Cardholder Fees[1] (1 ÷ 3)	77.4%	84.1%	82.1%	58.1%	61.5%	81.2%
	ATM Surcharges[2] (2 ÷ 3)	22.6%	15.9%	17.9%	41.9%	38.5%	18.8%

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3. Averages are taken only over cards that were active at some point in time. Thus, the values are not affected by the proportion of cards that were *never* used by consumers.

[1] These are calculated as the mean of costs incurred over the life of prepaid cards in a given program category, divided by the mean active life (in months) for cards in that category.

[2] We only observe fees that take value off the card. As a result, we may not observe all card activation fees or fees for reloads conducted at certain retail locations.

[3] These are fees set and received by ATM owners.

[4] Cards are categorized as receiving direct deposit if we observe more than four value loads at weekly intervals, more than two loads at bi-weekly intervals, or more than one load at monthly intervals, for an amount not ending in ".00."The values presented here are averages taken over all categories of cards and are thus heavily influenced by the performance of payroll cards in the data set.

Table 5.9 Variation in Average Cardholder Costs and Activity (per active card month)

Program Type	Values per Month of Active Card Life[1] (Cards Sorted by Total Cardholder Costs)				
	1st Quintile	2nd Quintile	3rd Quintile	4th Quintile	5th Quintile
	Web GPR				
Cardholder Fees[2]	$1.51	$4.50	$5.88	$6.97	$12.60
ATM Surcharges[3]	$0.16	$0.45	$0.65	$1.41	$4.84
Cardholder Costs	$1.67	$4.95	$6.53	$8.38	$17.44
Transactions	1.7	2.6	2.9	5.7	15.2
ATM Withdrawals	0.1	0.2	0.3	0.7	2.5
Value Loads	0.3	0.4	0.4	0.8	1.8
	Retail GPR				
Cardholder Fees[2]	$0.78	$2.63	$4.12	$4.80	$10.89
ATM Surcharges[3]	$0.00	$0.18	$0.25	$0.49	$2.48
Cardholder Costs	$0.78	$2.81	$4.37	$5.29	$13.37
Transactions	2.3	2.1	1.8	3.1	9.8
ATM Withdrawals	0.0	0.1	0.2	0.3	1.5
Value Loads	1.4	0.7	0.6	0.8	1.6
	FI GPR				
Cardholder Fees[2]	$0.02	$1.39	$2.66	$3.25	$6.72
ATM Surcharges[3]	$0.00	$0.03	$0.12	$0.32	$1.96
Cardholder Costs	$0.02	$1.42	$2.78	$3.57	$8.68
Transactions	0.3	2.0	2.8	3.2	10.4
ATM Withdrawals	0.0	0.0	0.1	0.2	1.1
Value Loads	0.1	0.4	0.5	0.5	1.4
	Payroll				
Cardholder Fees[2]	$0.00	$0.13	$1.18	$3.20	$9.21
ATM Surcharges[3]	$0.00	$0.12	$0.80	$2.22	$6.70
Cardholder Costs	$0.00	$0.25	$1.98	$5.42	$15.91
Transactions	6.9	9.7	11.9	15.1	20.9
ATM Withdrawals	0.1	0.2	0.7	1.6	3.9
Value Loads	1.6	1.6	1.4	1.8	2.5

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3. Averages are taken only over cards that were active at some point in time. Thus, the values are not affected by the proportion of cards that were *never* used by consumers.

[1] These are calculated as the mean of the variable over the life of prepaid cards in a given program category, divided by the mean active life (in months) for cards in that category.

[2] These are fees set and received by the prepaid issuer. We only observe fees that take value off the card. We may not observe all card activation fees or fees for reloads conducted at certain retail locations.

[3] These are fees set and received by ATM owners.

Table 7.1 Composition of Purchase Transactions in 2010

	Share of Purchase Transactions (percent)		Share of Purchase Volume (percent)	
Program Type	**PIN**	**Signature**	**PIN**	**Signature**
Web GPR	38.2	61.8	46.1	53.9
Retail GPR	30.1	69.9	25.6	74.4
FI GPR	17.7	82.3	20.7	79.3
Payroll	53.0	47.0	69.5	30.5

Notes: Statistics are calculated for the universe of prepaid cards described in Section 3.