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What Do Consumers Really Pay on Their Checking and Credit Card Accounts? Explicit, Implicit, and Avoidable Costs

By Victor Stango and Jonathan Zinman*

Consumers in the United States make billions of transactions each year using cash, checks, debit cards, and credit cards. Bank and credit card accounts provide consumers with liquidity to clear and settle these transactions. In return, consumers pay a variety of fees, and both explicit and implicit interest charges.

The importance of retail banking and credit markets to economic activity drives interest in many open policy and research questions. Do households borrow too much relative to a neoclassical benchmark (Christopher D. Carroll 2001)? Why do many households leave a substantial amount of money on the table in managing their accounts (Sumit Agarwal et al. 2006; David Gross and Nicholas Souleles 2002)? Do firms structure pricing to exploit consumer cognitive biases or limitations (Stefano DellaVigna and Ulrike Malmendier 2004; Xavier Gabaix and David Laibson 2006)? How do learning (Sumit Agarwal, John Driscoll, and Gabaix 2008) and disclosure regulation (Stango and Zinman 2009b) interact with consumer decision making and firm strategy to determine market outcomes?

This paper examines some threshold questions that should inform the questions above: what do people really pay to use their bank and credit card accounts, and which cost components are the largest? Of all the costs that people pay, which could they easily avoid by making different day-to-day choices? And how stable are both the level of costs and the share of costs that are "avoidable," for a given person over time?

To answer these questions, we use novel administrative data containing every checking and credit card account transaction made by 917 consumers (households) over two years. We measure total explicit and implicit costs that consumers pay across all of their bank and credit card accounts and describe the relative importance of each total cost component. We then measure the costs that consumers could avoid by making different decisions, and measure how stable costs and avoidable costs are for consumers month to month.

Compared to national averages, our sample uses electronic payments relatively intensively, has typical amounts of revolving debt, and is younger, wealthier, more educated, more likely to manage finances online, and more creditworthy. In short, our sample is likely to be relatively financially sophisticated.

In our sample, the median household pays $43 in total bank and credit card account costs per month. The twenty-fifth percentile pays $13 per month, while the seventy-fifth pays $111 per month, and the ninetieth percentile pays $257 ($3,084 per year). For most consumers who pay economically significant costs, credit card interest is the largest component of total costs. Many consumers pay checking account fees per month that are zero or close to zero, and forgo little interest by holding bank account balances. There are serial payers of fees: among those with nonzero average overdraft fees per month, the seventy-fifth percentile is nearly $20 per month. Among those who pay some credit card late or overlimit fees, the seventy-fifth percentiles are $12 and $16 per month. But more than half of our panelists never pay penalty fees.

For those who do pay significant fees and credit card interest, a large share of costs could be avoided relatively easily. At the median, almost half of credit card interest could be avoided by a combination of reallocating from high- to low-rate cards, and repaying debt using available checking balances. Among those who

overdraft their bank accounts, nearly all could have avoided fees by using a much cheaper source of liquidity (usually a credit card with available credit). Most credit card late and overlimit fees could be avoided by either paying a bill using available checking balances, or by using a different card with sufficient available credit. In all, the median panelist could avoid 60 percent of all credit card interest charges, overdraft fees, and overlimit and late fees through such behavior. Another way to scale avoidable costs is to equate them to a "consumption cost"—the additional amount one could borrow, without any increase in the monthly interest payment, by allocating payment choices more efficiently. This consumption cost exceeds $1,000 for most panelists.

For most panelists, the month-to-month level of credit card interest costs and the share of them that could be avoided are fairly persistent: both autocorrelations are around 0.50. Fee costs and their avoidability are less strongly autocorrelated, and negatively so for many panelists.

What drives costs, avoidable costs, or their persistence is not something that we try to explain in this paper. Precautionary demand, rational inattention under bounded rationality, mental accounting, and shrouded attributes are among the leading potential explanations we explore in Stango and Zinman (2009a). Here we take the first step of establishing some stylized facts.

I. The Data

Our data come from Lightspeed Research (formerly Forrester Research) in 2006 and 2007 as part of its comprehensive consumer panel. Panelists have typically participated in other Lightspeed surveys and enter the sample by providing Lightspeed with access to online bank (checking, savings, or time deposit) and credit card accounts held by their household. The primary pieces of the dataset are monthly *statement* data "pulled" from each account, daily *transaction* information "scraped" from each account's transaction listing page, and *account* information scraped periodically from other account pages (such as the one listing "terms"). A second important piece of data is *registration* information collected when the consumer enrolls in the panel. That data includes some standard demographics (income, education, etc.), self-reports on account holding and use, and some credit bureau data.

To enroll in the panel, a household must register at least two accounts of any type, but can register many more. Because the registration information also includes the panelist's active deposit and credit card accounts, we can construct a subsample of panelists registering the full set of checking and credit card accounts held by their household.[1] Below we report results for 917 panelists who meet the full-set criterion, register at least one deposit and one credit card account (which may be at different banks), and are in the sample for nine months or more.

Observing the full set of accounts is critical for estimating avoidable costs, because avoidability is a function of other options. The Lightspeed data have several advantages over other datasets that might be used to study high-frequency transaction and borrowing behavior. Administrative data from a single financial institution typically lacks the customer's full choice set and much of the supplemental data we observe from Lightspeed's surveys. More standard household surveys (such as the Survey of Consumer Finances) lack comprehensive high-frequency financial information, and may suffer from reporting biases (Zinman, forthcoming).

The main disadvantage of the Lightspeed data is that they are not nationally representative. The requirement that panelists register accounts online selects younger and relatively educated people, who therefore have high income conditional on age. Panelists are necessarily those who are willing to share sensitive financial information (in exchange for the compensation they get for participating), although household surveys on consumer finances face this selection issue as well. (Stango and Zinman (2009a) discuss representativeness issues in greater detail.)

An observation in the raw data is a panelist-transaction. We define "transaction" as anything that changes an account balance. So retail purchases are transactions, as are finance charges and fees. For each transaction, we observe transaction-level characteristics (including the date and dollar amount), the account on which the transaction is made, the panelist making the transaction and her (largely time-invariant) demographic

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[1] We can impose the full-set filter using either self-reported account counts from the registration survey or active line data from the credit bureau file. Both have their advantages and disadvantages. Here we report results using the registration survey as the filter.

characteristics, time-varying account characteristics such as running balance and available liquidity, running balances and liquidity on all other accounts held by that panelist, and account characteristics that change at much lower frequencies such as interest rates and credit limits.

We have 917 panelists registering the full set of checking and credit card accounts, and 13,060 panelist-months for an average of 14 months per panelist. These panelists display 722,944 transactions on all of their accounts, of which 416,994 are on deposit accounts and 305,950 are on credit card accounts. Their debit/credit transaction split is similar to the US average. The age distribution is skewed toward younger consumers, although income conditional on age is higher than the national average. Education levels are relatively high as well. Average creditworthiness is comparable to the national average, but above average conditional on age.

The average number of checking accounts per panelist is just over two, and the average number of credit cards is just over four. Panelists average one "spending" transaction (an accounting debit) per day, although many make more than that. Debit and credit card transactions are the most common type. Other "electronic" transactions (including discretionary and automatic payments) are also fairly common. Our subsample appears to be less cash-intensive than the population at large, as judged by their ATM usage.

Most consumers concentrate their card purchases almost exclusively on either debit or credit, particularly over shorter intervals, e.g., very few mix card types within a month. By most measures, our panelists have access to substantial liquidity, either in the form of checking balances or available credit. The median daily available checking balance is $1,194, and the median daily available credit on all cards is $9,787. Despite carrying high credit card balances, many consumers rarely revolve (borrow) on their credit cards; the median daily credit card balance is $2,629, but the median daily revolving balance is $666. At the high end (ninetieth percentile), daily revolving credit card balances are close to $20,000.

II. What Consumers Pay: Explicit and Implicit Costs

Many costs to consumers are explicit and captured directly from a particular transaction.

On credit card accounts these include interest charges, annual or monthly fees, late and overlimit fees, cash advance fees, and balance transfer fees. On deposit accounts these include monthly account fees, overdraft fees, ATM fees, transfer fees, and other fees (e.g., for cashier checks).

We also measure the implicit ("forgone") interest that consumers pay by leaving funds in deposit accounts, which most often pay zero interest. We assume that the alternative is a daily sweep of deposit account funds into a risk-free investment paying the contemporaneous three-month Treasury Bill rate. For each panelist we multiply total checking balances by the risk-free rate to get foregone daily interest; we exclude savings, CD, and MMDA account balances from that calculation as they already earn interest. We reduce the base on which daily interest foregone is calculated by the amount of revolving credit card debt; in that case, the explicit interest payments on revolving debt measure the (opportunity) cost of holding checking balances.

Credit card users who do not have revolving debt *earn* implicit interest ("float") on their credit card charges. We again calculate this day by day, using the three-month T-Bill rate to infer a daily risk-free return.

Summing explicit costs and net implicit costs yields estimates of the full *gross, pecuniary costs* borne by consumers for transaction services and liquidity. We emphasize that we are simply measuring gross pecuniary costs, not net benefits in monetized or utility terms. We therefore ignore time and other nonpecuniary costs, and we also ignore the benefits provided by the transaction and liquidity services (including risk mitigation).

Table 1 shows information about the distribution of average total monthly costs ("total costs") at the panelist level, and decomposes those costs. One striking feature of total costs and its components is the great degree of heterogeneity. The interquartile range of total costs is [$13.41, $110.71]. The seventy-fifth percentile pays about 2 percent of pretax household income for the liquidity provided by its checking and credit card accounts.

Eighty-five percent of our panelists pay some explicit credit card cost during our sample period. The largest explicit cost is typically credit card interest. Credit card penalty fees (late

TABLE 1—AVERAGE MONTHLY COSTS OF DEPOSIT AND CREDIT CARD ACCOUNTS

Variable	Share of panelists w/zero	Percentiles among those with nonzero values			
		25th	50th	75th	90th
Explicit, credit card:	0.15	10.41	37.16	115.14	246.94
Interest paid	0.18	6.67	29.91	102.32	238.72
Late fees	0.55	3.22	4.89	11.70	26.00
Overlimit fees	0.78	3.55	8.28	16.31	26.71
Cash advance fees	0.94	0.56	1.91	4.50	9.44
Annual fees	0.70	3.26	5.91	10.33	16.67
Other fees	0.91	3.00	4.90	9.90	12.81
Explicit, checking account:	0.31	1.10	4.83	14.75	36.31
Overdraft fees	0.68	3.24	7.33	18.48	42.78
ATM fees	0.56	0.22	0.55	1.50	3.98
Other fees	0.51	0.75	2.18	6.30	14.78
Implicit:					
Credit card float earned	0.14	−0.75	−2.91	−8.26	−16.44
Checking interest forgone	0.13	0.41	2.17	8.52	25.96
Total costs:	0.00	13.41	42.65	110.71	256.58
Credit card	0.00	−0.29	21.39	89.20	226.30
Checking account	0.03	2.91	8.71	21.79	45.60
Explicit	0.07	11.10	41.98	120.43	265.60
Implicit	0.04	−2.83	0.01	3.58	14.93
All interest	0.00	6.73	24.26	76.16	211.25
Total fees	0.15	3.88	11.44	29.50	68.72
Share costs avoidable:	0.00	0.33	0.60	0.98	1.00
Interest paid	0.00	0.28	0.52	0.93	1.00
Late fees	0.04	0.80	1.00	1.00	1.00
Overlimit fees	0.15	0.00	0.75	1.00	1.00
Overdraft fees	0.03	0.00	0.62	1.00	1.00
Month-to-month correlation within panelist:					
All costs	0.00	0.01	0.29	0.56	0.74
All fees	0.15	−0.14	−0.06	0.24	0.50
All interest	0.00	0.17	0.45	0.67	0.83
Share costs avoidable	0.00	−0.04	0.23	0.53	0.77
Share fees avoidable	0.15	−0.28	0.00	0.58	0.80
Share interest avoidable	0.00	0.21	0.49	0.71	0.85

Notes: Unless otherwise noted, cells contain per-month average dollar values across the 917 panelists in the subsample. "Other" fees on credit card accounts include phone transaction fees and other miscellaneous fees. "Other" fees on checking accounts include monthly account fees, safe deposit box fees, cashier/bank check fees, and other miscellaneous fees. Credit card float earned is calculated as total credit card debt minus revolving credit card debt times the daily risk-free (three-month T-Bill) interest rate, summed over the month and averaged across months. Checking balance interest forgone is calculated using the daily excess of checking balances over revolving credit card debt, and is treated as costing the risk-free rate. For "share costs avoidable," five cost components are in the denominator: explicit credit card interest, checking interest forgone, late fees, overlimit fees, and overdraft fees. The numerator includes the level of those costs that the panelist could avoid in the following ways. Explicit credit card interest is avoidable via repayment from checking balances or reallocating debt from high-rate to low-rate cards. Checking interest forgone is avoidable via a daily sweep into an account earning the risk-free rate. Late fees are avoidable if available checking balances exceeded the minimum monthly payment for every day during the billing period. Overlimit fees are avoidable if the amount over limit was available in checking or on another card during every day of the billing period. Overdraft fees are avoidable if available liquidity exists on another card (checking or credit).

and overlimit) are also important; 48 percent of our panelists pay at least one, and many incur penalties that average more than $10 per month. Annual fees and cash advance fees are not prevalent in our data.

Explicit checking account fees are far less important, except for the 32 percent of panelists who pay at least one overdraft fee. Among these consumers, the interquartile range of average monthly overdraft fees is [$3.24, $18.48].

Implicit interest is not a big benefit or cost at the median. But, again, the breadth of the distribution is noteworthy: many panelists earn substantial amounts on credit card float, and/or forgo substantial interest by holding large checking balances.

III. Avoidable Costs: Choices at the Point of Sale and Reallocation of Funds

In principle, nearly all of the costs described above are avoidable if consumers make different *long-run* decisions (e.g., to reduce consumption in order to repay credit card debt).

Here we examine narrower questions: what share of these costs could be avoided, conditional on the set of purchase transactions and the payment choice set? What share of costs might be avoided simply by using the lowest-cost payment method? A related question is how much consumers could save by reallocating dollars from high-cost accounts to low-cost accounts.

For checking accounts, any implicit interest costs could be avoided by costlessly sweeping funds into an interest-bearing account or paying down high-interest credit. That is an aggressive assumption, but given interest in household "borrowing high and lending low," it is informative as an upper bound on avoidable costs (Zinman 2007).

We also classify some overdraft fees as avoidable. If a consumer overdrafts but holds sufficient available funds in another checking account, or sufficient available credit on a credit card, we measure that fee as avoidable. For the time being, we ignore the cost of using the alternative payment method (e.g., the interest cost of charging instead of bouncing a check). In most cases those costs are less than a dollar (versus $25 for overdrafting).

On credit card accounts, we classify interest charges as avoidable if revolving balances could be repaid using available checking funds. We make that calculation day by day. We also classify interest charges as avoidable if revolving balances could be shifted onto lower-rate credit cards already held by the panelist (this could have been done ex ante, by choosing a different card at the point-of-sale, or ex post, by allocating payments to more expensive cards). That calculation is also day by day. For now, we assume that the consumer faces no credit limit

at the lowest available credit card interest rate; we will relax that assumption in future work.

Some credit card fees are avoidable too. Late fees are avoidable if the panelist's *minimum* available checking balance during the billing period exceeds the minimum payment on the credit card (i.e., on this component we err on the side of classifying more fees as *un*avoidable). Overlimit fees are avoidable if the transaction that generated the overlimit fee could have been made using a debit card or another credit card. Cash advance fees are avoidable if the value of the advance is less than the panelist's *minimum* checking account balance during the month (again, we err on the side of classifying more fees as *un*avoidable).

Table 1 contains some estimates of avoidable costs. The top row shows that in the median panelist-month, 60 percent of costs could be avoided. At the seventy-fifth percentile nearly all costs could be avoided. Interest paid is less avoidable by our metrics than penalty fees, nearly all of which appear to be avoidable. These results are striking for at least two reasons. First, our measure of avoidable interest costs is on the high side (i.e., closer to an upper bound), and our measure of avoidable penalty fees is on the low side (i.e., closer to a lower bound). This strengthens the inference that most penalty fees are avoidable with small changes in short-run behavior, while most interest charges are not. Second, recall that we likely have a relatively financially sophisticated sample. If avoidable penalty fees are prominent in this sample, they may be even more prominent in the general population.

IV. Persistence of Costs at the Panelist Level

The last part of Table 1 reports the average within-panelist month-to-month correlation in costs and avoidable costs. Again there is a wide range of heterogeneity in the persistence of total costs and its components. The interquartile range of total costs persistence is [0.01, 0.56], with a median of 0.29. Interest and avoidable interest are fairly persistent, penalty fees are not generally persistent. Perhaps most interestingly, there is great heterogeneity in the (lack of) persistence in avoidable fees. Many consumers pay nearly the same avoidable amount every month, e.g., the ninetieth percentile of those with nonzero fees is a month-to-month correlation of 0.8. But

many other consumers show little persistence: the median correlation is zero, which means that month-to-month avoidable fees are negatively correlated for nearly half of our panelists.

V. Conclusion

We present several new stylized facts on what people actually pay to use their checking and credit card accounts. Our median household pays $500 per year and could avoid more than half these costs with minor changes in behavior. Translating these avoidable costs into consumption terms, we find that most consumers could afford to borrow more than 1,000 additional dollars simply by allocating payment choices more efficiently. Penalty fees are economically important (representing about half of total fees, and the lion's share of checking account costs), and most penalty fees are easily avoidable by our metrics. Interest and avoidable interest generally persist over time; in contrast, fee and avoidable fee costs are negatively correlated over time for many consumers. On all margins of costs and cost persistence, we find tremendous heterogeneity.

We leave the many questions about what drives these outcomes for future research in consumer choice, strategic pricing, and equilibrium household finance.

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