

Credit Card Debt and Payment Use

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Issue

- Almost half of credit card holders are “revolvers:”
 - 44.3% in 2004 SCF and 44.6% in 2007 SCF “sometimes” or “hardly ever” pay off balance each month
- Credit card debt is expensive: average debt \$5,000, average rate over 11% (2004)
- Do they revolve because of liquidity constraints (neoclassical, “rational” model of consumer utility maximization) or because of “behavioral” reasons?
- Does carrying credit card debt change their payment behavior, i.e., do they avoid going further into debt?
- Do revolvers substitute away from credit cards to curtail their debt and manage their budget?

Literature

- Revolvers carry credit card debt to minimize costs: Brito and Hartley (1995), Calem and Mester (1995), Calem et al. (2005), Telyukova and Wright (2005), Zinman (2007)
- Revolvers carry debt because of restraint problems: Ausubel (1991), Prelec and Lowenstein (1998), Thaler (1999), Laibson et al. (2000), Bar-Gill (2004), Ausubel and Shui (2005), Meier and Sprenger (2007)
- What happens *after* they incur debt? No empirical relationship between revolving behavior and intensity of payment use, such as substitution from credit cards to other payment methods

Approach

- These models can be tested empirically
- Behavioral: consumers may lack self-control to keep themselves from borrowing on credit cards, prefer to use debit cards instead
- Neoclassical: no difference in use of debit cards

Findings

- Credit card revolvers use debit more intensively and credit less intensively than convenience users
- No difference in use of check or cash
- Revolvers also more likely to see debit as superior with respect to control over money and budgeting
- Revolvers not only adopt, but also use debit more frequently, as a way to control spending

Our Methodology

- Use data from the 2005 Study of Consumer Payment Preferences
- 1,800 individuals with both credit and debit
→ conditional on payment adoption
- Look at payments made with credit cards, debit cards, checks, and cash
- Examine differences between revolvers and convenience users in their use of payment methods and in their perceptions of payments

Perceptions

- Payment perceptions important in consumer payment behavior (Hirschman 1982; Miyazaki and Fernandez 2001; Mantel 2000; Ching and Hayashi 2006; Schuh and Stavins 2009)
- Revolvers and convenience users have different perceptions of debit and credit: debit curbs excessive spending
- We examine how these perceptions affect payment behavior

Data

- Survey of Consumer Payment Preferences (SCPP), conducted by Dove Consulting and ABA in 2005
- 3,000 respondents, with 1,800 of them holding both credit and debit; all have check and cash
- 43% of them are revolvers (same as SCF)
- Socio-demographic characteristics for revolvers and convenience users almost identical

Patterns of Payment Use

- Proportion of purchases made by consumer i with payment j :

$$Proportion_{ij} = \frac{N_{ij}}{\sum_{p \in \{Credit, Debit, Cash, Check\}} N_{ip}}$$

- Revolvers: a significantly lower proportion of payments made with credit and a higher proportion of payments made with debit
- Proportions of cash and check similar for revolvers and convenience users

Patterns of Payment Use

- Payment method used most frequently:
Most Frequent Credit, Most Frequent Debit, Most Frequent Check, and Most Frequent Cash
- Revolvers significantly more likely to cite debit, and significantly less likely to cite credit, as their primary payment
- Again, no difference in cash and check between revolvers and convenience users

Table 2: Average Payment Method Use by Credit Card Revolving Behavior

Variable	Total N = 1880	Convenience Users N = 1073	Revolvers N = 807	p-value from t-test
Proportion of Payments Made at Point of Sale				
Credit Card	.213	.233	.186	.000
Debit Card	.363	.338	.397	.000
Cash	.308	.316	.298	.087
Check	.116	.113	.119	.418
Proportion Citing Payment Type as Most Frequently Used at Point of Sale				
Credit Card	.237	.277	.183	.000
Debit Card	.388	.341	.450	.000
Cash	.324	.339	.304	.102
Check	.052	.043	.063	.049

Regression Results

- We estimate the following OLS for credit and debit:

$$Proportion_{i,j} = \beta_0 + \beta_1 RevolvingBalances_i + \gamma x_i + \epsilon_i$$

- x_i includes gender, age, income, race, education, number of years i has held his checking account
- Revolving → 2-4 percent lower proportion of credit card payments, 4-5 percent higher proportion of debit card payments
- Age and education significant for credit card use, rewards on either credit or debit raises the use of that payment card, and lowers the use of the other card

Table 4: Payment Use and Revolving Balances

Ordinary Least Squares Regressions

	Proportion Credit		Proportion Debit		Proportion Cash		Proportion Check	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Revolving Balances (= 1)	-0.041*** (0.010)	-0.024*** (0.009)	0.051*** (0.012)	0.037*** (0.012)	-0.016 (0.010)	-0.016 (0.010)	0.006 (0.007)	0.003 (0.007)
Constant	0.177*** (0.018)	0.148*** (0.016)	0.427*** (0.023)	0.458*** (0.023)	0.270*** (0.018)	0.269*** (0.018)	0.126*** (0.013)	0.124*** (0.013)
Socio-Demographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rewards Participation	No	Yes	No	Yes	No	Yes	No	Yes
N	1880	1722	1880	1722	1880	1722	1880	1722
R-Squared	0.121	0.214	0.086	0.126	0.062	0.065	0.070	0.072

Notes: Robust standard errors in parentheses. Dependent variable: proportion of payments made with credit card (Columns 1 and 2), debit card (Columns 3 and 4), cash (Columns 5 and 6) and check (Columns 7 and 8).

Level of significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Regression Results

- Estimate logit for most frequently used payment:

$$\text{MostFrequent}_i = \lambda_0 + \lambda_1 \text{RevolvingBalances}_i + \lambda \mathbf{x}_i + \eta_i$$

- Revolvers half as likely to use credit cards most frequently, one-and-a-half times more likely to use debit cards most frequently
- No significant difference in citing cash or check as the most frequently used payment instrument

Table 6: Most Frequent Use and Revolving Balances
Logit Regressions

	Most Frequent Credit (1)	Most Frequent Credit (2)	Most Frequent Debit (3)	Most Frequent Debit (4)	Most Frequent Cash (5)	Most Frequent Cash (6)	Most Frequent Check (7)	Most Frequent Check (8)
Revolving Balances (= 1)	-0.535*** (0.124)	-0.413*** (0.138)	0.419*** (0.100)	0.356*** (0.104)	-0.158 (0.105)	-0.164 (0.112)	0.454** (0.216)	0.282 (0.231)
Constant	-1.903*** (0.216)	-2.373*** (0.244)	-0.259 (0.180)	-0.144 (0.187)	-0.634*** (0.181)	-0.457** (0.193)	-2.401*** (0.352)	-2.607*** (0.411)
Socio-Demographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rewards Participation	No	Yes	No	Yes	No	Yes	No	Yes
N	1880	1722	1880	1722	1880	1722	1880	1722
Pseudo R-Squared	0.115	0.187	0.056	0.064	0.050	0.069	0.077	0.081

Notes: Robust standard errors in parentheses.

Columns 1 and 2: dependent variable = 1 if credit card is cited as most frequently used payment instrument at point of sale. Columns 3 and 4: dependent variable = 1 if debit card is cited as most frequently used payment instrument at point of sale. Columns 5 and 6: dependent variable = 1 if cash is cited as most frequently used payment instrument at point of sale. Columns 7 and 8: dependent variable = 1 if check is cited as most frequently used payment instrument at point of sale.

Level of significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Why Do Revolvers Pay Differently?

- Evidence of substitution from credit cards to debit cards by revolvers
- But why? Because they want to curb their spending, or because they find debit cards more convenient to use?
- We cannot establish causality (cross-section), but can examine conditional correlations between revolving credit card debt and the perceptions of payment characteristics

Perceptions of Payments

- For each payment instrument, respondents were asked whether they view it as:
 - *Easy* to use,
 - *Widely Acceptable*,
 - *Safe*,
 - allowing *Control* over money,
 - helping in *Budgeting*, and
 - easy to get *Refunds* or resolve disputes

Perceptions of Payments

- If respondent answered “Yes” to debit and “No” to credit → we assume that he perceives debit as superior to credit for that characteristic
- We create these variables:
DebitBetterEasy, DebitBetterAcceptable, DebitBetterSafe, DebitBetterControl, DebitBetterBudgeting, and DebitBetterRefund
- Revolvers less likely to see debit as superior to credit for: *Ease of use, Acceptability*
- More likely to see debit as superior for: *Control over money, Budgeting*
- No difference for: *Safety, Refunds*

Table 3: Proportion of Consumers Reporting Debit Better than Credit

Variable	Total N = 1722	Convenience Users N = 964	Revolvers N = 758	p-value from t-test
Debit Better than Credit for...				
Easy	.167	.200	.125	.000
Acceptability	.171	.186	.152	.063
Safe	.278	.275	.281	.779
Control	.631	.598	.674	.001
Budget	.442	.405	.489	.000
Refund	.146	.158	.131	.114

Revolving and Perceptions

- Estimate logit regressions:

$$DebitBetter_{ij} = \delta_0 + \delta_1 RevolvingBalances_i + \delta_j X_{ij} + v_i$$

- $DebitBetter_{ij}$ equals 1 if consumer i believes that debit cards outperform credit cards according to that specific perception j
- Revolvers more likely to believe that debit is better than credit in terms of *Budgeting* and *Control*, less likely to prefer debit for *Ease*, *Acceptability*, or *Refunds*, even when controlling for socio-demographic attributes

Table 8: Perceptions and Revolving Balances

Logit Regressions

Debit Better than Credit for:	Ease (1)	Acceptability (2)	Safety (3)	Control (4)	Budgeting (5)	Refunds (6)
Revolving Balances (= 1)	-0.623*** (0.141)	-0.279** (0.135)	-0.001 (0.114)	0.307*** (0.107)	0.336*** (0.102)	-0.263* (0.145)
Constant	-0.767*** (0.244)	-0.943*** (0.236)	-0.140 (0.200)	1.111*** (0.192)	0.398** (0.185)	-0.943*** (0.253)
Socio-Demographics	Yes	Yes	Yes	Yes	Yes	Yes
Rewards Participation	Yes	Yes	Yes	Yes	Yes	Yes
N	1722	1722	1722	1722	1722	1722
Pseudo R-Squared	0.073	0.042	0.055	0.057	0.045	0.068

Notes: Robust standard errors in parentheses.

Dependent variable =1 if individual responded positively for debit cards and negatively for credit cards; zero otherwise.

Level of significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Conclusions

- Revolvers use debit more intensively than convenience users, even after controlling for socio-demographic attributes
- We can pinpoint the reasons: budgeting and control over spending
- Credit card borrowing is declining: revolving credit dropped in Q4 of 2008 and Q1 of 2009 (Federal Reserve Board G19)
- Supply of credit is tightening (Senior Loan Officer Opinion Survey April 2009):
 - 60 percent tightened lending standards on credit card loans
 - 55 percent raised minimum required credit scores
 - 65 percent lowered credit limits to credit card customers
- As the use of debit continues to grow, hopefully consumers who find it difficult to budget and control their spending will see it as a solution, at least in the short term