Consumers’ Use of Debit Cards: Patterns, Preferences and Price Response

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Federal Reserve Board

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Federal Reserve Board

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Motivation

- Rapid growth in point-of-sale (POS) debit
  - Maturing technology
  - Displacing other payment methods
Card Payment Transactions

Source: Nilson Report and authors’ estimates
(Includes store card transactions)

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Motivation, cont.

- Controversy surrounds payment card industry
  - Litigation over interchange fees paid by merchant acquirers to card issuers
  - Industry outcomes driven by consumer choice
Research Questions

- Who uses debit cards? How often?
- Substitute for what?
- What consumer preferences does debit satisfy?
- How do consumers respond to fees?
Data

- Michigan Surveys of Consumers
  - Nationally representative
- March, April, May 2004
- 1501 households
- Questions on
  - Debit card use and frequency
  - Reasons for using debit (or not)
Debit Card Holdings and Use

- Of 1501 households, 1316 (88%) have a checking account
- Of these, 783 (60%) have a debit card (52% of sample)
- Of these, 674 (86%) use a debit card at point of sale (45% of sample)
Who has a debit card?

- Probability of having a debit card
  - Decreases monotonically with age
  - Increases with education

=> Possibly a reporting issue
Who uses debit cards?

- Young people
- Women
- People with kids
- College grads
- All income levels
- Singles
- Non-homeowners

<table>
<thead>
<tr>
<th></th>
<th>18-24</th>
<th>65+</th>
<th>78%</th>
<th>21%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Women</td>
<td>Men</td>
<td>55%</td>
<td>47%</td>
</tr>
<tr>
<td>Family</td>
<td>Kids in HH</td>
<td>No kids</td>
<td>62%</td>
<td>46%</td>
</tr>
</tbody>
</table>

- Computed among checking account holders
- These patterns also apparent in probit regressions
Frequency of Debit Card Use

Percent of Purchases per Week:
- Less than 1: 15%
- 1: 15%
- 2: 10%
- 3: 15%
- 4: 10%
- 5: 10%
- 6: 5%
- 7 or more: 25%

Purchases per Week:

- Less than 1
- 1
- 2
- 3
- 4
- 5
- 6
- 7 or more
Ordered Probit: Frequency of Debit Card Use

- Frequency of Use
  - Decreases with age
  - Greater for middle income categories
  - Greater if children present
Why (or Why Not) Use Debit?

- Open-ended questions asked of both users and non-users
- Could give more than one reason
- Lets us get inside the black box
- We can code responses using multiple “filters”
Coding responses to open-ended questions

Two “filters”:

- **Substitution Patterns**
  - What payment methods is debit displacing (or not)?
  - Cash, Check, Credit

- **Payment Choice Drivers**
  - What consumer desires does debit satisfy (or not)?
  - Time, Convenience, Money, Restraint, Tracking, Acceptance, Other

- **Categories NOT mutually exclusive**
Coding responses to open-ended questions

“It's faster than writing a check.”

“Mostly to save on hassle of getting checks. Sometimes it’s quicker, I guess.”

“Usually when I'm at a gas station that doesn't accept credit cards.”

“So I won't get charged ATM fees.”

“You don't have to buy checks.”

“You don't have to worry about building up credit card debt.”

“Provides a record of the purchase.”
# Substitution Patterns

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<th>Debit Users (N=674)</th>
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<td>48.5</td>
<td>22.9</td>
</tr>
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<td>Check</td>
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Substitution Patterns

- Debit serves mainly as a substitute for cash and checks
  - Consistent with networks’ marketing programs
- For those who don’t use debit, most prefer credit
- For more on substitution, see
## Payment Choice Drivers: Reasons for Using Debit

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<td>88.1</td>
<td>8.3</td>
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<td>21.1</td>
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<tr>
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<td>5.8</td>
<td>5.5</td>
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<td>Tracking</td>
<td>10.2</td>
<td>40.4</td>
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<tr>
<td>Acceptance</td>
<td>4.9</td>
<td>0.0</td>
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<td>Other</td>
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Payment Choice Drivers: Reasons for Using Debit

- Restraint important for only a small share
- Convenience mentioned overwhelmingly
- More convenient than what?
  - Look at cross tabs with substitutes…
## Substitution by Drivers: Debit Users

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<th>Driver (N)</th>
<th>Cash</th>
<th>Credit</th>
<th>Check</th>
<th>Indeterminate</th>
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<tr>
<td>Time (95)</td>
<td>50.5</td>
<td>23.2</td>
<td>44.2</td>
<td>19.0</td>
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<tr>
<td>Convenience (595)</td>
<td>51.9</td>
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<td>Restraint (39)</td>
<td>48.7</td>
<td>69.2</td>
<td>23.1</td>
<td>2.6</td>
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<td>Tracking (69)</td>
<td>42.0</td>
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<td>15.9</td>
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<td>Acceptance (33)</td>
<td>21.2</td>
<td>60.6</td>
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## Substitution by Drivers: Debit Users

Percent who **substitute** debit for:

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Behavioral Restraint

- Only 5.8 percent of respondents with a debit card report restraint explicitly.
- Among these, 69 percent use debit instead of credit.
- Age profile is consistent with credit constraint as a reason for using debit.
Effects of Fees on Debit Card Use

- Interchange fee controversy:
  - Interchange fee higher for credit and signature debit, lower for PIN debit
- Network rules prevent merchants from surcharging card payments:
  “No-surchage rule”
- What would happen if merchants did surcharge?
  - Measure response to bank-imposed fees
Effect of Fees on Debit Card Use: Data and Estimation

- In mid-2004, about 10-15 percent of issuers charged fees for PIN debit
  - “Steering” customers to signature debit
- Survey asked respondents with a debit card whether their bank charges a debit card fee
- Probits: Debit card use and PIN vs. sig. use
  - Include fee dummy or fee level as regressors
Effects of Fees on Debit Card Use: Results

- Consumers more likely to use solely signature if PIN fee is charged
  - Steering is effective
- PIN fee makes consumers less likely to use debit cards overall
  - Likely an unintended effect
- Fee level matters only as interaction with fee dummy
- Frequency of use unaffected by fees
Effects of Fees on Debit Card Use: Implications

- Big response to issuer fees
  - Fee is, on average, about 1.8 percent of transaction amount
  - Model predicts 12% decrease in likelihood of using the card
- Merchant surcharging would decrease card use
- Threat of surcharging could place downward pressure on interchange fees
- Surcharging could cause consumers to switch to paper methods – less efficient