

Consumer Payment Choice: A Central Bank Perspective

Scott Schuh

Federal Reserve Bank of Boston

January 21, 2010



**FEDERAL RESERVE
BANK OF BOSTON™**

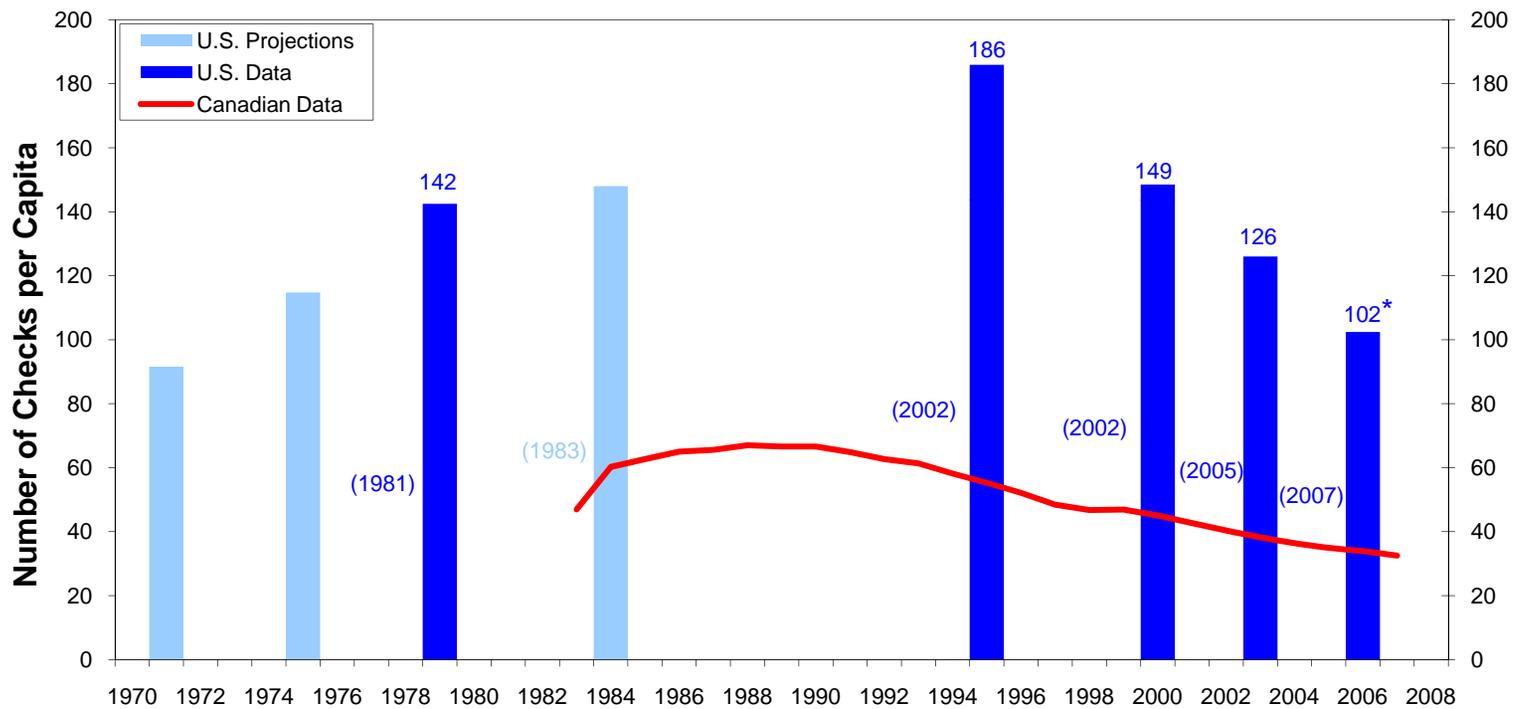
Presented to the PULSE Financial Institutions
Oversight Committee, Phoenix, AZ.

Presentation overview

- Context and motivation
- Survey of Consumer Payment Choice (SCPC)
- Consumer payment adoption and use
- Some cash and debit card results (2008)
- Conclusions and future plans

Checks – publicly available data

U.S. check decline was not reflected in public data until late....



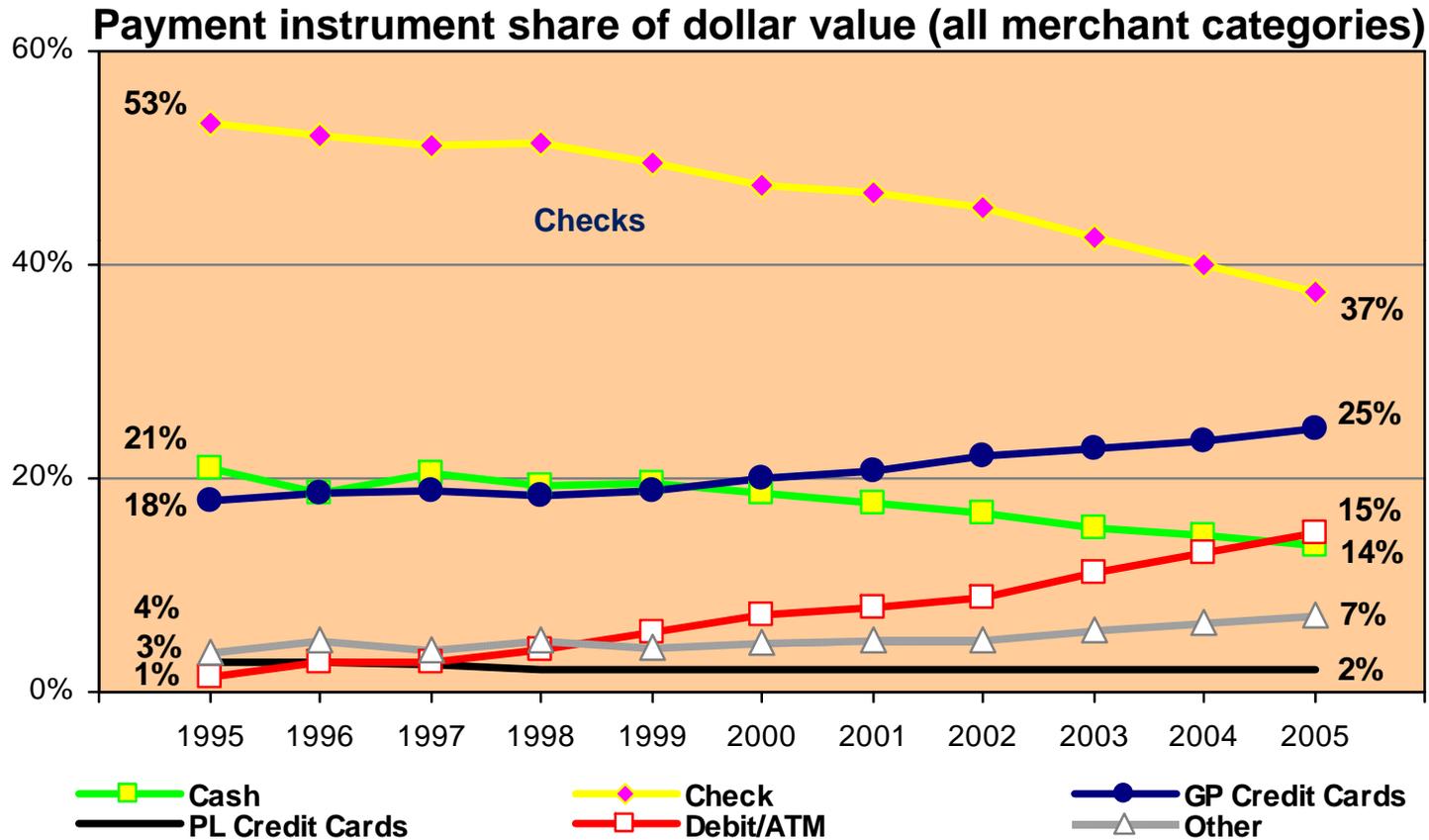
SOURCES: U.S. data: Federal Reserve Bank of Atlanta (1981, 1983); Federal Reserve System (2002, 2004); Gerdes and Walton (2002); Gerdes, Liu, Parke, and Walton (2005); Gerdes (2008); Benton, Blair, Crowe, and Schuh (2007).

Canadian data: Automated Clearing Settlement System (ACSS) Clearing Exchange Report (2008).

*The 2006 U.S. number excludes paper checks written and converted to ACH, which were included in earlier years.

Checks – private data

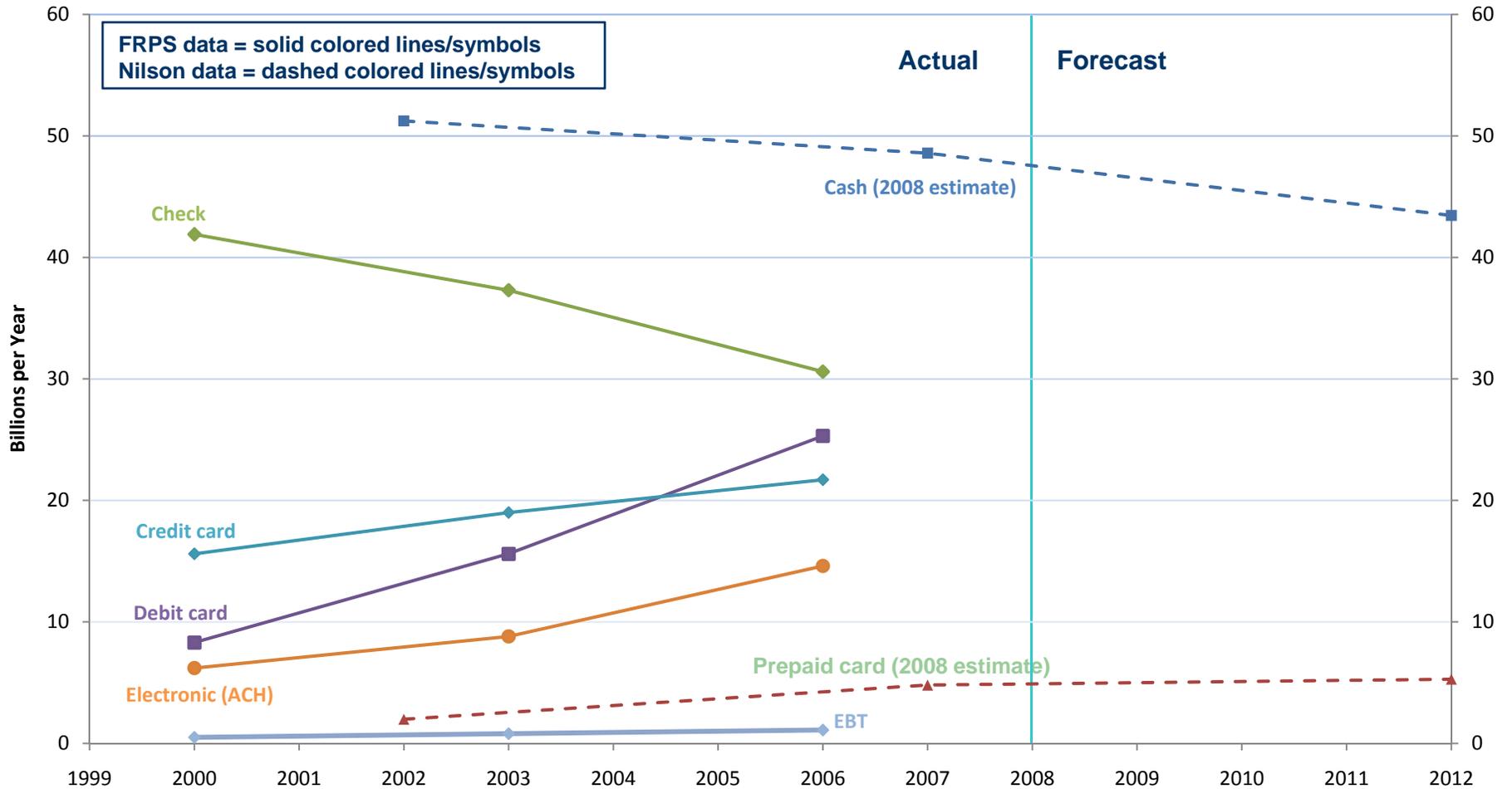
...but private data reflected U.S. check decline early and often.



SOURCE: Visa USA Research Services. (2006) "Visa Payment Panel Study." Page 9.
<http://www.bos.frb.org/economic/eprg/conferences/payments2006/papers/hampton.pdf>.

Number of U.S. payments (FRPS)

Card and electronic payments are replacing paper payments



U.S. consumer check use (FRPS)

Consumers are reducing their check use more slowly than others

| | Consumer share of U.S. checks (%) | Number of checks written by consumers (billions) | Consumer check share of noncash payments (%) |
|--------------|-----------------------------------|--------------------------------------------------|----------------------------------------------|
| 2003* | 50.9 | 19.1 | 24 |
| 2007 | 58.0 | 19.2 | 21 |

* Percentages of checks written by consumers are taken from the 2001 Retail Payments Research Report, also published by the Federal Reserve, and are used in all of the statistics quoted here on the assumption that they were constant between 2001 and 2003.

NOTE: Federal Reserve Payment Studies only have consumer data for check use but not for any other payment instruments

Boston Fed response

- Consumer Payments Research Center (CPRC)
 - Established in 2004 to study demand side of payments
 - Surveys consumers & develops data, e.g.
 - *Survey of Consumer Payment Choice (SCPC)*
 - *Survey of Payment Choice & Shopping Behavior*
 - Conducts economic research
 - Evaluates and develops public policies

SCPC overview

- *Survey of Consumer Payment Choice (SCPC)*
 - Estimates of adoption & use for 9 payment instruments
 - Two types of information:
 - Aggregate data for macroeconomic and trend analysis
 - Consumer-level data for microeconomic and policy analysis
 - Fills a niche not covered by other sources, e.g.
 - *Survey of Consumer Finances (SCF)*
 - *Federal Reserve Payments Studies (FRPS)*
 - Annual data (2003-04, 2006, 2008-2009, ongoing)
 - Available to the public for free, full disclosure of survey details

SCPC payment instruments

Paper

1. Cash
2. Check
3. Money order
4. Traveler's check

Cards

5. Debit
6. Credit
7. Prepaid (including EBT)

Electronic (ACH-based use of bank accounts)

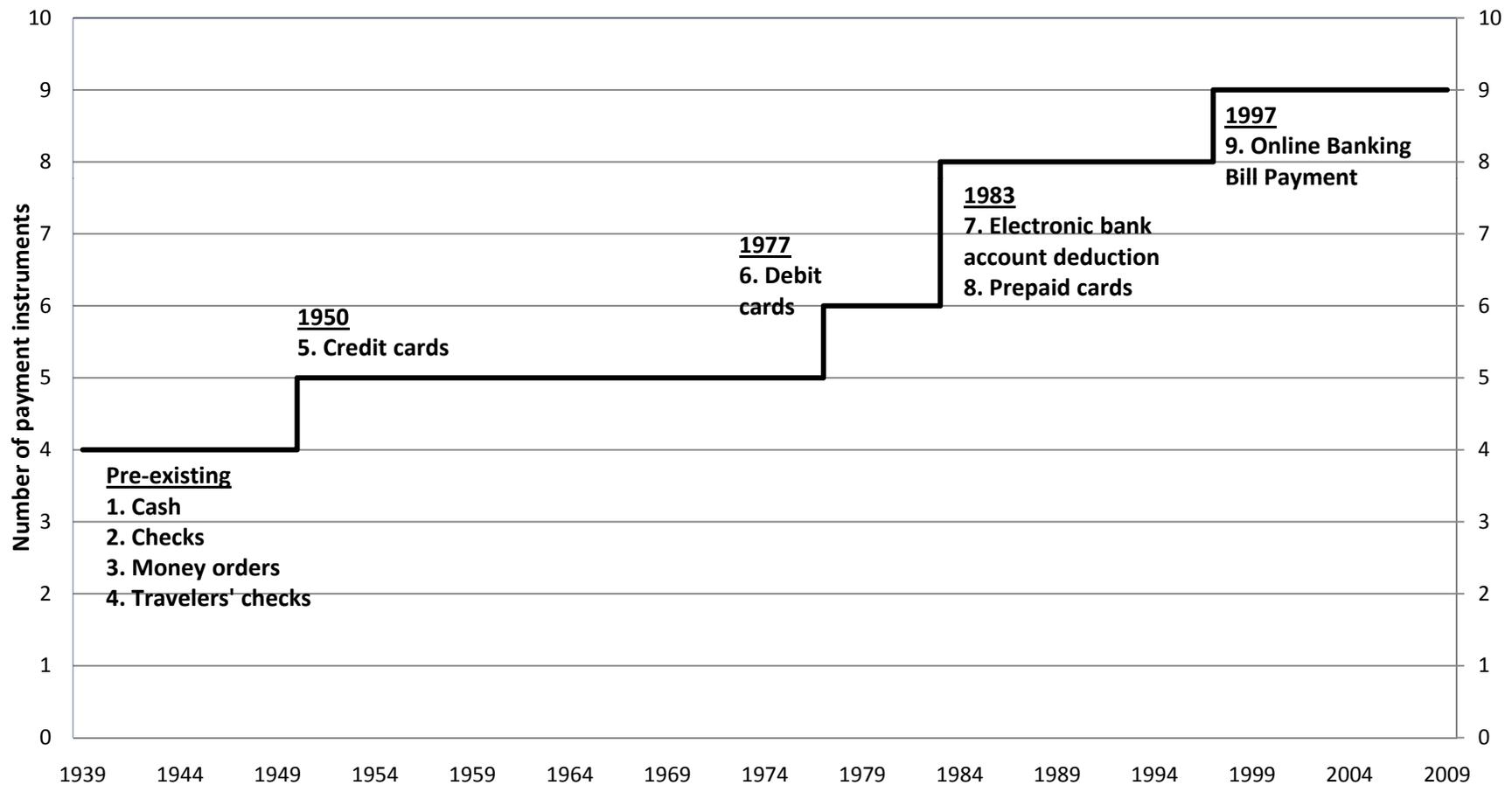
8. Online banking bill payment (OBBP)
Initiated by consumer from "inside" his/her bank without disclosing BA number
9. Electronic bank account deduction (EBAD)
Consumer use of BA number or information to authorize third-party payment

Payments concepts

- **Adoption** – “Do you have...?”
 - *Historical* – ever had?
 - *Current* – have now?
 - *Discarding* – ever discarded? (historical minus current)
- **Use** – “How many payments do you make...?”
 - *Incidence* – use at least once during a period? (yes or no)
 - *Frequency* – intensity of use in a period (# of payments)
 - Dollar value of payments not collected (time limited, more difficult)

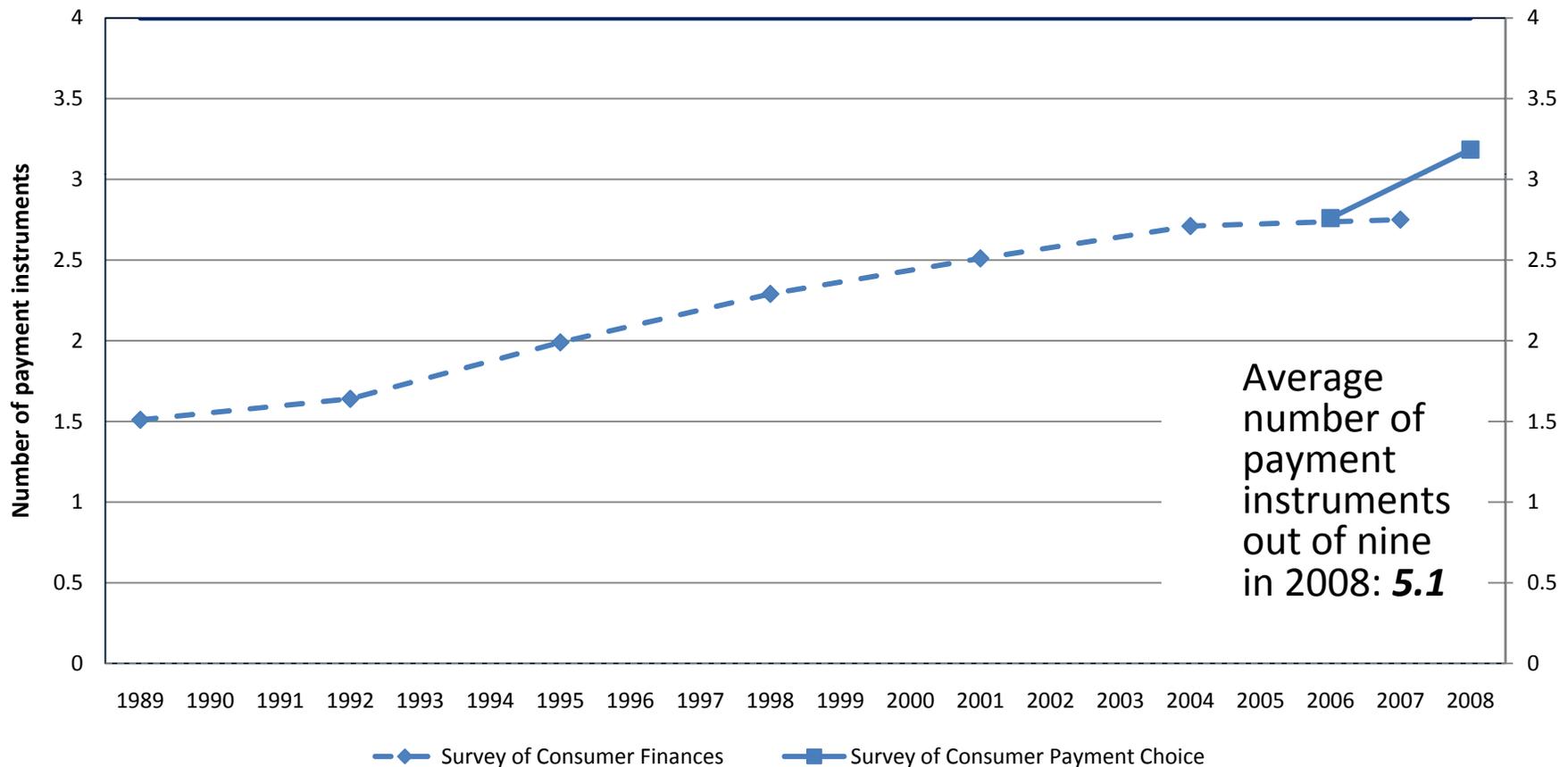
History of payment instruments

The number of payment instruments available to consumers is rising

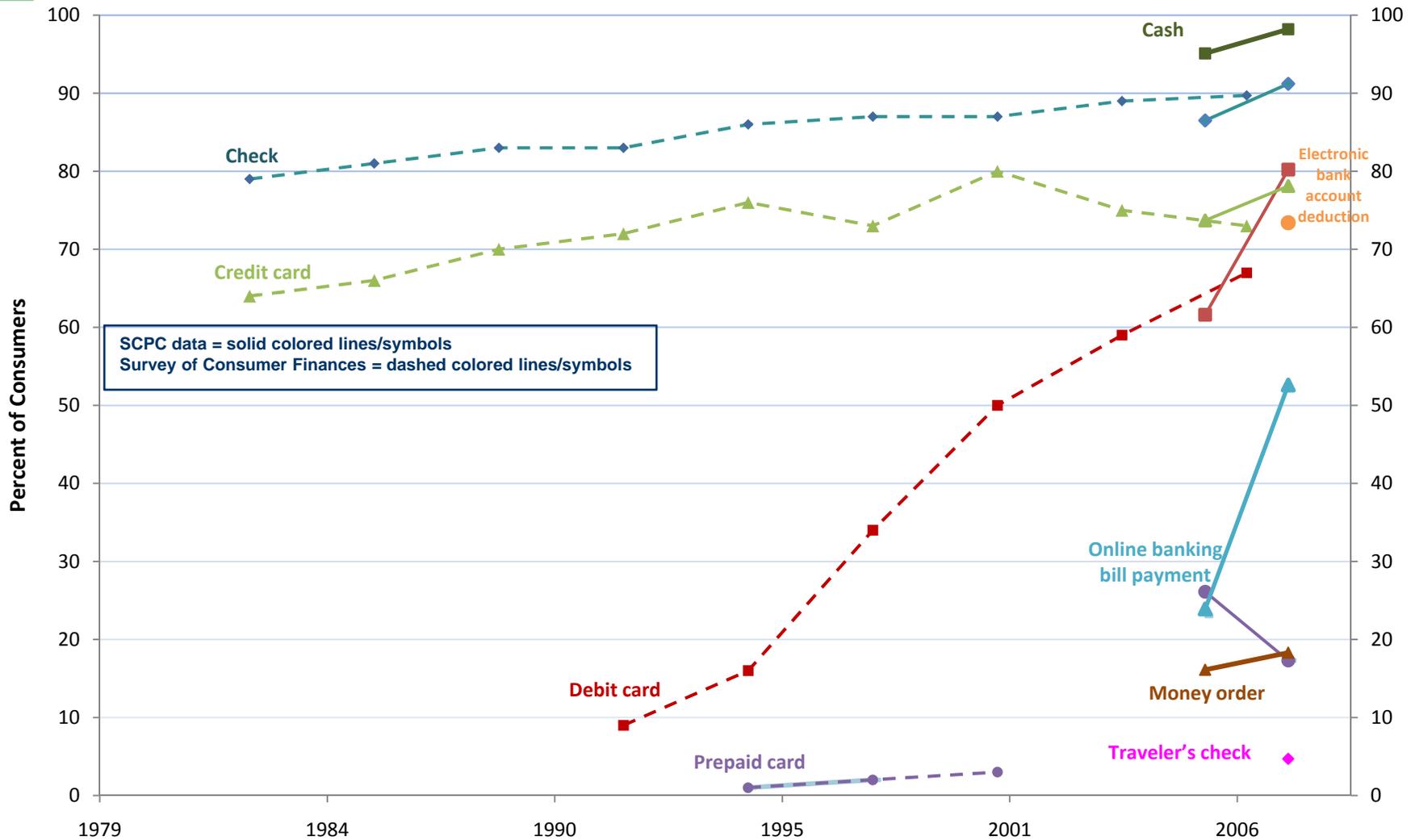


Payment instruments per consumer

The average consumer has twice as many payment instruments as in 1989
(Four instruments = Check, Credit Card, Debit Card, and Automatic Bill Payment)



Adoption of payment instruments, 1983-2008

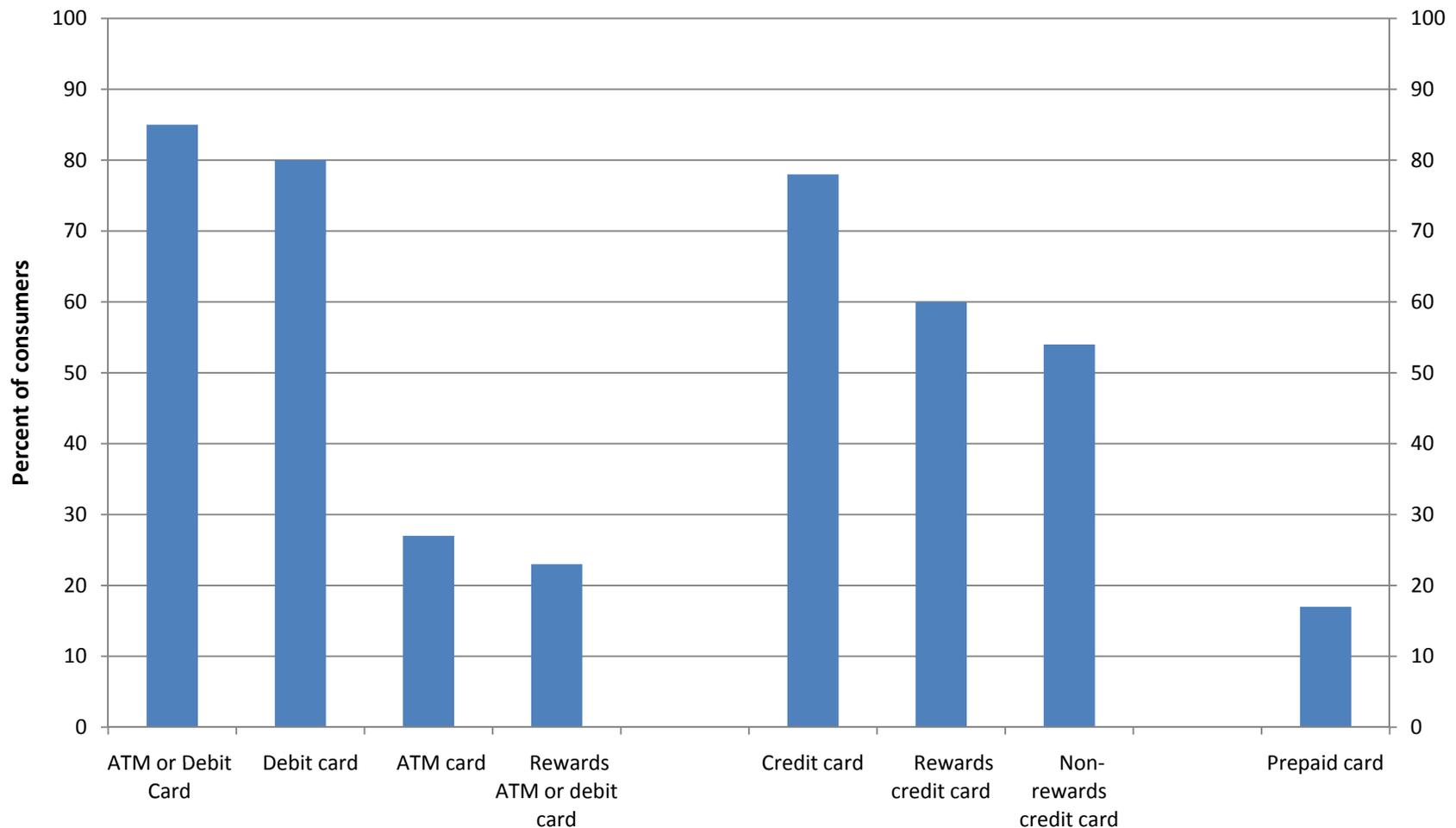


SOURCES: 1983-2007 Survey of Consumer Finances; 2006, 2008 Survey of Consumer Payment Choice, subject to revision.



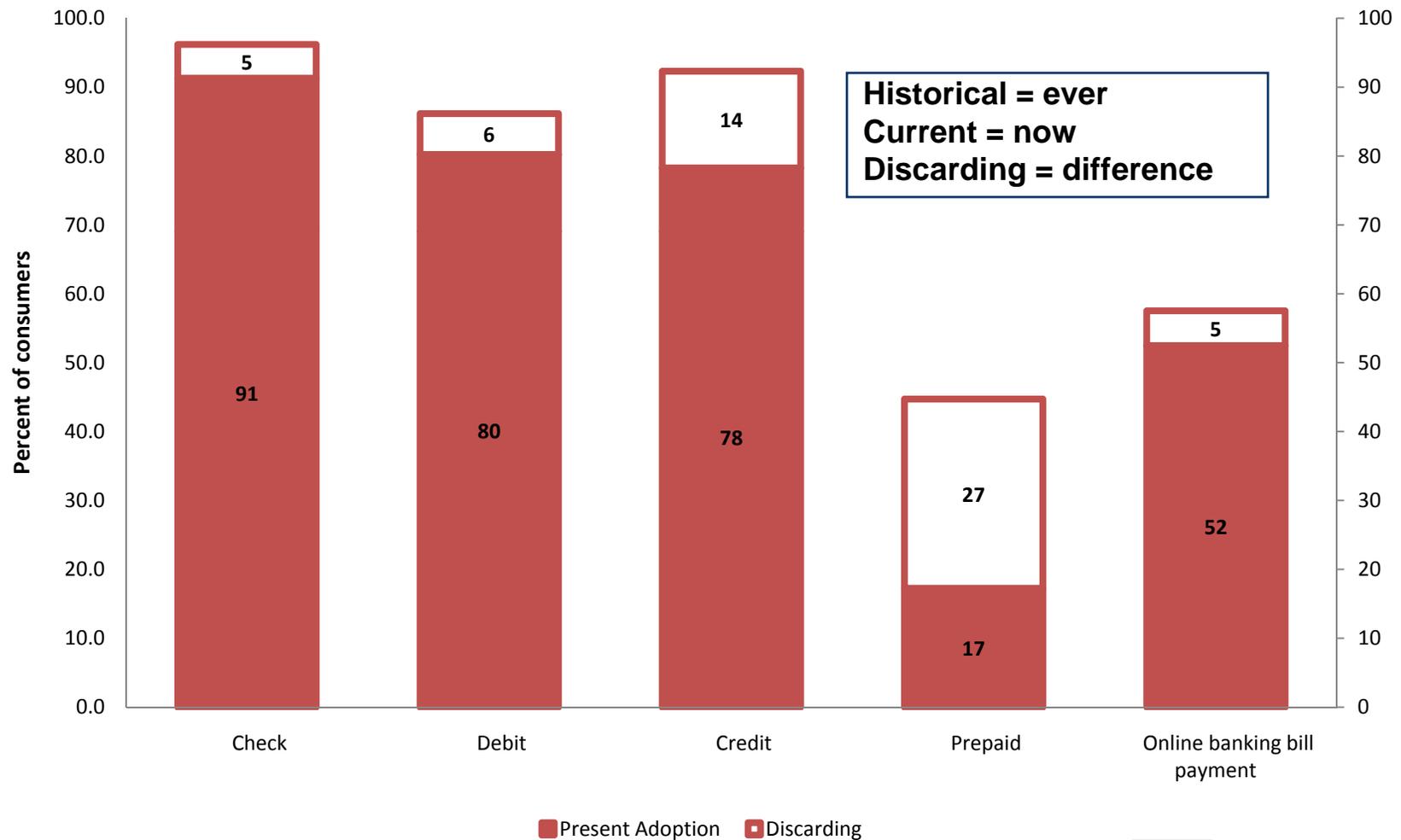
Adoption of payment cards, 2008

Debit cards and credit cards are far more popular than prepaid cards



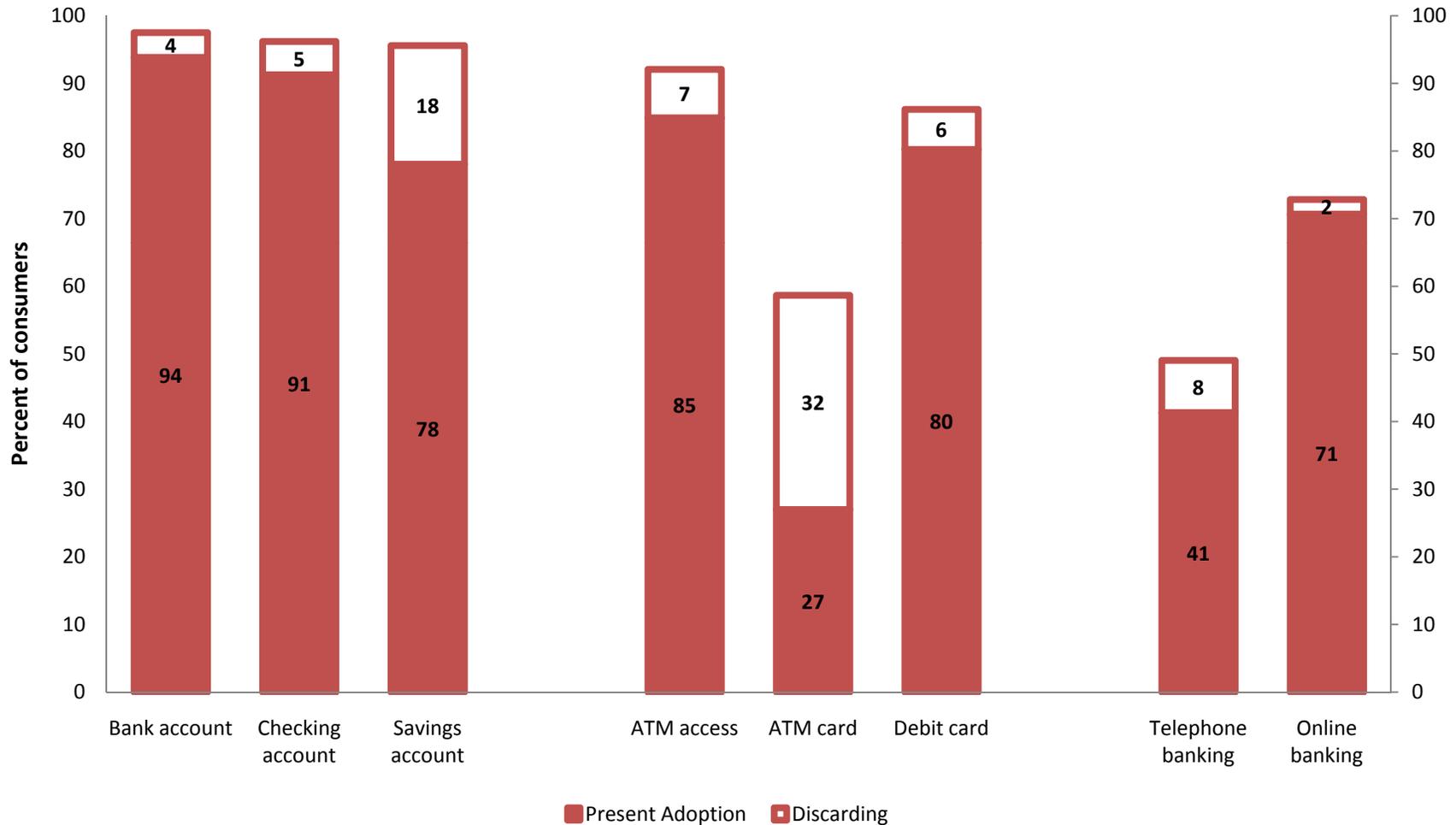
Historical adoption of payment instruments, 2008

Consumers do not keep their payment instruments forever

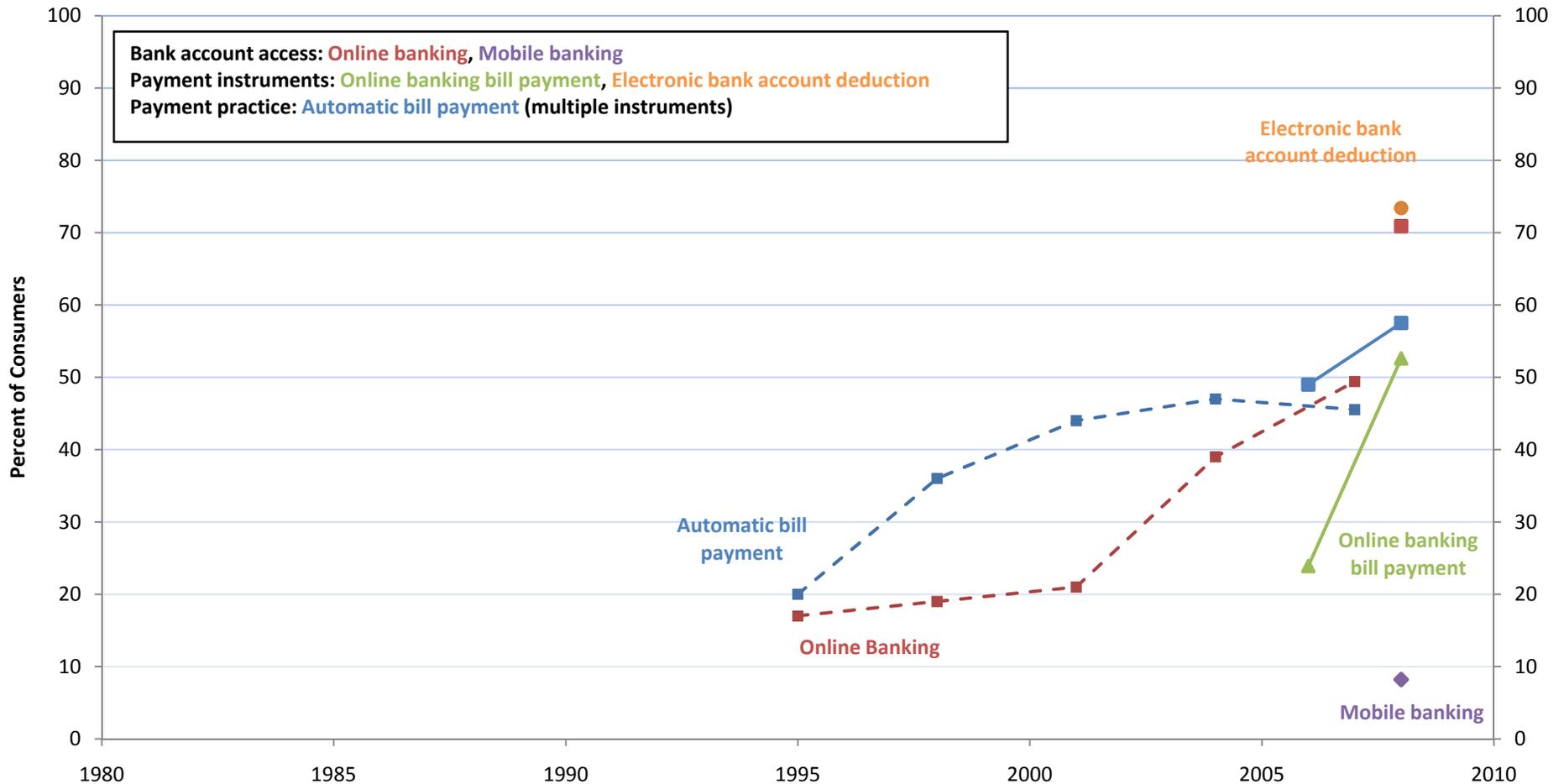


Historical adoption of bank accounts, 2008

And consumers do not keep their bank accounts forever either

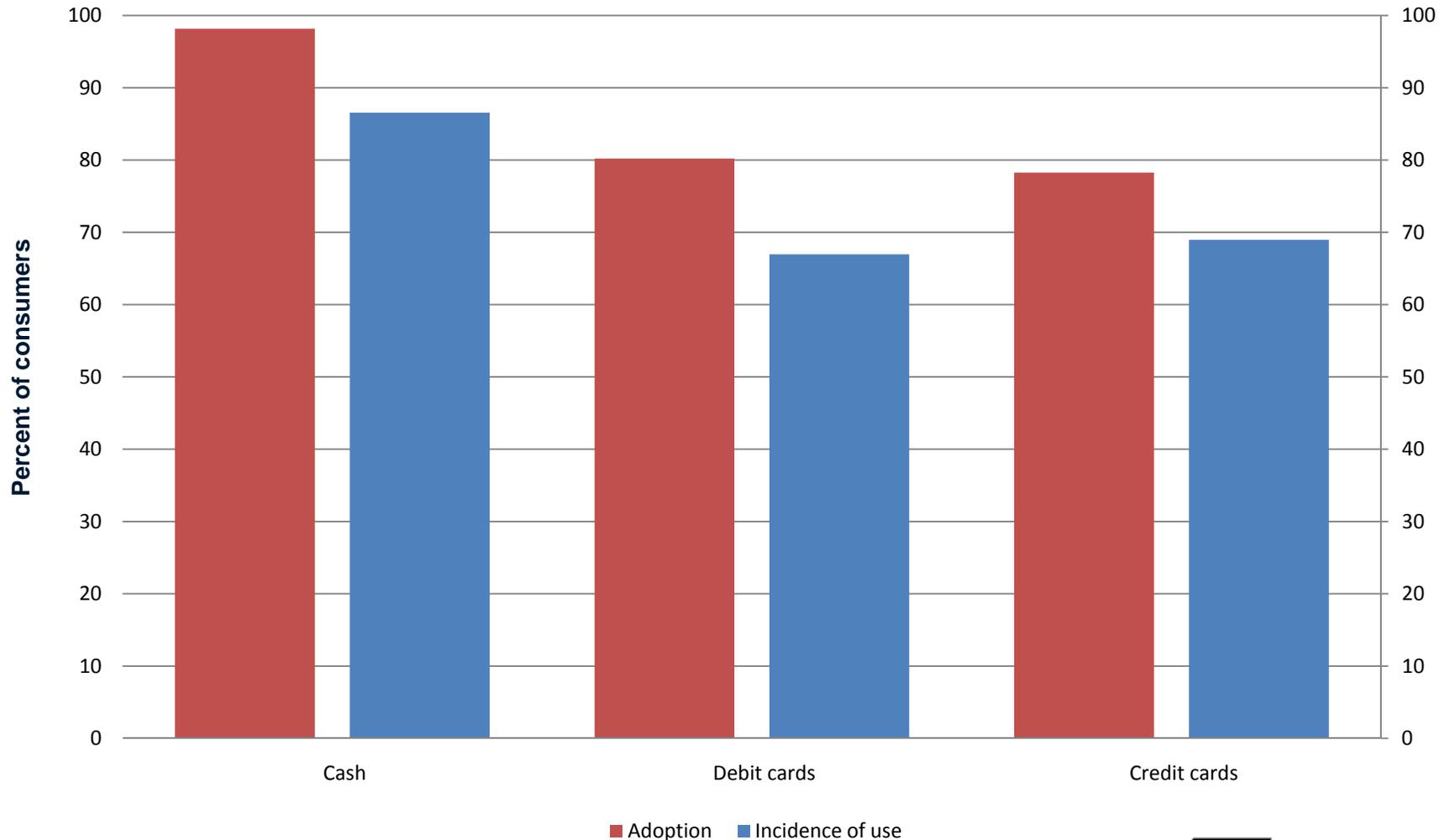


Adoption of payment practices, 1983-2008



Adoption and incidence of use, 2008

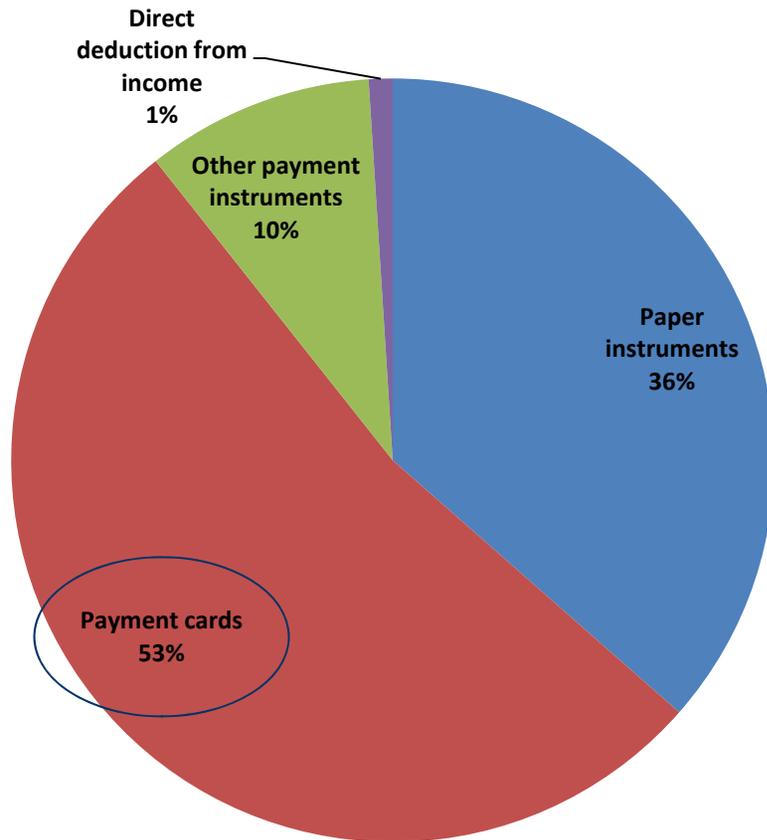
Not all consumers use their payment instruments each month



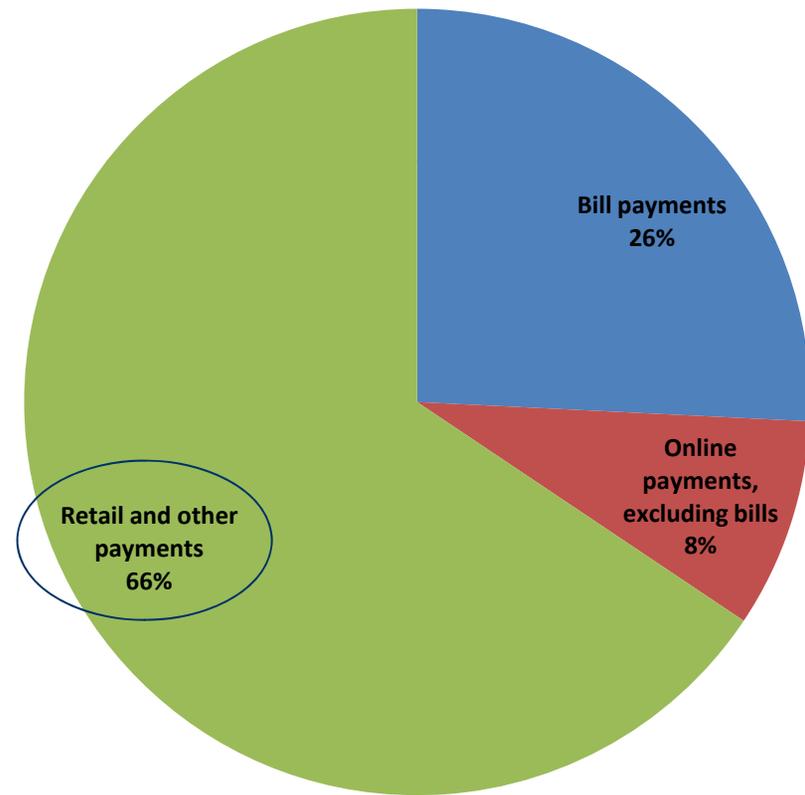
Payment use, 2008

Share of monthly volume of payments, 2008

By Payment Instrument



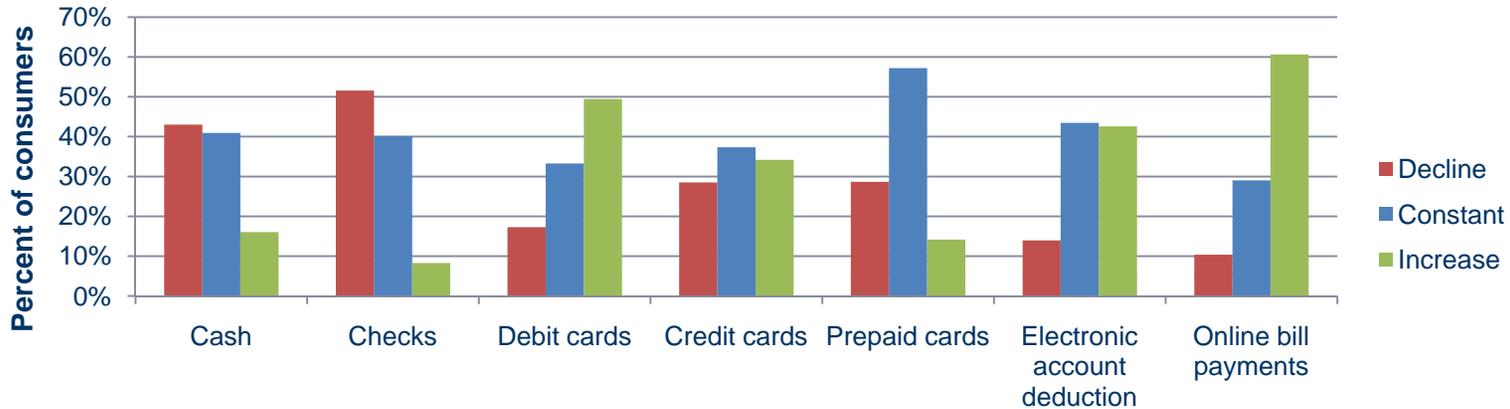
By Transaction Type



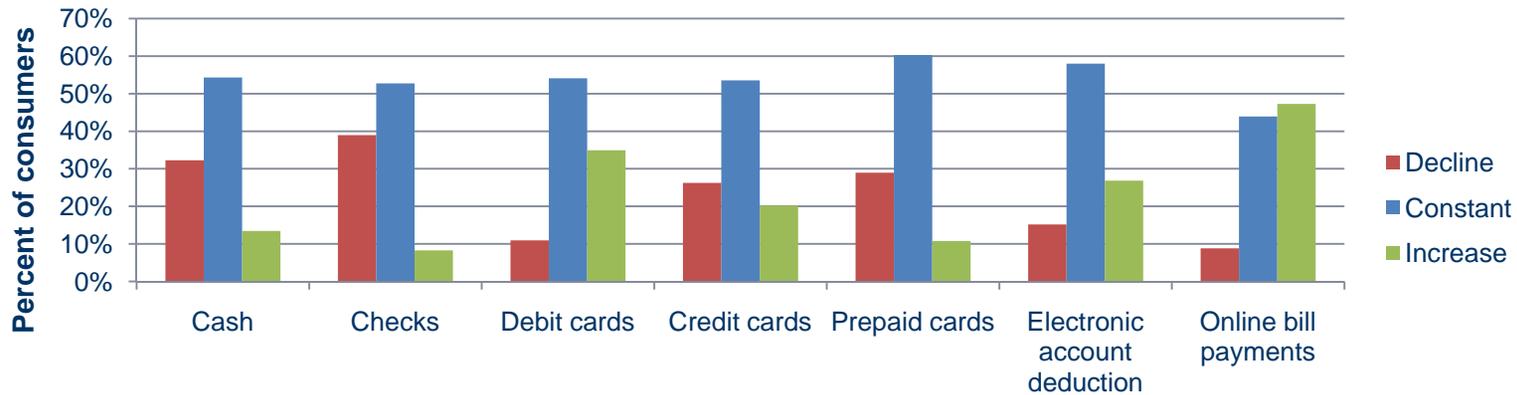
Change in payment use

Past 3 years saw much change, but next 3 may see less....

Actual use, past three years (2005-2008)



Expected change in use, next three years (2008-2011)



SOURCE: 2008 Survey of Consumer Payment Choice statistics subject to revision.

Cash use

Consumers make one-quarter of their payments with cash; most cash payments are for retail and other transactions

Share of consumer payments made with cash (%)

| | Bill payments by mail or in person | Essential retail payments* | Other retail payments* | Other non-retail payments* | Payments where cash is not accepted | Cash share of all payments |
|------------------------------------|------------------------------------|----------------------------|------------------------|----------------------------|-------------------------------------|----------------------------|
| Share of cash payments in category | 14 | 34 | 32 | 30 | 0 | 23 |

| Payment category | Examples |
|---------------------------|-----------------------------------------------------------------------------------------------------|
| Essential retail payments | Groceries, prescription drugs, food from restaurants and payments for gas (petrol) |
| Other retail payments | General merchandise, electronics, household goods, hardware, office supplies and others |
| Other non-retail payments | Tolls, medical, entertainment, charitable donations, person to person payments among other payments |
| All other payments | Any payments made online, bill payments, payments made by travelers checks or money orders |

Consumer cash management

The median consumer gets and holds much less cash than the average consumer, reflecting heavy cash use by relatively few consumers

| Statistic | Current Cash Holdings | | | Typical Cash Withdrawals | | |
|-----------|-----------------------|----------------|------------|--------------------------|---------------------|-----------------------|
| | Total (\$) | On Person (\$) | Other (\$) | Monthly Amount (\$) | Typical Amount (\$) | Monthly Frequency (#) |
| Mean | 230 | 79 | 157 | 335 | 102 | 4.3 |
| Median | 70 | 30 | 14 | 180 | 50 | 3.0 |

Consumer cash withdrawals

Consumers get cash most often at ATMs and using an ATM card

LOCATIONS where consumers get cash most often (% of consumers)

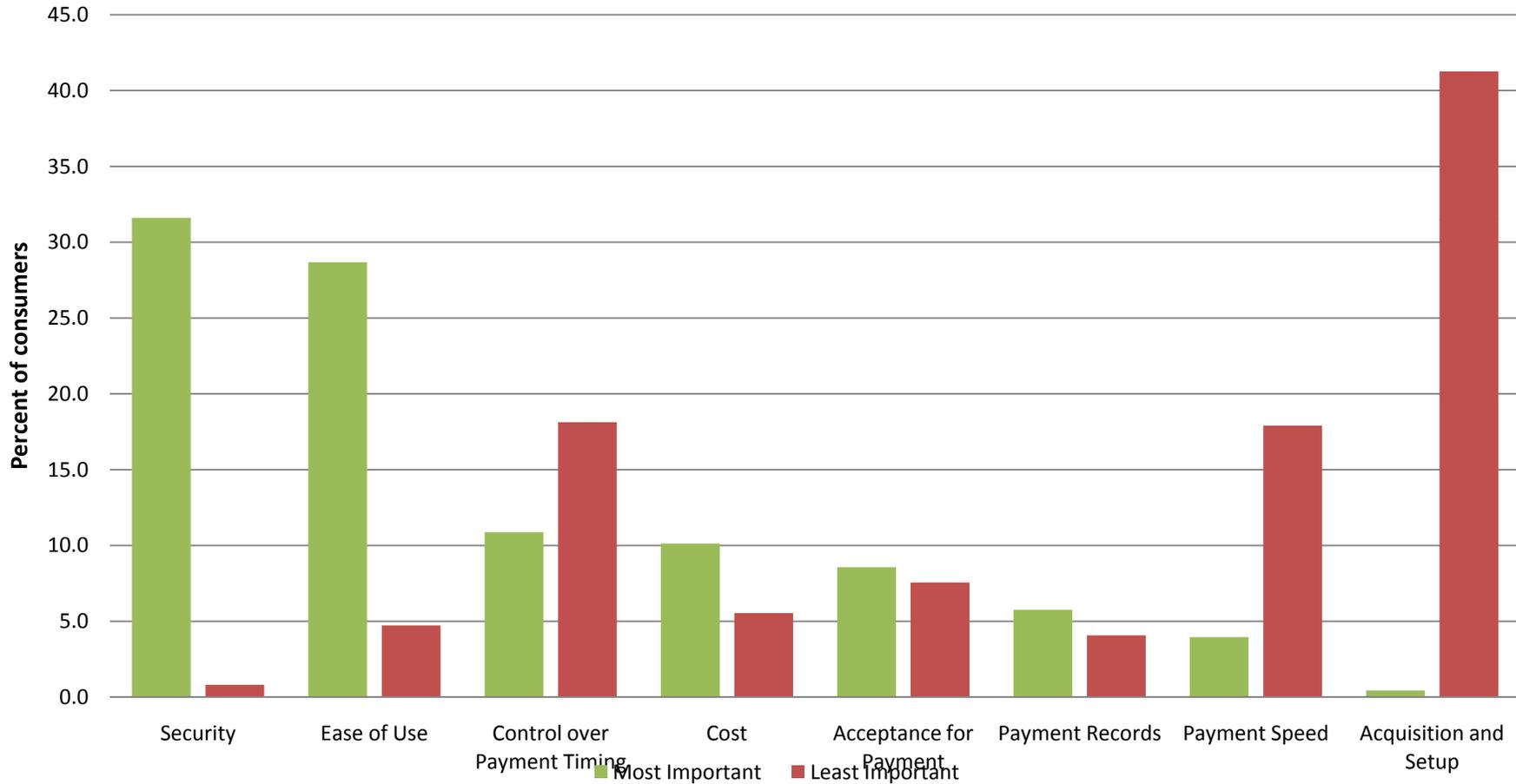
| | ATM | Bank Teller | Check Cashing Store | Retail or Grocery Store | Employer | Family | Other |
|---------------|-----|-------------|---------------------|-------------------------|----------|--------|-------|
| First Choice | 54 | 23 | 2 | 9 | 5 | 3 | 0 |
| Second Choice | 14 | 44 | 2 | 24 | 2 | 5 | 1 |

METHODS consumers use to get cash most often (% of consumers)

| | ATM or debit card – ATM | ATM or debit card – cash back | Account withdrawal | Cashing personal check | Cashing paycheck | Paid by employer in cash | Unknown Methods |
|---------------|-------------------------|-------------------------------|--------------------|------------------------|------------------|--------------------------|-----------------|
| First Choice | 54 | 7 | 11 | 7 | 10 | 2 | 3 |
| Second Choice | 14 | 21 | 29 | 14 | 6 | 1 | 5 |

Payment instrument characteristics

Consumers' assessments by degree of importance



Payment characteristic ratings

Consumers rate most characteristics of debit cards very favorably

| | Acceptance for payment | Acquisition & setup | Control over payment | Cost | Ease of use | Record keeping | Security | Speed | ROW AVG |
|------------------------------|------------------------|---------------------|----------------------|------|-------------|----------------|----------|-------|---------|
| Cash | 4.6 | 4.4 | 4.0 | 4.5 | 4.2 | 2.4 | 2.5 | 4.4 | 3.9 |
| Check | 3.6 | 3.8 | 3.2 | 3.8 | 3.4 | 4.2 | 2.9 | 2.9 | 3.5 |
| Debit card | 4.3 | 3.9 | 3.7 | 3.9 | 4.3 | 4.0 | 2.9 | 4.1 | 3.9 |
| Credit card | 4.6 | 3.7 | 3.6 | 2.8 | 4.4 | 4.3 | 3.0 | 4.1 | 3.8 |
| Stored value card | 3.8 | 3.4 | 3.4 | 3.3 | 3.7 | 2.9 | 2.6 | 3.8 | 3.4 |
| Electronic account deduction | 3.1 | 3.3 | 3.7 | 3.8 | 3.7 | 4.0 | 3.3 | 3.8 | 3.6 |
| COL AVG | 4.0 | 3.8 | 3.6 | 3.7 | 3.9 | 3.6 | 2.9 | 3.8 | 3.7 |

NOTE: Ratings are on a 5-point scale (1 is lowest, 5 is highest)



= Significant determinants of debit card use in prior research

SOURCE: 2008 Survey of Consumer Payment Choice; unofficial statistics, subject to revision.

Simulated changes in check share, 2003–2006

Changes in cost and convenience partly explain decline in check use

| SIMULATION | Estimated change in check share | Percent of actual change in check share |
|---------------------------------------------------------------|---------------------------------|-----------------------------------------|
| Actual change (0.310 to 0.226) | -0.084 | 100 |
| Increase in number of payment instruments (0.25 per consumer) | -0.021 | 25 |
| Decrease in relative convenience of checks (30 percent) | -0.029 | 34 |
| Increase in relative cost of checks (30 percent) | -0.009 | 11 |

NOTE: Each simulation is independent and the results are not a complete decomposition of the actual change in check share.

SOURCE: Scott Schuh and Joanna Stavins, "Why Are (Some) Consumers (Finally) Writing Fewer Checks? The Role of Payment Characteristics," *Journal of Banking and Finance* (2009)

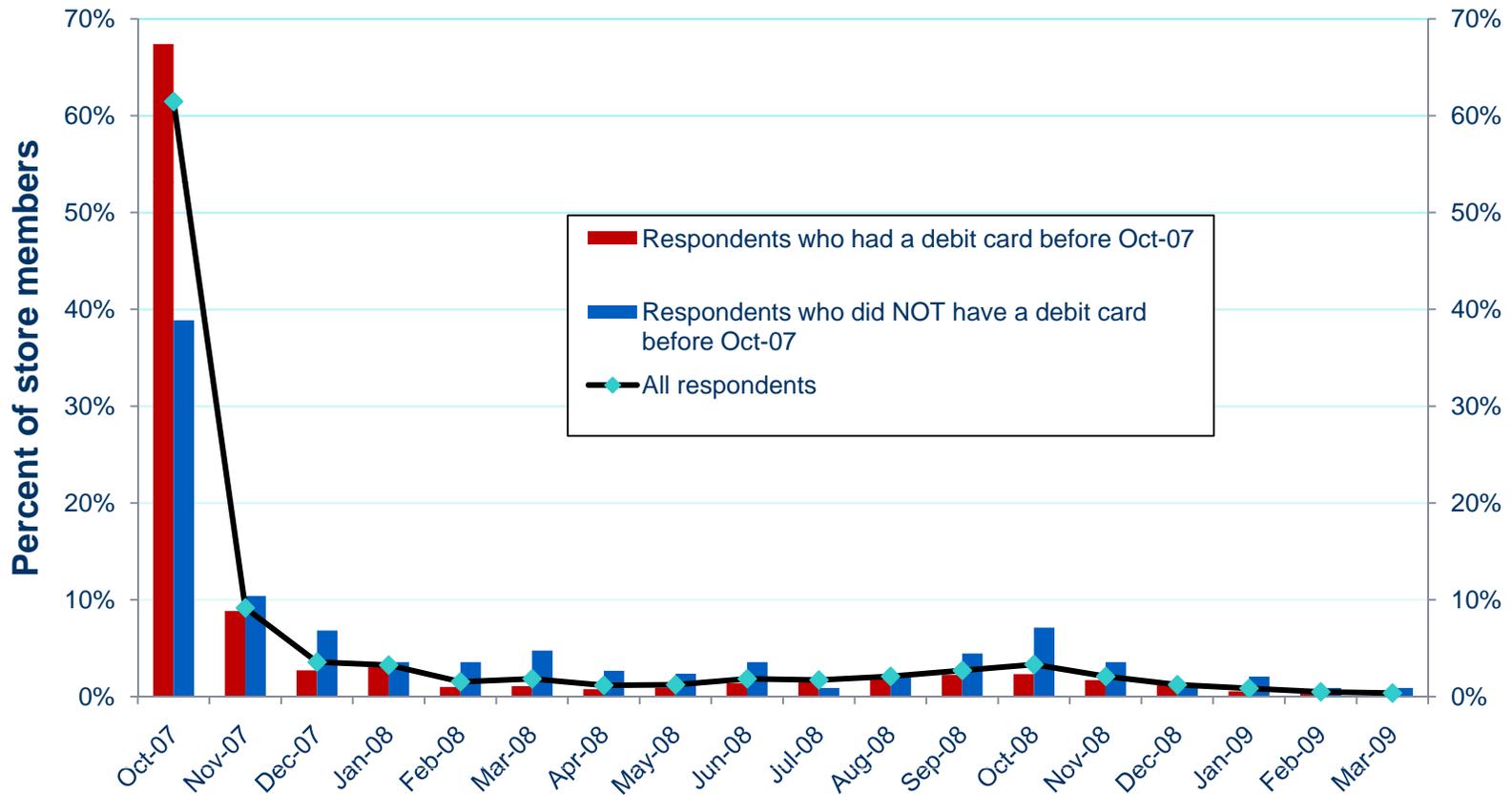
Cash vs. debit case study

- *Survey of Payment Choice and Shopping Behavior*
 - Urban specialty food store changed its payment acceptance:
 - Before Oct 2007: cash, check, money order, food stamps/EBT
 - Since Oct 2007: also accepts debit cards
 - Surveyed members from Dec 2008 to Apr 2009
 - Effect of DC acceptance on consumers behavior?
 - Who switched to debit cards when and why?
 - How did payment choices change?
 - How did shopping behavior change?
 - A few very preliminary results...

Response to debit card acceptance

Members rapidly switched to debit cards once cards were accepted

First use of a debit card at the food store



Changes in member payment use

Most members switched from cash to debit cards after DC acceptance

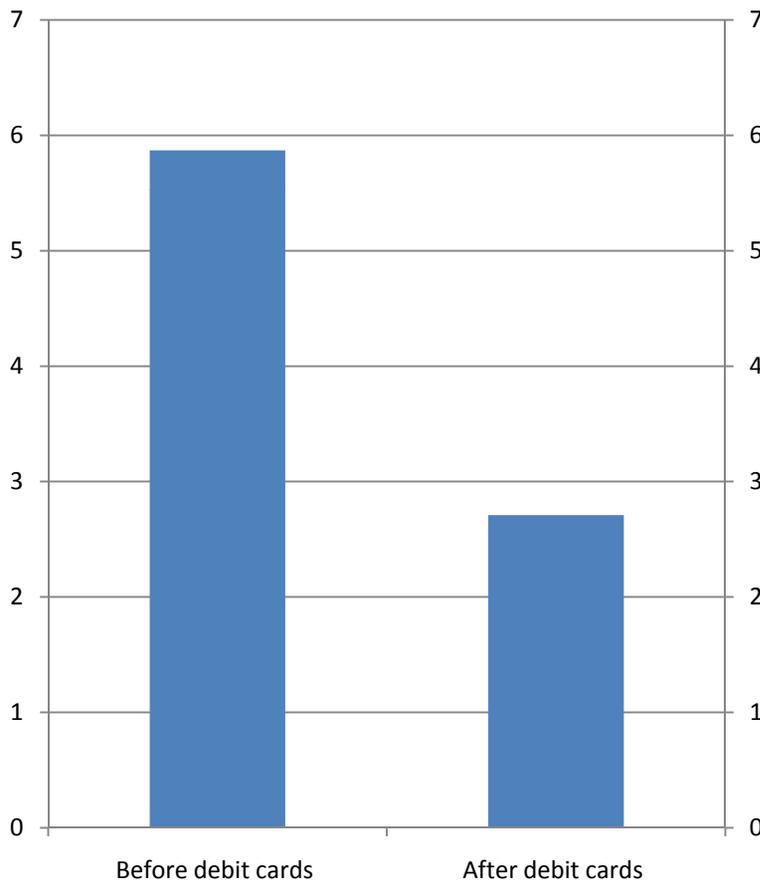
Instrument used most often at the food store (% of members)

| | | Instrument used most often since October 2007 | | | | Choice before October 2007 |
|-------------------------------------------------------|---------------|------------------------------------------------------|-------|--------------|---------------|-----------------------------------|
| | | Cash | Check | Debit Card | Missing/Other | |
| Instrument used most often before October 2007 | Cash | 9.2% | 0.2% | 50.5% | 4.6% | 64.5% |
| | Check | 0.4% | 1.9% | 8.8% | 1.1% | 12.1% |
| | Missing/Other | 1.4% | 0.0% | 12.5% | 9.5% | 23.4% |
| Choice since October 2007 | | 11.0% | 2.1% | 71.8% | 15.2% | 100.0% |

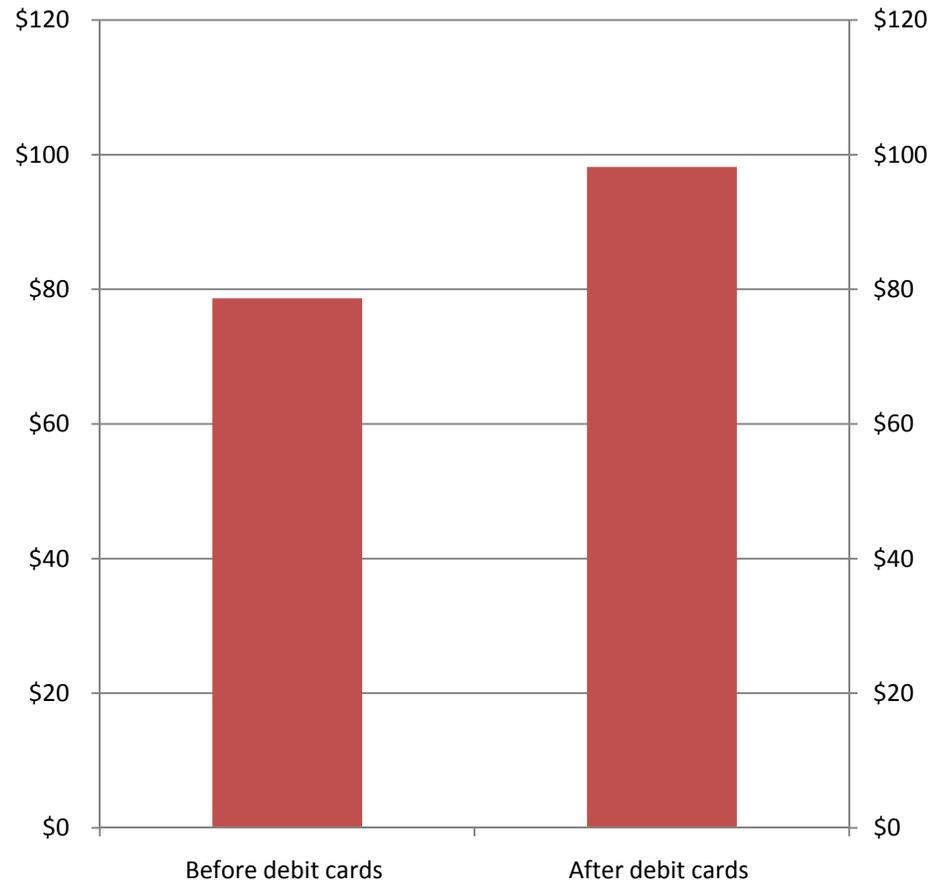
Changes in member shopping

Members shopped less often and spent more after DC acceptance

Average number of trips per month



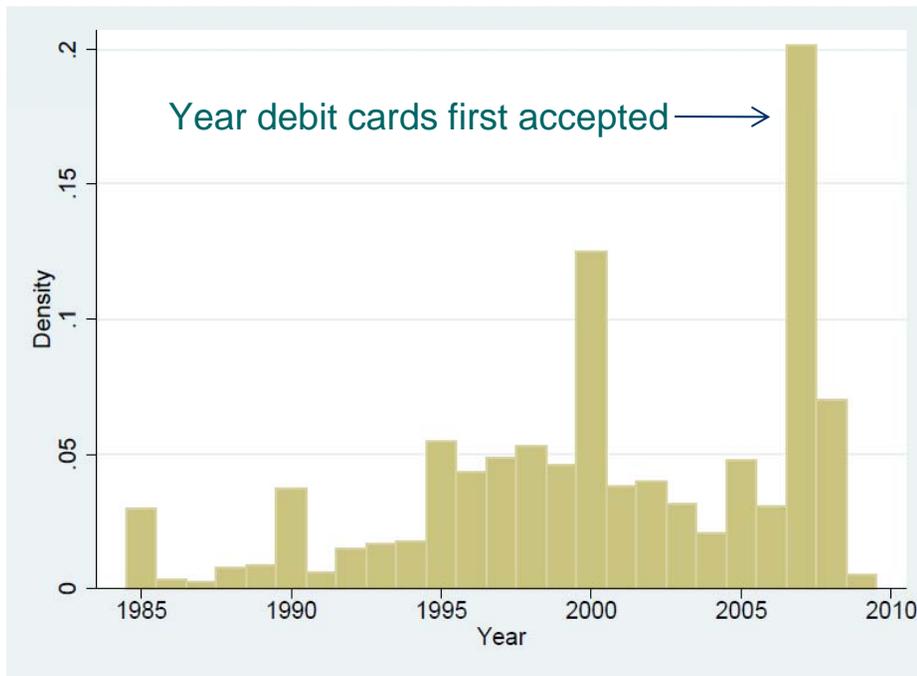
Average dollars spent per trip



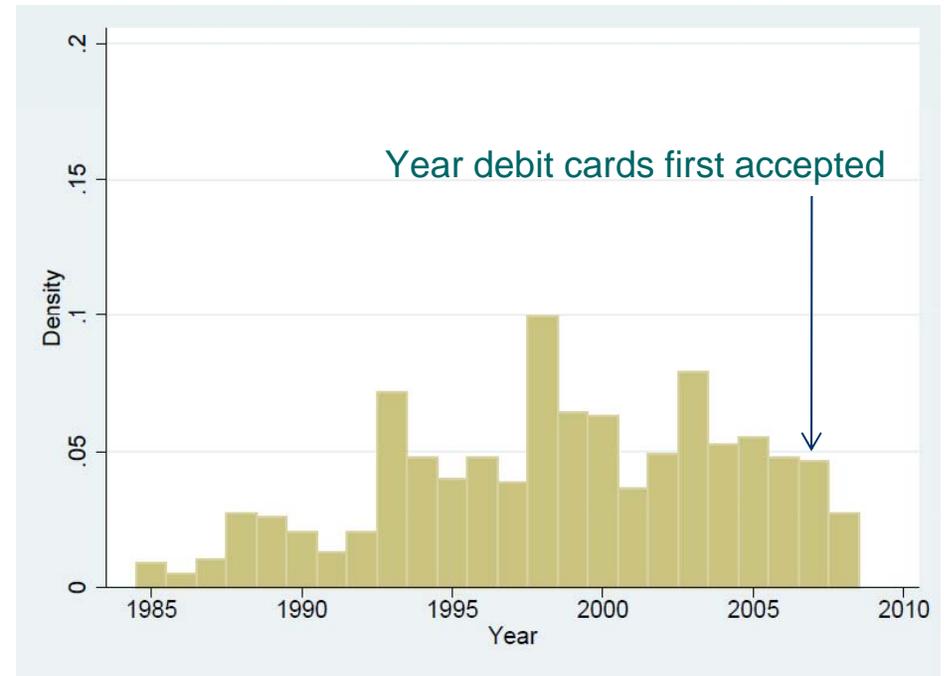
First year of debit card use

Acceptance of debit cards influences consumer debit card use

Food store members



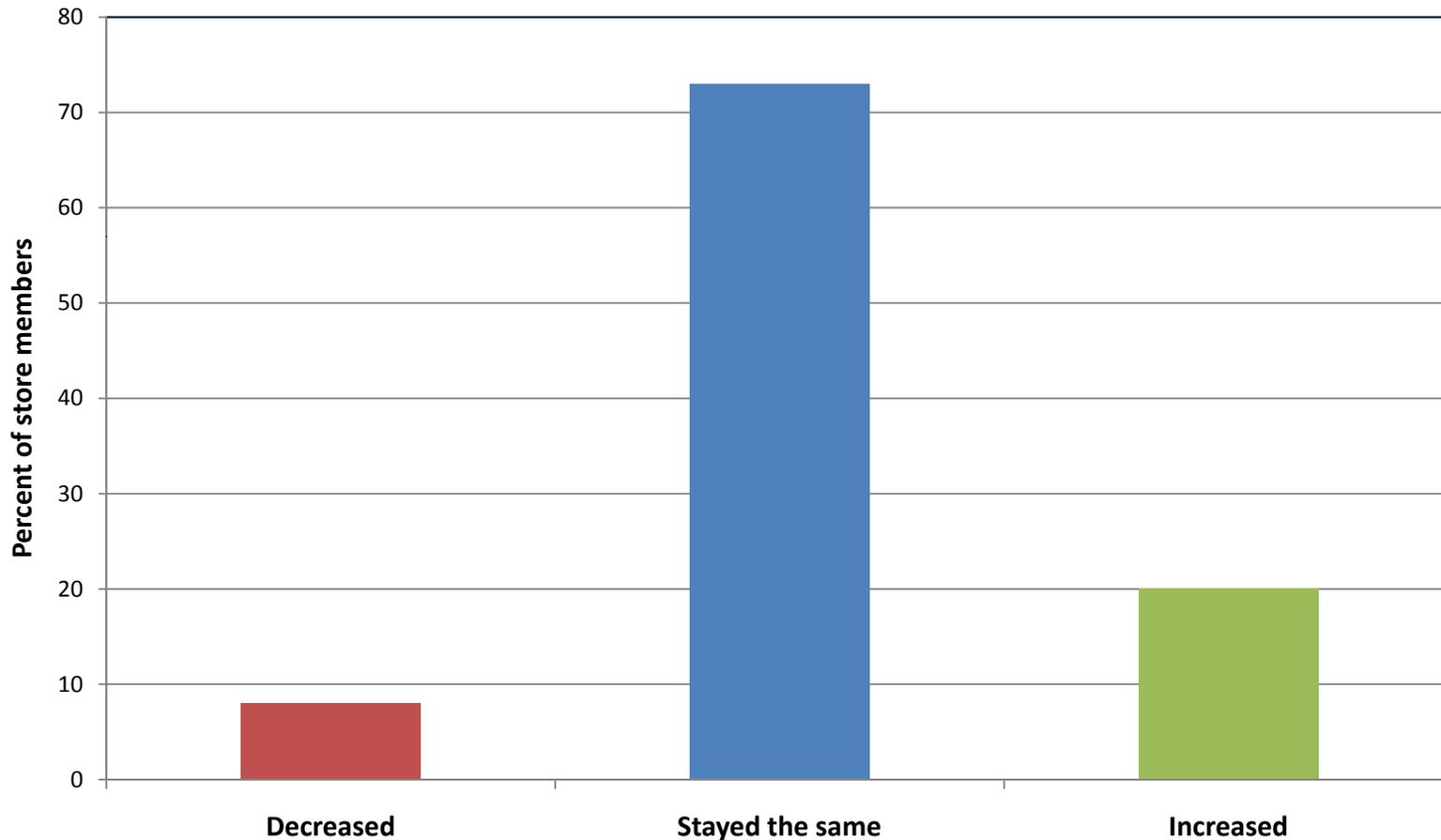
All consumers (SCPC)



SOURCES: 2008-2009 Survey of Payment Choice and Shopping Behavior and 2008 SCPC ; preliminary and unofficial statistics, subject to revision.

Change in other debit card use

Members used debit cards more elsewhere after DC acceptance



SCPC future plans

- Publish data and results annually
 - 2009 SCPC available by mid-2010
 - Longitudinal panel dimension (2008–2009)
- Develop and expand survey program
 - Consumer payment diary (under considerations for 2010)
 - New survey modules on specific topics
- Stakeholders invited to participate
 - SCPC Board of Advisors
 - Joint setting of industry standards for data
 - Looking for DI's to implement SCPC with their customers

SCPC Board of Advisors

Academia

| | |
|----------------|---------------------------|
| Andrew Caplin | New York University |
| Richard Curtin | University of Michigan |
| David Humphrey | University of Florida |
| Peter Ireland | Boston College |
| Martha Starr | American University |
| Jay Zigorsky | The Ohio State University |

Industry

| | |
|-----------------|-----------------------------------|
| Peter Burns | Heartland Payment Systems |
| Roger Johnston | Fiserv |
| Leon Majors | Phoenix Marketing International |
| Bill McCracken | Synergistics Research Corporation |
| Aaron McPherson | International Data Corporation |
| Steve Mott | BetterBuyDesign |
| Tom Welander | Global Concepts |
| Jane Yao | American Bankers Association |

Government

| | |
|----------------|------------------------|
| Carlos Arango | Bank of Canada |
| Paul Bauer | Cleveland Fed |
| Geoff Gerdes | Fed Board of Governors |
| Chad Harper | San Francisco Fed |
| Fumiko Hayashi | Kansas City Fed |
| Dan Littman | Cleveland Fed |
| Rich Oliver | Atlanta Fed |
| Adrienne Wells | Atlanta Fed |

To volunteer for the Board, please contact:

Scott Schuh
Director & Economist
Consumer Payments Research Center

More information

To download this presentation and SCPC data later this year, or for more information about the

Consumer Payments Research Center Federal Reserve Bank of Boston

visit our web site:

<http://www.bos.frb.org/economic/cprc/index.htm>