

Cash, Check or Bank Card?

The Effects of Transaction Characteristics on the Use of
Payment Instruments

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**Federal Reserve Bank of Boston,
Consumer Behavior and Payment Choice Conference
July, 25-28**

Motivations

- ▶ **The substitution of electronic for paper-based systems can reduce the social cost of a country's payment system (Humphrey et al. 2003).**
- ▶ **People do not necessarily adopt electronic payment systems such as payment card, electronic purse, etc.**
- ▶ **Understanding the reasons why people adopt and use payment instruments (PI) is a primary concern for banking and monetary authorities.**

Literature

- ▶ **Following Baumol (1952), several theoretical works: Whitesell, 1989/1992; Santomero et *al.*, 1996, etc.**
- ▶ **Growing empirical literature.**
- ▶ **Empirical investigations based on individual data are mainly centered on the role of individual characteristics (Mantel 2000; Stavins 2001; and others).**
- ▶ **The role of transaction characteristics is little analyzed:**
 - ❑ **Boeschoten (1998): transaction size.**
 - ❑ **Hayashi and Klee (2003): physical characteristics of POS.**

Literature: comments

- ▶ **Several other transaction characteristics:**
 - ❑ **Type of contact (Internet, Face-to-face, vending machines...)**
 - ❑ **Supply-side constraints (limited choice)**
 - ❑ **Type of good**
 - ❑ **Day of the week**

- ▶ **Need to get data directly from transactions.**

Objective

- ▶ **What are the global effects of transaction characteristics on the use of PI when individual characteristics are controlled?**

Plan

- ▶ **Methodology**
- ▶ **Data description**
- ▶ **Estimation results**
- ▶ **Conclusion**

Methodology

- ▶ **Survey funded by the leading French card association (Groupement des Cartes Bancaires “CB”).**
- ▶ **Conducted from March to May 2005 on a representative sample of 1,447 French individuals of 18 years and older.**
- ▶ **Originality of the methodology: we can relate data on individuals to their consumption and payment patterns.**
- ▶ **Survey using a two-stage method**

Methodology

1. Questionnaire to obtain information on:

- Individual characteristics (age, income, etc.)
- Detention (check, cash holding, payment card, etc.).

2. A diary in which people report six information related to each transaction for 8 days (1,392 people):

- Size of transaction,
- Type of spending place,
- Type of good and service,
- Type of contact (face-to-face, Internet, vending machines, etc.),
- Limited choice,
- Type of payment instrument.

Data description

- ▶ **85 % claim to have a check book.**
- ▶ **83 % have a payment card (85% debit card)**
- ▶ **16,692 transactions.**
- ▶ **More than 1.5 purchases per day for a mean value of 28 € per purchase.**
- ▶ **97 % of the transactions were paid using cash (67%), payment card (21%) or check (14%).**
- ▶ **We focus on these payment instruments.**

Estimation

- ▶ We estimate the choice of a PI, j , made by an individual i (who hold all three instruments) during a transaction k .
- ▶ Two groups of explanatory variables:
 - Transaction characteristics (k),
 - Individual characteristics (i).
- ▶ Model : multinomial *logit* on 11,945 obs.

Payment Instrument (PI)	Cash	Check	Card	Overall
Number <i>Volume of transaction</i>	7,088 59.5%	1,790 14.9%	3,068 25.6%	11,945 100%
Average value (euros)	8.94	66.83	47.47	27.44
Standard deviation	20.3	98.49	50.91	53.79

Transaction characteristics: effects

Cash is the base outcome

Check Payment card

Amount

+++

+++

Amount²

Spending place (« small stores » excluded):

Department stores

+++

+++

Other stores (except small and department)

+++

++

Supermarket

+++

+++

Home services

+++

NS

Public services

+++

--

Others

+++

NS

Good (category “Food and beverages” excluded):

Equipment and personal care

+++

+++

Newspaper, tobacco, lotteries

NS

NS

Furniture and home furnishing

+++

+++

Health

+++

+++

Transport

+++

+++

Culture and leisure

+++

+++

Restaurant, hotel

+++

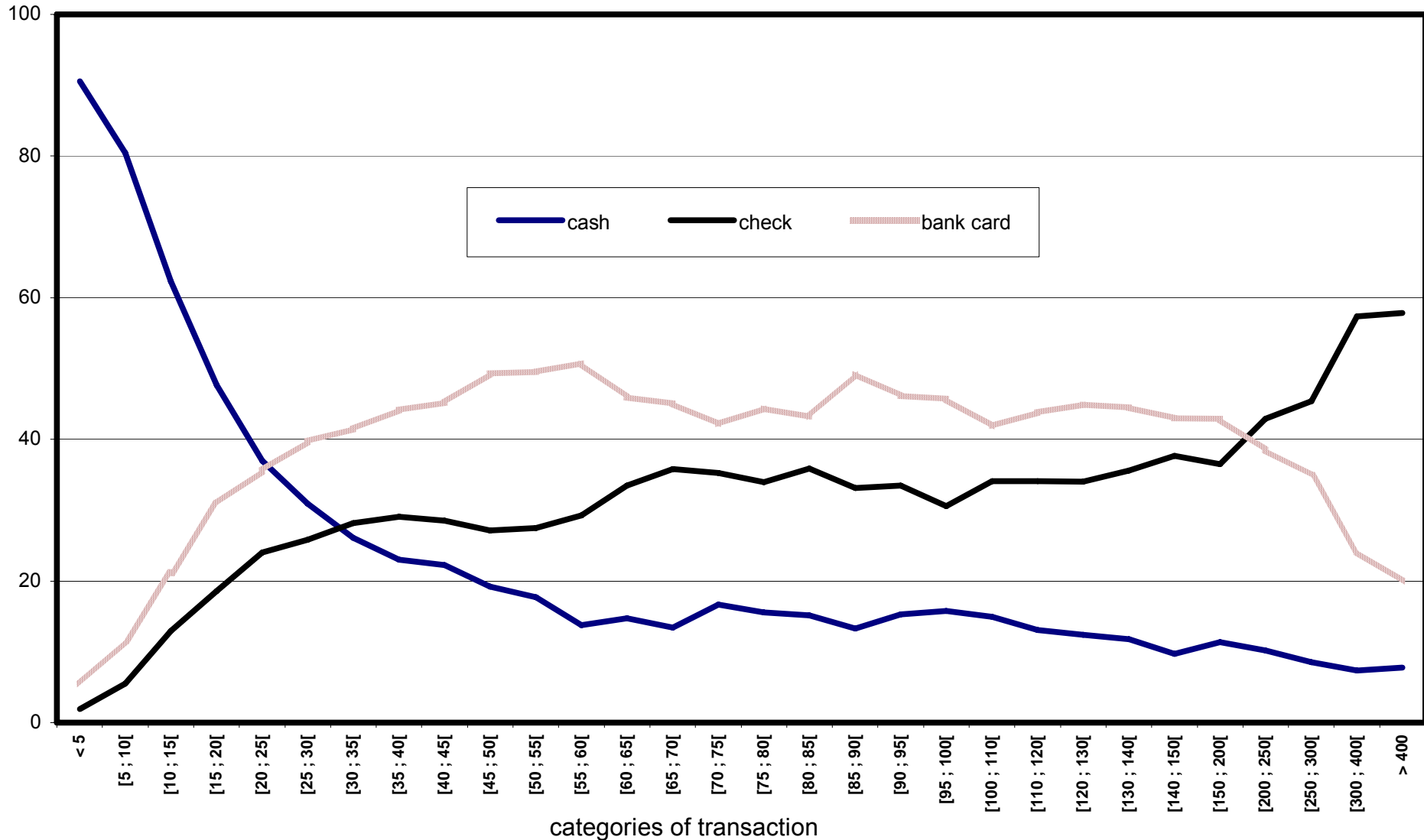
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Others

+++

+++

Payment Instrument and Transaction Size



Transaction characteristics: effects

Cash is the base outcome

Check Payment card

	Check	Payment card
Amount	+++	+++
Amount²	---	---
Spending place (« small stores » excluded):		
Department stores	+++	+++
Other stores (except small and department)	+++	++
Supermarket	+++	+++
Home services	+++	NS
Public services	+++	--
Others	+++	NS
Good (category “Food and beverages” excluded):		
Equipment and personal care	+++	+++
Newspaper, tobacco, lotteries	NS	NS
Furniture and home furnishing	+++	+++
Health	+++	+++
Transport	+++	+++
Culture and leisure	+++	+++
Restaurant, hotel	+++	+++
Others	+++	+++

Transaction characteristics: effects

Cash is the base outcome

Check Payment card

Contact (“face to face” excluded):

Telephone	NS	+
Post mail	+++	NS
Internet	+	+++
Automat	---	+++
Others	++	NS

Limited choice

++ +++

Day (category “Monday” excluded):

Tuesday	NS	NS
Wednesday	NS	NS
Thursday	NS	NS
Friday	+	NS
Saturday	NS	NS
Sunday	NS	NS

Individual characteristics: effects

Cash is the base outcome

Check Payment card

Age

NS

NS

Income (category "less than 500 €" excluded):

From 500 € to 1,000 €

++

NS

From 1,000 € to 1,500 €

+

+

From 1,500 € to 2,000 €

++

NS

From 2,000 € to 2,500 €

++

+++

From 2,500 € to 3,000 €

NS

NS

More than 3,000 €

NS

NS

Do not know

NS

NS

No answer

NS

NS

Profcash

NS

NS

Education (no diploma is excluded) :

Pre-high school certificate

NS

NS

Pre-high school professional certificate

NS

NS

Former pre-high school certificate

NS

NS

High school certificate

NS

+++

Professional certificate

NS

+++

BA, MA and PhD

NS

+++

Intercept

Conclusion

- ▶ **Transaction characteristics affect consumer payment choice.**
- ▶ **To summarize, we find:**
- ▶ **A strong impact of the transaction size.**
- ▶ **A double supply-side effect:**
 - Limited choice.
 - Improvement of the payment process.
- ▶ **A double effect of the type of contact:**
 - Remote effect.
 - Technological effect.
- ▶ **An autonomous effect of the type of good.**