

How to measure the number of cash payments? The impact of survey design

Nicole Jonker and Anneke Kosse

De Nederlandsche Bank

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Outline

- Research question
- Pilot design
- Results
- Conclusion
- Experiences DNB with conducting payments surveys

Research question

What is the best methodology to measure the number of cash payments?

Pilot design (1)

7 pilot studies, each one distinguishing itself by one different feature

Common features:

- Period: 30 August - 29 September 2007
- Scope of transactions: all point of sale transactions plus P2P
- Research population: Dutch consumers aged 12 to 75 years

Pilot design (2)

Features analysed:

- Diary vs. questionnaire
- 1-day vs. 1-week diary
- 1-week diary with vs. without interim reminder
- 1-day diary with vs. without additional questionnaire
- Online vs. telephone questionnaire
- Online panel vs. regular database

Pilot design (3)

Minimum sample size: 400

Gross sample size 1-day pilots: 1000

Gross sample size 1-week pilots: 600

Pilot design (4)

	Pilot 1	Pilot 2	Pilot 3	Pilot 4	Pilot 5	Pilot 6	Pilot 7
1-day diary							
1-week diary							
Internet survey							
Telephone survey (Internet panel)							
Telephone survey (Regular database)							
Interim reminder							
Number of reported payments	1926	2129	1279	2427	1827	4368	4321
Number of respondents	845	1017	638	1077	831	499	494

Pilot design (5)

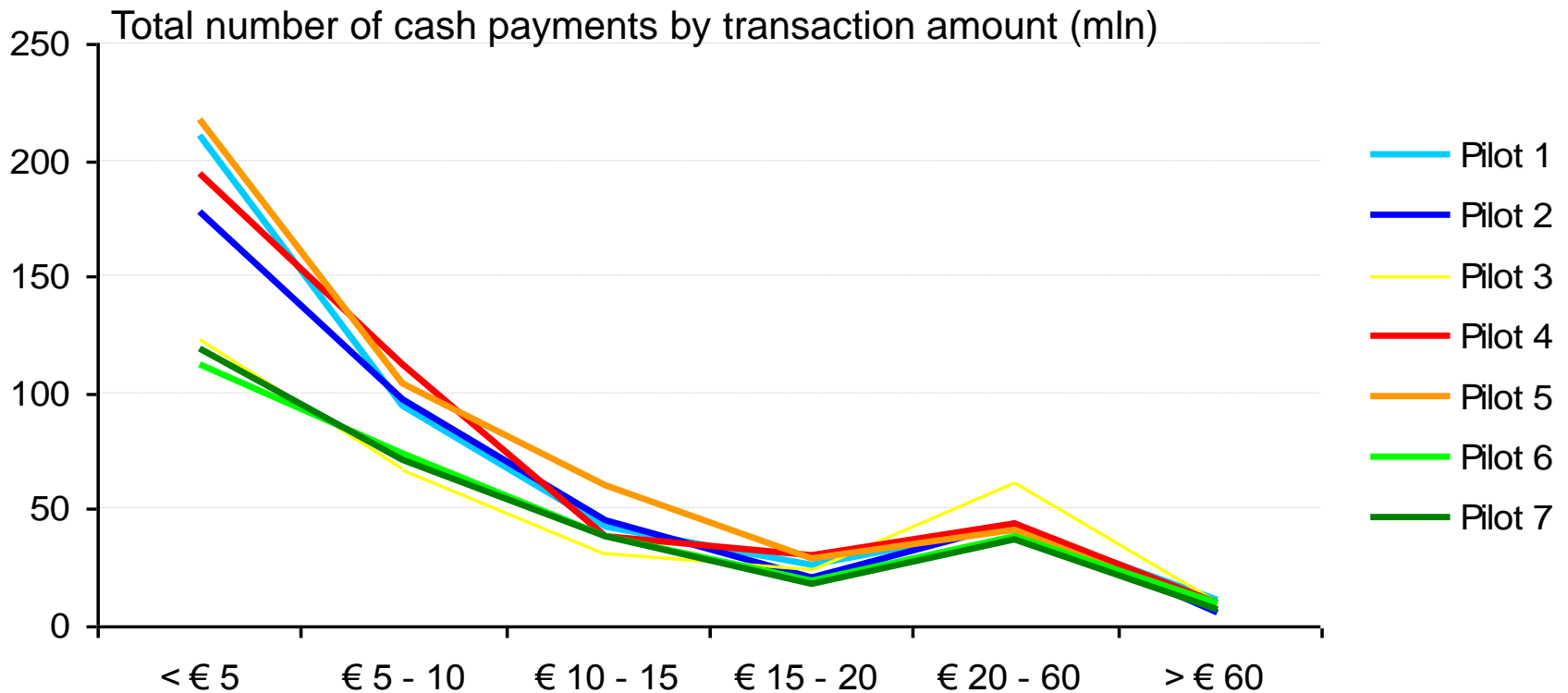
Survey results have been weighed by

- Total observations per day/week
- Non-response by non-buyers
- Pop. chars: gender, age, education, region , internet usage (1 week in addition family size, position in family, credit card)

Survey results have been extrapolated to represent the Dutch population, 12-75 years of age, able to make purchases

Results (1)

Distribution of cash payments by transaction amount



Results (2)

Variable	Retail data	Pilot 1	Pilot 2	Pilot 3	Pilot 4	Pilot 5	Pilot 6	Pilot 7
Avg. transaction amount (EUR)	18.60	21.34*	23.19*	27.34*	19.32	18.02	23.07*	23.98*
- cash (EUR)	9.60	12.26*	11.18	14.40*	11.50	9.71	12.82*	15.51*
- debit card (EUR)	41.55	38.30	41.98	38.11	36.66*	35.52*	38.88	36.41*
Avg. number of payments pppd	1.00	1.26*	1.30*	1.12*	1.32*	1.23*	0.70*	0.72*
- cash	0.72	0.75	0.77	0.57*	0.84*	0.80	0.44*	0.46*
- debit card	0.26	0.47*	0.50*	0.51*	0.43*	0.41*	0.26	0.24*
Share of cash payments	0.72	0.64*	0.59*	0.49*	0.66*	0.67*	0.61*	0.63*
Share of debit card payments	0.27	0.34*	0.39*	0.46*	0.30*	0.32*	0.36*	0.33*

* denotes a significant difference at the 5%-level between the pilot and the validation source. Pilot results are based on weighted data

Conclusion

Research design matters a lot!

Most important measurement error is omission of small cash trx.

- The omission is smallest with a 1-day diary ...
- ... and highest with a questionnaire or a 1-week diary
- An interim reminder only partly reduces omission with a 1-week diary
- 1-day diaries may introduce 'electronic' biases



One-day diary method among
consumers from a regular database

Experiences DNB with conducting payments surveys (1)

Cost studies

- Brits & Winder 05 Social costs POS payment instruments
- McKinsey & Co 06 Payment Services in the NL. An analysis of costs and revenues for banks

Payment behaviour

- Jonker 07 Payment perception of consumers
- Bolt *et al.* 08 Incentives at the counter
- Jonker & Kosse 08 Cross-border payment behaviour
- Jonker & Kosse 09 How to measure the number of cash payments? The impact of survey design

Experiences DNB with conducting payments surveys (2)

Payment behaviour

- Data card payments from Dutch ACH Interpay-Equens
- Data cash payments from retailers and partly from consumers

Retailer approach:

- + high number of observations
- + availability of 'true' transaction records
- difficult to draw a representative sample of all points of sale
- availability of 'true' transaction records biased
- exclusion of P2P transactions

Consumer approach:

- + inclusion of P2P transactions
- + less difficult to draw a representative sample
- measurement error

Experiences DNB with conducting payments surveys (3)

Data collection process	time
1. Formulating research question by NCB	1 month
2. Tender for data-collection (and analysis and report writing)	3 months
3. Organisation of data collection	1 month
4. Involving stakeholders in research methodology	3 months
5. Data collection	3 -15 months
6. Data cleaning	1 - 2 months
7. Data analysis and report writing	2 - 6 months
Total	+/-8 months-2.5 years

It is hard to give a reliable estimate about how much time an activity needs. It depends on the scope of the study, the intensity and required end goal of the study (input other studies or publication)

Experiences DNB with conducting payments surveys

Outsourcing

- | | |
|--------------------|------------|
| 1. Data collection | yes |
| 2. Data analysis | it depends |
| 3. Report writing | it depends |

Pros outsourcing

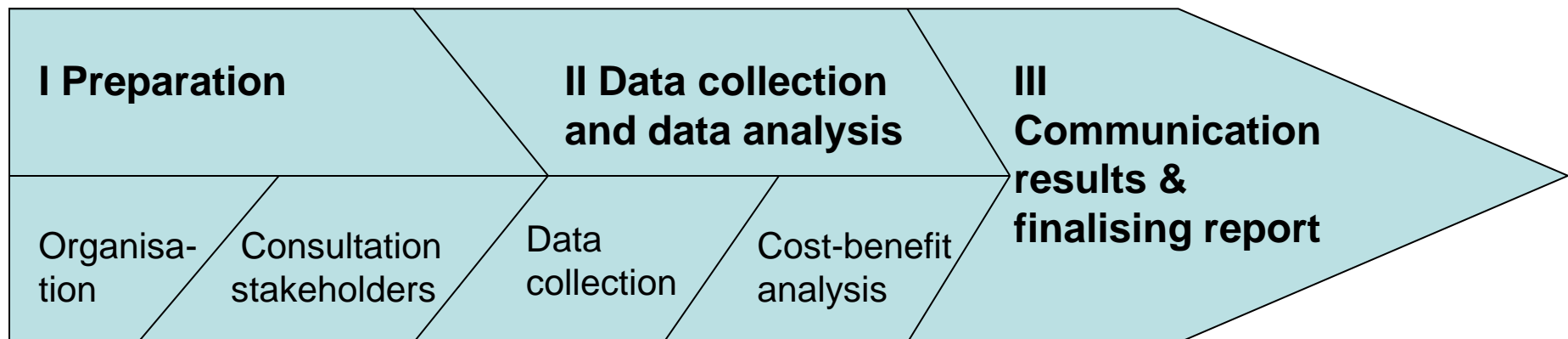
1. Saves time
2. Hire knowledge
3. Objective



Cons outsourcing

1. Costs money
2. Less possibilities for additional analyses
3. Less flexible
4. Quality control

Example of insourcing all: McKinsey



Planning McKinsey study

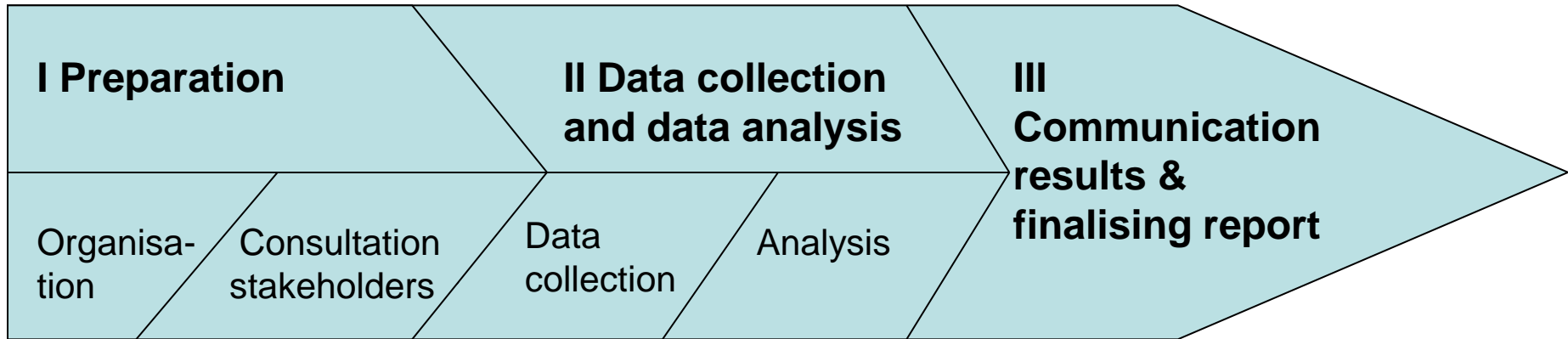
Phase I : 22 Dec 05 - 21 March

Phase II: End March - May

Phase III: May - July 06

But it costed a lot

Example of insourcing data collection only: Jonker & Kosse 09



Planning study

Phase I	:	Aug 06	-	Aug 07
Phase II	:	Aug 07	-	Spring 08
Phase III	:	Spring 08	-	Spring 09

But less costly

Any questions?

Thank you for your attention!