

# Innovation in online longitudinal data collection for scientific research: the Dutch LISS panel

Marcel Das

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**CentERdata**  
Institute for data collection and research



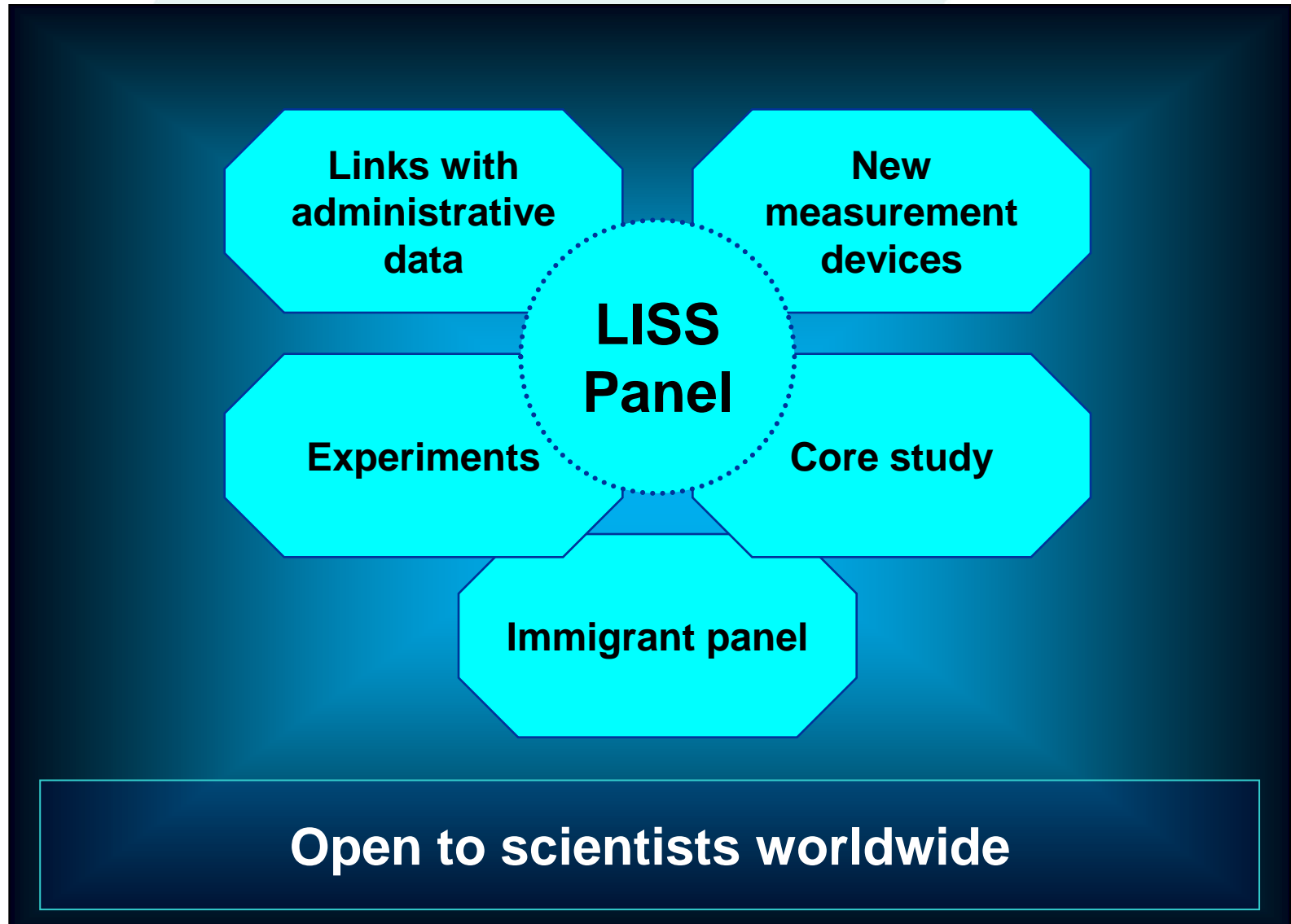
# Background

Internet interviewing is a cost-efficient alternative to the traditional modes (Dillman and Bowker, 2001)

but there is more ...

- maximal opportunities for innovation
- fast: data become available for analysis much more quickly
- technology allows for experimentation, (easy) follow-up data collection, and feedback from respondents

# MESS Project: a highly advanced research infrastructure for the Social Sciences





# Central element MESS project: LISS panel

- Online panel of 5,000 households
  - 8,000 individuals ( $\geq 16$  years)
- Questionnaires each month, 30 min.
- Incentive 15 euro an hour (average)



# **Why use online panels for scientific research?**



# Disadvantages online surveys

- Noncoverage:
  - Persons without Internet are usually excluded
- No probability sample:
  - Visitors of specific websites
  - Self-selection (interested, strong opinions, specific goal)



# LISS panel

- Online interviews as method, but:
- Probability sample drawn from address sampling frame of Statistics Netherlands
- Includes households without Internet access (less than 15%): CentERdata provides equipment
- Contacted by letter, telephone or visit



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# Households without Internet



# simPC



Small and silent

Only the most frequently used functions

Automatic maintenance, safety

Simple operation and readable screens

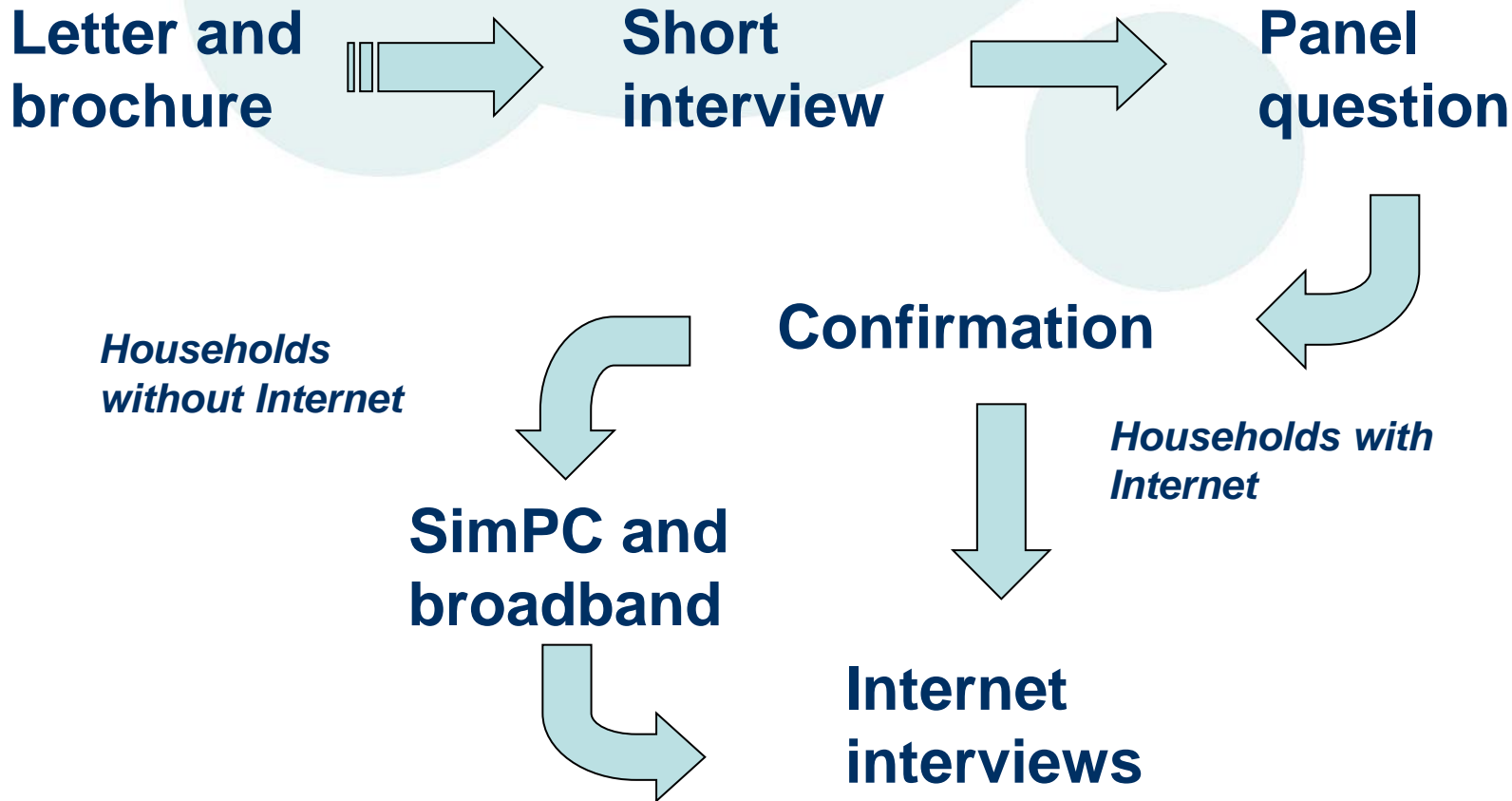
Installation and support



# Recruitment of LISS panel



# Recruitment



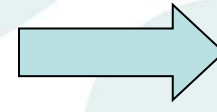


# Response

Letter and brochure

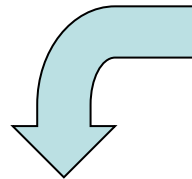


Short interview

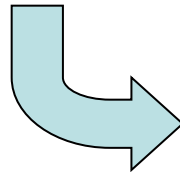


Panel question

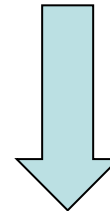
**Primary response target: 80%**



SimPC and broadband



Confirmation



Internet interviews

**Secondary response target: 60%**



*Households with Internet*

**Tertiary response target: 53%**



# Recruitment experiment (1)

to optimize factors in the recruitment:

- contact mode
- incentive amount
- timing of the incentive
- content of the advance letter
- timing of the panel participation request

# Recruitment experiment (2)

## Experimental design

		CATI		CAPI		N
		Special letter	Standard letter	Special letter	Standard letter	
Prepaid incentive	Introduce panel in letter	<b>0 euro</b>	<b>10 euro</b>			200
	Introduce panel after interview		<b>20 euro</b>	<b>50 euro</b>		300
Promised incentive	Introduce panel in letter			<b>0 euro</b>	<b>10 euro</b>	400
	Introduce panel after interview	<b>50 euro</b>			<b>20 euro</b>	300
N		200	200	400	400	1200

Scherpenzeel, A. & Toepoel, V. (2012). "Recruiting a Probability Sample for an Online Panel: Effects of Contact Mode, Incentives, and Information," *Public Opinion Quarterly* 76(3), pp 470-490



# Set up main recruitment

- Combination CATI – CAPI, follow up CAPI
- Prepaid 10 euro incentive
- Promised extra 10 euro incentive for starting
- Attention to design letter and brochure



# Response in recruitment

<b>Recruitment stage (households)</b>	<b>% of total gross sample</b>
	LISS panel
Reached	90
Completed interview or central questions	75
Willing to participate in panel	63
Registered as panel member	48
Total gross sample*	9844

**\*excluding not usable addresses**



# LISS panel compared to population (2008)

<b>Group</b>	LISS Panel %	Population %	Bias
Age $\geq 70$	7	13	-6
Living alone	15	20	-5
Non-western immigrant	4	7	-3
Did not vote at election	13	20	-7
Voted SP at election	17	17	0
Voted CDA at election	25	26	-1
Has Internet access	93	85	+8



# LISS panel compared to DPES

	LISS Panel Bias	DPES Bias
<b>Group</b>		
Age $\geq 70$	-6	1
Living alone	-5	-4
Non-western immigrant	-3	-2
Did not vote at election	-7	-13
Voted SP at election	0	1
Voted CDA at election	-1	1
Has Internet access	8	2

**DPES = Dutch Parliamentary Electoral Studies**



# Non-response patterns

**Similar** to those of other leading scientific panels

**Superior** to commercial access and volunteer panels:

- no coverage problems
- no self-selection



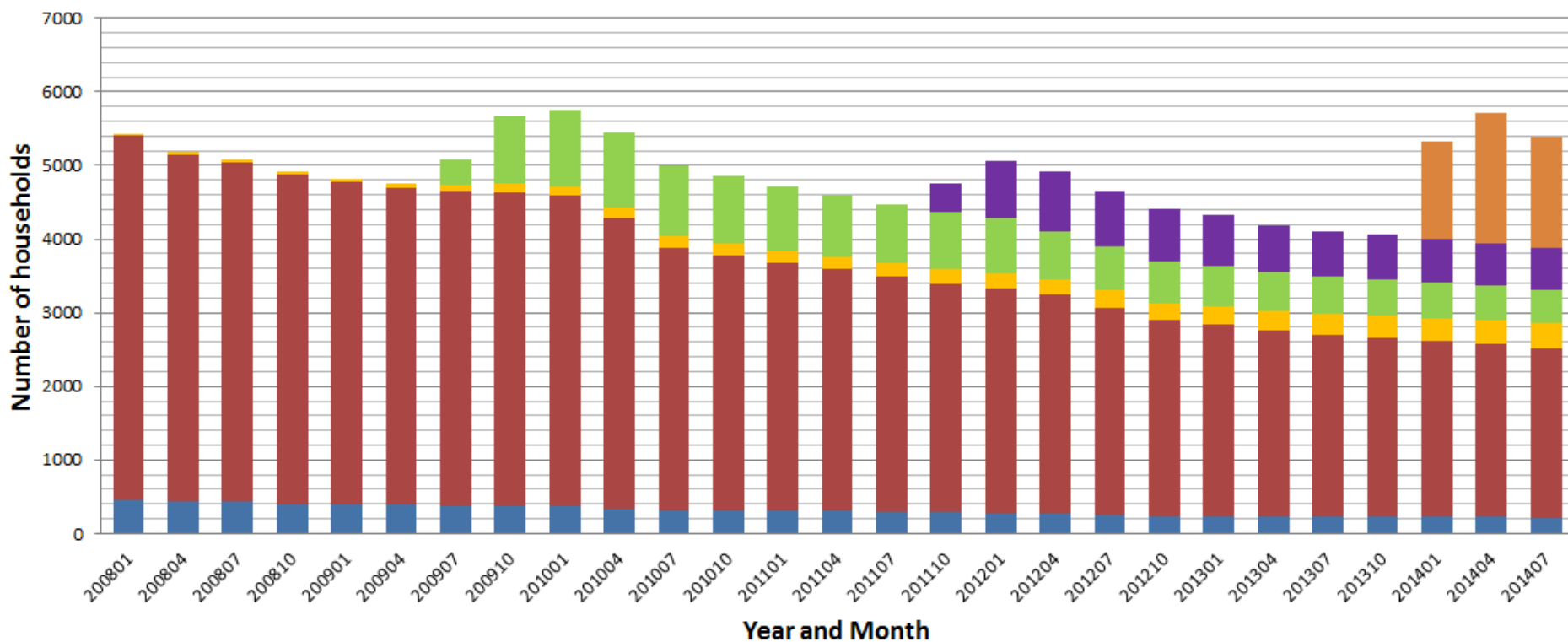
# Attention for difficult groups

- Correction by refreshment sample in 2009 (stratified), 2011 (random), 2013 (stratified) in close collaboration with Statistics Netherlands
- Separate immigrant panel in 2011 (with Cross-cultural Psychology, Tilburg University and Statistics Netherlands)

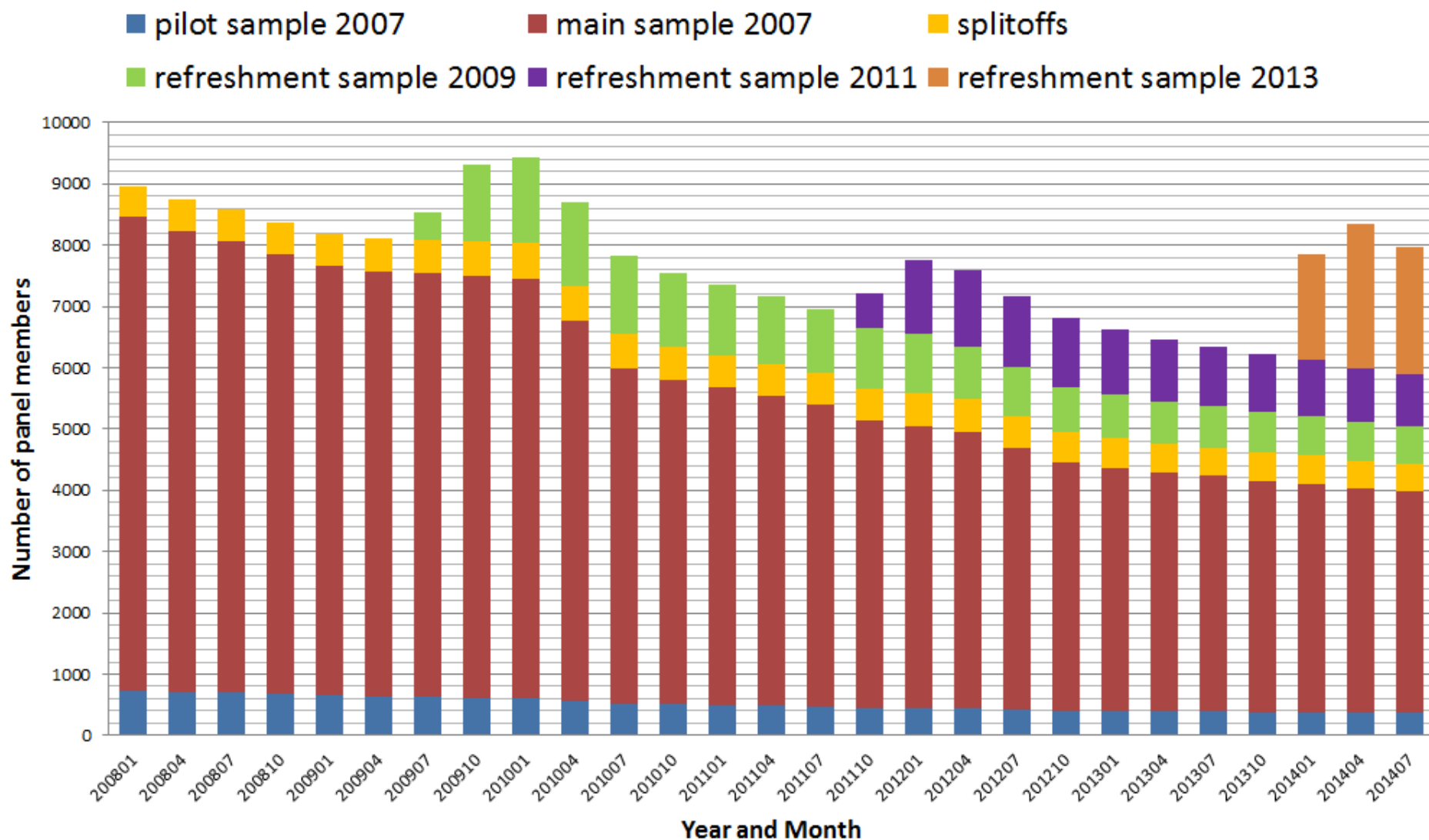
# Attrition LISS households, 2008 - 2014




■ pilot sample 2007      ■ main sample 2007      ■ splitoffs  
■ refreshment sample 2009    ■ refreshment sample 2011    ■ refreshment sample 2013



# Attrition panel members, 2008 - 2014





# Data Quality (LISS panel)

Several studies, e.g. Scherpenzeel (2009) and Revilla and Saris (2010)

Data collected via the Internet are at least as valid and reliable as those collected with traditional methods

Revilla and Saris compared ESS questions in the regular face-to-face survey with the same questions in the LISS panel



# Use of the LISS panel





# Use of infrastructure

**1.** Collection of *new* data; proposals can be submitted throughout the year

2006 – mid 2014: budget available for academic researchers to use the LISS panel

**2.** Use of *existing* data

→ Available data:

- longitudinal core study
- proposed studies

# Innovation in data collection

- Smartphones (Time Use, with the Netherlands Institute for Social Research; Mobility, with Twente University)



- Accelerometers (international collaboration)

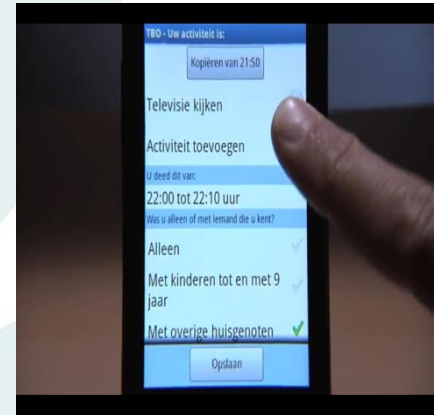


- Internet bathroom scales



# Time use diary app

- Developed by CentERdata
- Can be used any time
- Notifications (reminders)
- Closed answers: codes for activities
- Experience sampling: 3 popup questions on feelings, random moments



## Design study:

- 12 months data collection
- 170 panel members per month, 2,000 total
- Panel member completes two days
- **200 loan smartphones, lend for 7 days**



# More information

Report: *Using smartphones in survey research: a multifunctional tool*. Available at [www.scp.nl/smartphone](http://www.scp.nl/smartphone)

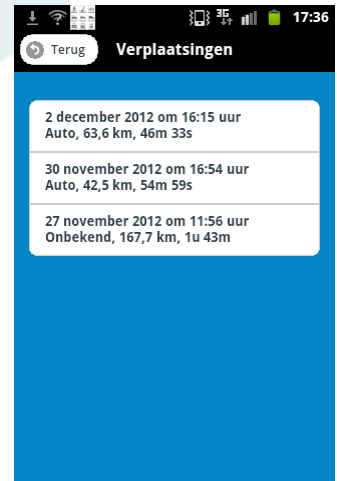
Fernee, H. & Sonck, N. (2013): Is everyone able to use a smartphone in survey research? *Survey Practice*, 6(4)

# Mobility App

- Developed by Novay (The Netherlands)
- Uses GPS and Mobile Networks
- Algorithm: distance, mode (speed), time
- Webinterface: respondents check and adapt
- Privacy issue: Consent procedure

## Design study

- 3 waves spread over 3 years
- 500 panel members per wave
- 4 - 6 weeks measurement per wave
- **200 loan smartphones, lend for 4 weeks**



# Accelerometer study

- Developed by Geneactiv (UK)
- Measures acceleration, body temperature, day light

## Design study:

- 13 weeks data collection
- 70 - 90 panel members per week, 1,000 in total
- Panel member wears 8 days
- ***300 accelerometers, lend for 8 days***





# Bathroom scale study

- Wireless bathroom scales
- Uses radio signals through “bridge” and Internet, to send the data
- Measures weight and body fat
- Variability over time: more accurate and more frequent



## Design study:

- Longitudinal study (approx. 3 years)
- 950 scales, last year 300 new scales added
- ***Lend to household for at least 1 year***



# Results

Kooreman, P. & Scherpenzeel, A. (2014): High frequency body mass measurement, feedback, and health behaviors, *Economics & Human Biology*, 14

## Highlights

- Weight is 0.2 kilogram lower on Fridays than on Mondays; BMI is 0.06 less and fat percentage is 0.03 lower on Fridays.
- The fat-based measure of obesity indicates a three times larger prevalence of obesity (53%) than the BMI-based measure (17%).
- A feedback that includes a recommended weight range increases the temporal variation in individual body weight by about 10%.





## 2. Use of existing data

- **Who** can use the LISS data:  
every researcher who wants to use data for scientific, policy or societal relevant research
- Use of data is free of charge (unless data are used for research funded by means of external sources)
- Available data:
  - longitudinal core study
  - proposed studies



# Longitudinal core study

Questions were designed in close collaboration with experts in the relevant fields

Core study borrows from various national and international surveys

Topics: Household and family, Economic situation and housing, Work and schooling, Social integration and leisure, Health, Personality, Religion and ethnicity, Politics and values

**LISS wave 7: 2013 - 2014**



# LISS data

<http://www.lissdata.nl>



# MESS is more cost-effective than other approaches

- For example, the LISS panel, at the core of MESS, is much less expensive than other major panels
  - Four times cheaper than PSID and HRS (in terms of cost per respondent per hour)
  - Two to three times cheaper than traditional surveys in the Netherlands
- For the money spent, MESS generates more extensive data than traditional surveys
- MESS also saves money by accommodating many new data collections at marginal cost



# In its first phase, MESS has generated a clear return on investment

- An ultra-modern, efficient research infrastructure is now solidly in place
- The LISS panel has collected more than seven years of rich and innovative data, using state-of-the-art methods
- Researchers worldwide have accessed this data for use in scientific, policy, and societal studies
- An innovative data archive is now easily available through a web tool on a dedicated LISS website (<http://www.lissdata.nl>)



# Even higher return on investment...?

- The return on investment will certainly grow over time, with an exponentially increasing number of publications (e.g. because of secondary analyses)

But also:

- International collaboration!

This may lead to a wealth of international comparisons and new global data networks

[www.lissdata.nl](http://www.lissdata.nl)



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