Response behaviour in mixed-mode surveys

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In this presentation

- Re-design of Dutch household surveys
- Response behaviour in the LFS 2010
- Conclusion & discussion

Re-design of Dutch household surveys (1)

Motivation for re-design:

- Flexibility

- Coherency

- Costs reductions

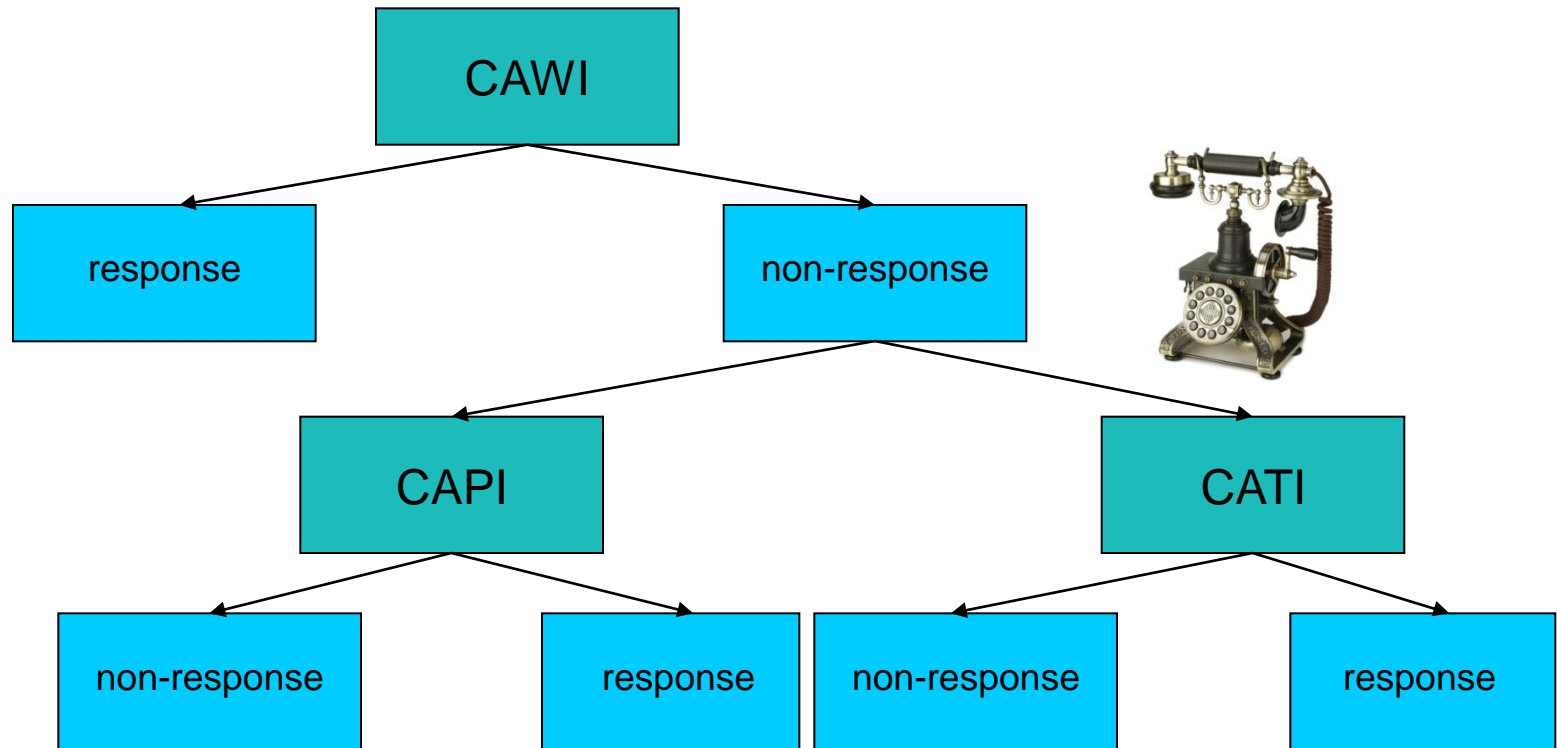*without a loss of quality.*

Re-design of Dutch household surveys (2)
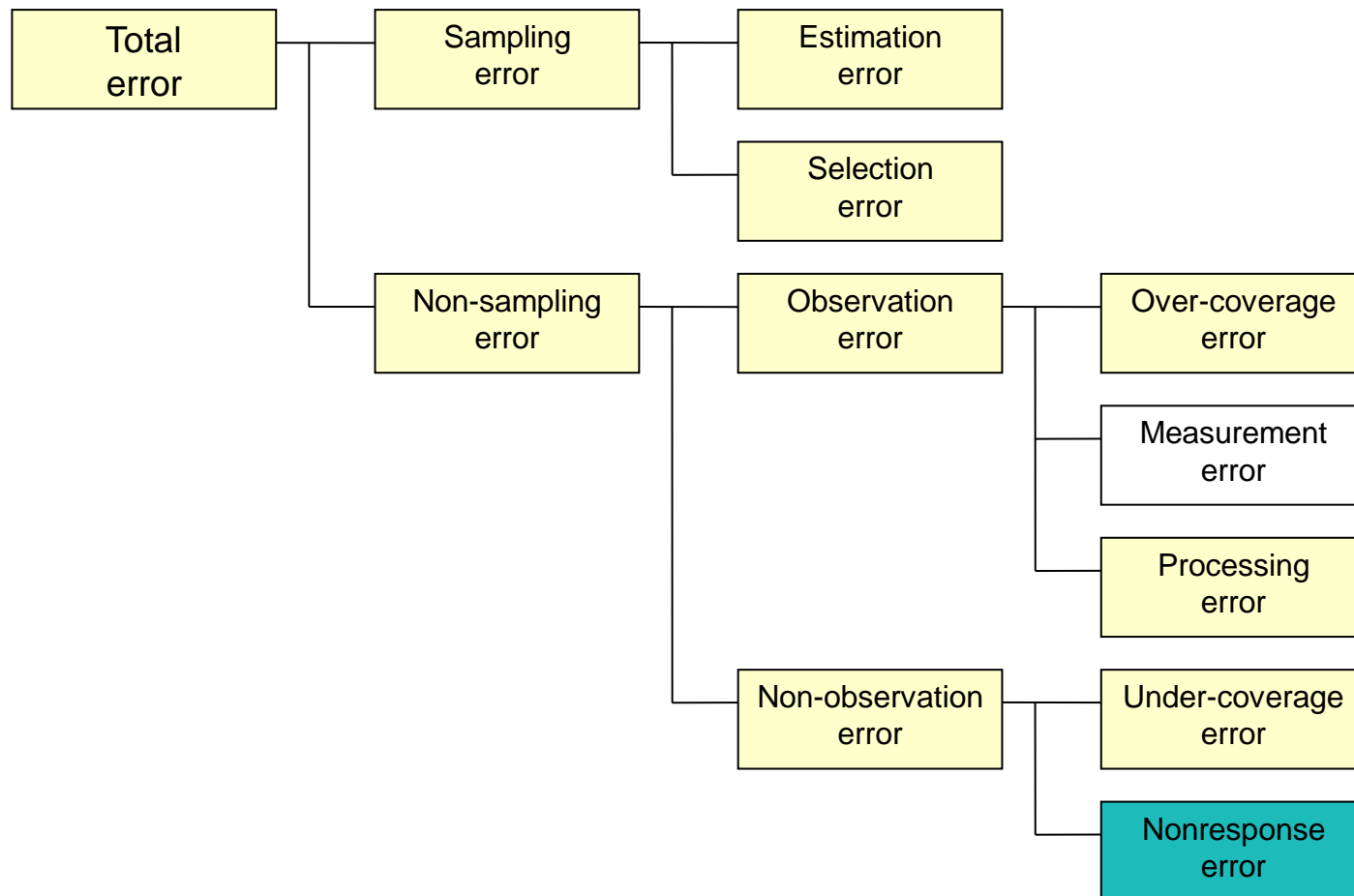
Main ingredients of re-design:

- Core questionnaire
- Use of register information
- Model based estimation
- Quality framework
- Parallel runs of old and new designs
- Mixed-mode datacollection

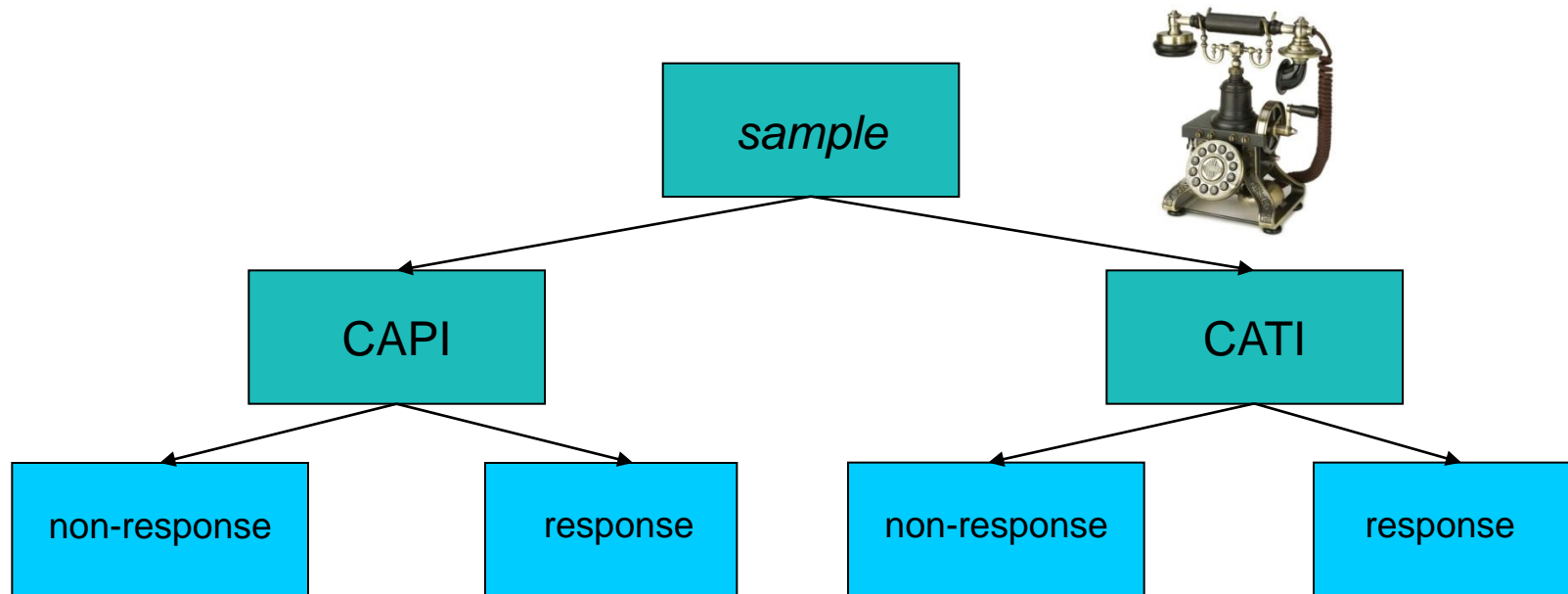# Re-design of Dutch household surveys (3)

General mixed-mode design:

INTERMEZZO: Total Survey Error

Mixed-mode design for the first round of the LFS in 2010

Response behaviour in the LFS 2010 (1)

Data from **parallel run** January 2010 - July 2010 (6 months)

Design	Group	RR	RR
Old	No telephone	59,5	53,3
	Telephone		63,0
New	CAPI	53,9	53,2
	CATI		54,3

Response behaviour in the LFS 2010 (2)

Compare response behaviour in the different modes by using the R-indicator:

$$R(\rho) = 1 - 2S(\rho) = 1 - 2\sqrt{\frac{1}{N-1}\sum_{i=1}^{n} d_i \left(\rho_i - \bar{\rho}\right)^2}$$

and conditional partial R-indicators:

$$P_C(X_k) = \sqrt{\frac{1}{N}\sum_{l=1}^{L}\sum_{i \in U_l} d_i \left(\rho_i - \bar{\rho}_l\right)^2}$$

INTERMEZZO: What you need to know about the R-indicator

• Based on estimated response propensities

• Interpretation with respect to variables used to model response propensities

• Transormed to the [0,1] interval: 0 not representative; 1 perfect representativity

• *Conditional partial R-indicators* isolate that part of the deviation of representative response, i.e. the selectivity, that is attributable to one variable.

• Hence, the lower the better.

Response behaviour in the LFS 2010 (3)

R-indicator – for total and telephone/no telephone group

X-variables: degree of urbanization, average house value, type of household, age, ethnic group and paid job

	Group	$\hat{R}(\hat{\rho})$	CI	$\hat{R}(\hat{\rho})$	CI
Old design	*No telephone*	84,9	84,1 – 85,6	82,9	81,7 – 84,1
	Telephone			88,7	87,8 - 89,7
New design	*CAPI*	85,2	84,5 – 86,0	84,5	83,2 – 85,7
	CATI			82,7	81,8 – 83,6

New design seems better representative; however CATI is significantly worse.

Response behaviour in the LFS 2010 (4)

Conditional partial R-indicators – total

	Old design	New design
Paid job	0,009	0,018
Degree of urbanization	0,018	0,016
Type of household	0,015	0,019
Average house value	0,023	0,014
Age	0,017	0,015
Ethnic group	0,039	0,039

Response behaviour in the LFS 2010 (5)

Conditional partial R-indicators - telephone/no telephone group

	Old design		New design	
	No telephone	Telephone	CAPI	CATI
Paid job	0,010	0,008	0,015	**0,019**
Degree of urbanization	0,023	0,013	0,023	0,015
Type of household	0,011	0,014	0,019	**0,025**
Average house value	0,022	0,022	0,016	0,023
Age	0,029	0,014	0,028	**0,030**
Ethnic group	0,046	0,026	0,043	**0,040**

Response behaviour in the LFS 2010 (6)

Conditional partial R-indicators for **telephone group** – category level

Paid job

	Old design	New design
Yes	0,006	0,015
No	0,005	0,012

Response behaviour in the LFS 2010 (7)

Conditional partial R-indicators for **telephone group** – category level

Type of household

	Old design	New design
Single	0,009	0,012
Single parent	0,005	0,013
Couple without children	0,003	0,004
Couple with children	0,008	0,013
Else	0,005	0,011

Response behaviour in the LFS 2010 (8)

Conditional partial R-indicators for **telephone group** – category level

Age

	Old design	New design
15-19	0,001	0,004
20-24	0,003	0,015
25-29	0,005	0,014
30-34	0,004	0,006
35-39	0,005	0,003
40-44	0,007	0,005
45-49	0,005	0,005
50-54	0,002	0,005
55-59	0,003	0,012
60-64	0,007	0,012

Response behaviour in the LFS 2010 (9)

Conditional partial R-indicators for **telephone group** – category level

Ethnic group

	Old design	New design
Dutch background	0,012	0,018
1st generation Western background	0,005	0,013
2nd generation Western background	0,003	0,004
1st generation non-Western background	0,016	0,030
2nd generation non-Western background	0,012	0,013
Background unknown	0,010	0,008

Conclusion

After explaining to a student through various lessons and examples that:

$$\lim_{x \to 8} \frac{1}{x-8} = \infty$$

I tried to check if she really understood that, so I gave her a different example. This was the result:

$$\lim_{x \to 5} \frac{1}{x-5} = \text{ro}$$

- *Representativity of the response is only one of the aspects of quality*
- The R-indicator can be used to compare response behaviour in different modes
- Selectivity of CATI response is caused by:
  - Single and single parent households
  - Age categories 20 - 29 and 55 – 64
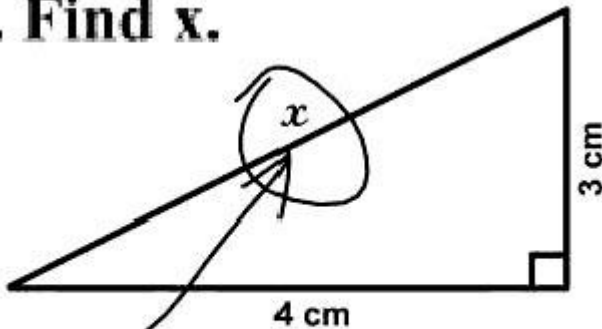 - First generation persons with a non-Dutch background

Discussion

- Total survey error

- Different fieldwork strategies for different groups, based on total survey error

- Introduction of Internet is expected to reduce response selectivity. But how will the sequential design influence response behaviour?

Thank you for your attention!

Questions?

3. Find x.

3 cm

4 cm

Here it is

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For more info on the R-indicator:

www.risq-project.eu