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Estimation of response propensities using the previous survey

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Background of the study

- Many surveys are carried out every year
  - Datasets from 2017, 2016, 2015… are available
- Response behavior remains quite similar in concecutive years
- Previous survey can be utilized when planning a new survey
  - Data collection strategies can be changed
- Why to utilize a previous survey?
  - Aim is more balanced set of respondents
    - Better distribution by age group, education, gender…

Datasets

- Finland’s two datasets were available: ESS7 (round 7, 2014) and ESS8 (round 8, 2016)
- Both datasets included a response variable and register variables
- About ESS
  - A cross-national survey
  - Is carried out every two years
  - Target population: all residents 15 years or older within private households
  - Sample size for both years: 3400
  - Response rates
    - Round 7 62.7%
    - Round 8 57.7%

About of the study

- The steps of the study
  - Response propensities were calculated to the dataset of 2014 (ESS7)
  - The response propensities were imputed to the dataset of 2016 (ESS8)
  - The response rates of the ESS8 were calculated
  - The response propensities and actual response rates were compared
- Research questions
  - Is the response behavior similar in both years?
  - Is there a clear link between the imputed response propensities and actual response rates?

Estimation of response propensities

- Response propensities were calculated to the ESS7
- Logistic regression model
  - The dependent variable was a binary response indicator (1 = respondent, 0 = non-respondent)
  - Explanatory variables were register variables
    - Classified variables
    - Automatic variable selection of SAS program was utilized
    - In the final model: the explanatory variables were gender, municipality group and interaction age group * education
    - The dataset ESS7 included about 70 different response propensities

Imputation of response propensities

- The response propensities were imputed from the ESS7 to the ESS8
- Imputation was carried out according to the explanatory variables of the model: gender, municipality group and interaction age group x education
- A donor-recipient method
  - A donor and a recipient had same values in the explanatory variables

Exaples of imputations

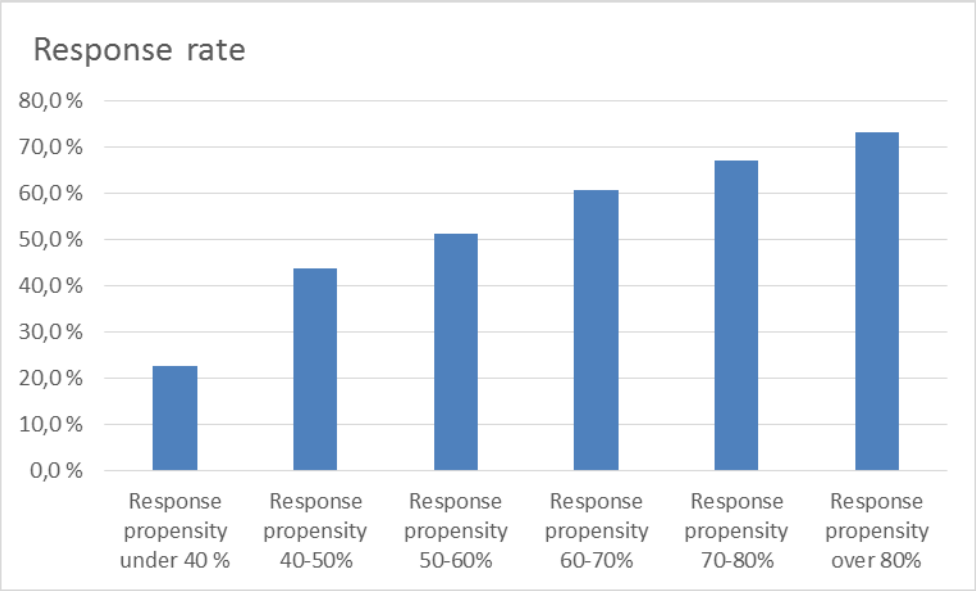
- A donor person in the ESS7 has response propensity 0.53 and following characteristics: municipality group = 2 (semi-urban municipalities), gender = 1 (male) and age group x education = 5 (30-44 years, no final examination)
  - If the ESS8 included similar people, their imputed response propensity was 0.53
- A donor person in the ESS7 has response propensity 0.87 and following characteristics: municipality group = 3 (rural municipalities), gender = 2 (female) and age group x education = 11 (45-59 years, higher education)
  - Similar people in the ESS8 get imputed response propensity is 0.87

Imputation of response propensities

- Number of variables is restricted
  - Each recipient must have a donor (same values in the variables)
  - Difficult if there are too many combinations
  - 3-4 variables are a good number

Response rates in the ESS8

- Imputed response propensities were divided into groups
- Response rates were calculated in each group



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Conclusions

- The imputed response propensities predicted response rates quite well
  - Distribution of respondents was similar in the both years
- Response propensities can be estimated before the data collection of the survey starts
- Imputed response propensities can be utilized in the data collection
  - Interviewers know ”easy” and ”difficult” respondents
  - The propensities can determine the number of calls
    - The lower the propensity, the more contact attempts

- Thank you!