

## A STATISTICAL ANALYSIS OF RESPONSE RATES

Hans Bay<sup>1</sup>

### ABSTRACT

The Danish National Institute of Social Research (SFI) is an independent institution under the Ministry of Social Affairs. The Institute carries out surveys on social issues in a broad sense. SFI-SURVEY is an economically independent section within the institute. SFI-SURVEY carries out scientific surveys both for the Institute, for other public organisations, and for the private sector as well. The SFI-SURVEY interviewer body has 450 interviewers spread all over Denmark. There are 5 supervisors, each with a regional office, who hold the contact with the interviewer body.

On a yearly basis SFI-SURVEY conducts 40 surveys. The average sample size (gross) is 1.000 persons. The average response rate is 75%. Since January 1999 the following information about the surveys have been recorded:

- Face-to-face or telephone (method)
- Length of questionnaire (interviewing minutes)
- Was a folder send in advance to the respondents
- Was an instructing meeting for the interviewers given
- Number of interviews per interviewer per week
- Was the subject of the survey of interest to the respondents (Topic)
- Interviewing month
- Target group (random selection of the total population or special groups)

A statistical analysis (Meta analysis) was performed. The analysis showed that the response rates very heavily depend upon Topic.

### 1. INTRODUCTION

Denmark has a population of approximately 5.3 million individuals who are unambiguously registered in a central register (the CPR).

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<sup>1</sup> Director of SFI-SURVEY, Denmark. E-mail: HB@SFI.DK

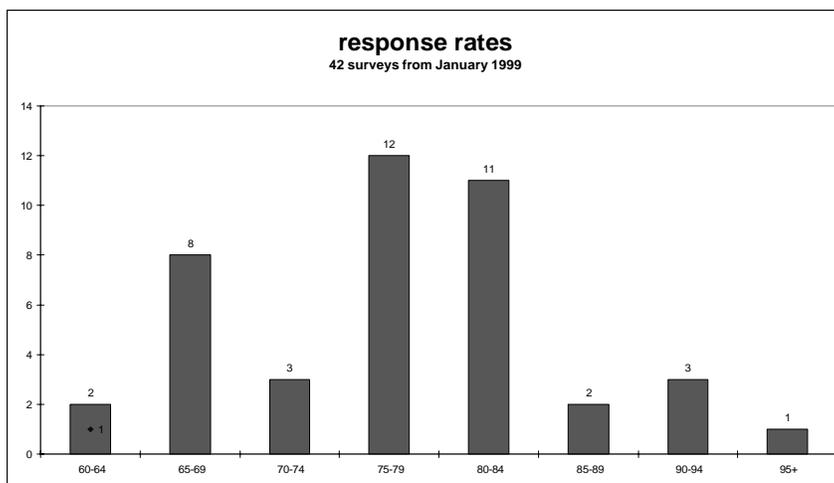
## 2. DOING A SURVEY

- Persons are selected at random in the CPR. Only 0.01 percent of the persons have a registration indicating that they will not participate in any survey.
- A letter is mailed to each selected person (a respondent letter) briefly referring to the survey and stating the objective of the survey. The letter also points out that the SFI-SURVEY interviewers will contact the respondent in the near future.
- For some surveys also a folder is sent with the letter, further explaining the survey.
- A joint briefing is held prior to almost all surveys. At this briefing the 5 supervisors and the researcher in charge go through the questionnaire. Subsequently, 5 local briefings are held where the interviewers are briefed.

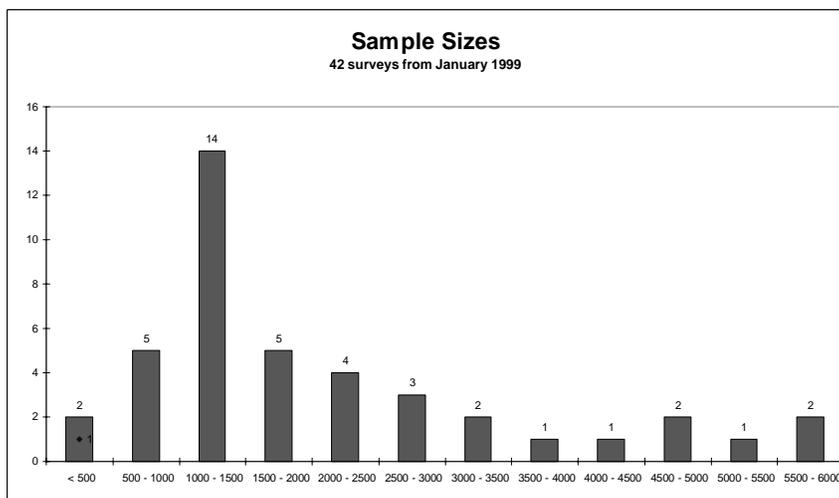
Since January 1999, SFI-SURVEY has conducted 42 surveys. The first figure shows the response rates (RR). Most of the RR's is between 75% and 79%. One survey has a RR above 95%.

In the next figure the sample sizes are shown. The most common sample size is between 1000 and 1500.

**Figure 1**



**Figure 2**



All surveys have been categorized with respect to.

Month: the month when the interview starts.

Type: indicates either of the three types of interviews, 1) interviews made through visits (F2F), 2) phone interviews with follow-up interviews made through visits, if the respondent has not been contacted by phone (Phone with F2F), 3) phone interviews with no follow-up interviews made through visits (phone).

Length: length of the interview (minutes)

Briefing: if a joint briefing has been held.

Addresses: number of gross sample per interviewer per week.

Subject: the subject is evaluated if it is of interest to the respondents. The evaluation is made within SFI-SURVEY

Group1: either the entire population of individuals 16 years and older or a sub-group.

Social indications: indicates whether the respondents are socially weighed down.

For each survey we also have the gross sample and the response rate.

Some statistics.

<b>Type:</b>	<u>No of surveys</u>	<u>Gross sample</u>	<u>Response rate</u>
F2F	20	54,155	75.6 %
Phone with F2F	7	13,076	72.4 %
Phone	15	18,452	83.0 %
Total	42	85,683	76.7 %

A total of 42 surveys were analyzed, and altogether they represent a gross sample of 85,683. The total response rate was 76.7% All 85,683 individuals were drawn through the CPR.

<b>Folder:</b>	<u>No of surveys</u>	<u>Gross sample</u>	<u>Response rate</u>
No folder	32	56,921	76.2 %
With folder	10	28,762	77.5 %
Total	42	85,683	76.7 %

<b>Joint briefing:</b>	<u>No of surveys</u>	<u>Gross sample</u>	<u>Response rate</u>
Yes	23	59,842	76.2 %
No	19	25,841	77.8 %
Total	42	85,683	76.7 %

<b>Subject:</b>	<u>No of surveys</u>	<u>Gross sample</u>	<u>Response rate</u>
Of interest	35	65,005	79.4 %
Of no interest	7	20,678	68.1 %
Total	42	85,683	76.7 %

<b>Group:</b>	<u>No of surveys</u>	<u>Gross sample</u>	<u>Response rate</u>
Entire population of individuals 16 years and older	24	54,504	75.6 %
Sub-group	18	31,179	78.5 %
Total	42	85,683	76.7 %

<b>Social indications:</b>	<u>No of surveys</u>	<u>Gross sample</u>	<u>Response rate</u>
Not socially weighed down	31	69,229	77.2 %
Socially weighed down	11	16,468	74.3 %
Total	42	85,683	76.7 %

The response rates range between 61% and 96%. The number of addresses per interviewer per week ranges from 2 to 30, and the length of the questionnaire ranges between 10 and 95 minutes.

### 3. STATISTICAL ANALYSIS

Generalized model

Data were analyzed in a generalized linear model (*PROC GLM* in SAS) with the dependent variable being the response rate and all other variables used as explanatory variables. The total model has a  $R^2$  (coefficient of determination) of 39.5%. In this model only **Type** and **Subject** were significant.

The variables deemed insignificant were removed from the model leaving only **Type** and **Subject** as explanatory variables. In this reduced model,  $R^2$  was 21% with both explanatory variables being significant.

3 regression analyses were performed, one for each type of interview. The subject was only significant for F2F interviews.

### 4. CONCLUSION

For F2F interviews also the subject of the survey is of importance for the response rate. For two of the types of interviews (phone interviews and phone interviews with follow-up interviews through visits) none of the included variables are significant.

The estimated response rate.

<b>Type:</b>	<u>Subject: interesting</u>	<u>Subject: non-interesting</u>
F2F	77 %	66 %
Phone with F2F	72.4 %	72.4 %
Phone	83.0 %	83.0 %

### 5. RESULTS FROM 2001

In 2001 a total of 53 surveys were conducted. 12 F2F, 5 F2F with phone and 36 telephone surveys.

Of the 12 F2F surveys, 4 were characterized as non-interesting. All 4 surveys demanded that the respondent should fill a diary.

	No. of surveys	Gross sample	Response rate
F2F of interest	7	14,960	85.5 %
F2F no interest	5	9,008	64.0 %
Phone with F2F	5	11,425	71.1 %
Phone	36	47,909	82.7 %
Total	53	83,302	79.6 %

For 2001 we can conclude that F2F surveys of non-interest has the RR decreased. And F2F with interest has increased. Phone with F2F and phone surveys have got almost unchanged RR.