



Representativity Indicators for Survey Quality

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**Indicators and data collection control  
Work plan and preliminary findings –  
Pilot Statistics Norway**

Work package 7, Deliverable 8.2

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# Indicators and data collection control;

## Work plan and outlines of the experiment

### 1. Introduction

Both nationally and internationally, we have seen a growing focus on how to improve response rates, minimize response bias and monitor fieldwork costs during the fieldwork period. Former strategies have been to make specifications and standardization of all aspects of design, implementation of those specifications and analyses conditional on the design protocols. Combining easily retrieved administrative data and process data make continuous monitoring of survey variables of interest possible. The task is to maximize the result, given certain constraints as time or costs.

In work package 7 we investigate the Representativity Indicators and partial Representativity Indicators (henceforth R-Indicators and partial R-indicators, respectively) as tools to facilitate differentiated fieldwork strategies during data collection. We investigate how to differentiate strategies and how the indicators can play a role in the corresponding choices. We will also discuss R-indicators in light of **other tools for Enhancing the Composition of Survey Response used by Statistics Norway**. In order to validate and test the differential fieldwork strategies, two pilot studies were set up one at Statistics Netherlands (CBS) and one at Statistics Norway (SN). This paper describes the setup of the field study Statistics Norway has previously conducted.

### 2. Method

We use the Level of Living Survey 2009 (LLS 2009) as vehicle for the pilot. One of the main purposes with the panel survey is to provide data to carry out detailed analyses of the work environment in different occupational groups and industries. LLS 2009 is a panel survey on work environment subjects which is repeated every third year, the first round being conducted in 2006. Hence, most of the 20 500 respondents, aged 16 to 69 years, in the LLS 2009 sample were also contacted three years ago, while a small fraction are new respondents. Although face-to-face interviewing is permitted, the survey is primarily conducted by telephone. However, the experiment will be carried out through SN's call centre, and face-to-face interviewing will not be possible. Average interview time was 24 minutes in 2006, while the average time spent to get in contact with a respondent and set a status (interview or nonresponse) was 15 minutes.

For LLS 2006, the overall response rate was about 67%. The noncontact rate and the cooperation rate was 13% and 77 %, respectively. The refusal rate was 16%. The data collection period in 2006 lasted from mid September 2006 to late February 2007.

From the sample of LLS, we drew a combined sample of 3 000 respondents. The sample is to be separated into a test sample of 1 500 respondents and an equally sized control sample. A large part of our sample was contacted three years ago, and as Table 1 shows, 2/3 of the panel respondents were interviewed in the previous round.

A wealth of information is available about characteristics of the sample units from different administrative registers at SN. From the population register we have access to general demographic information such as gender, age, education, immigration background and various geographical variables.

CBS use the accumulated knowledge of prior surveys to determine fieldwork strategy prior to the start of the fieldwork, while SN concentrates the pilot on responsive design, e.g., adapting fieldwork strategy according to results during fieldwork.

**Table 1: Panel status of the pilot sample; number, percent of total and percent of panel.**

	<b>Number</b>	<b>Percent of total</b>	<b>Percent of panel</b>
<b>Panel</b>			
• Interview	1 854	61,8	68,6
• Refusal	402	13,4	14,9
• Temporary prevented because of illness, work/school or language problems	92	3,1	3,4
• Non-contact	356	11,9	13,2
<b>New respondents</b>	296	9,9	
<b>Total</b>	3000		

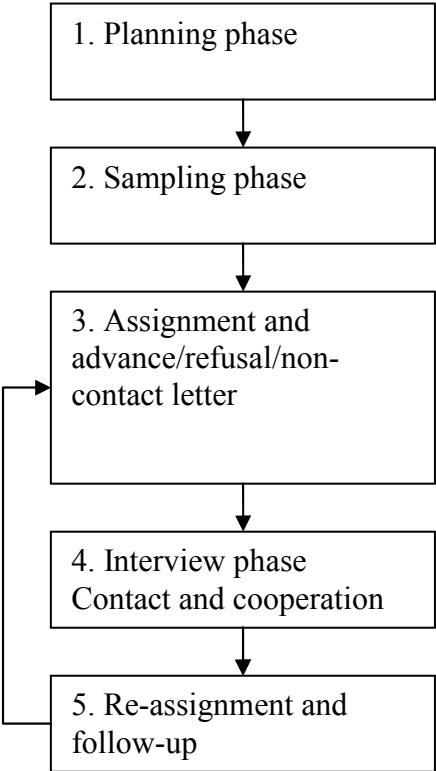
The pilot fieldwork was conducted during six weeks in October and November 2009. From the gross sample 3 000 respondents were randomly selected for the pilot sample before the data collection for the main survey started in June. The pilot sample was then randomly split in two groups so that 1 500 respondents served as the experiment group while 1 500 respondents formed the control group. The experiment group was subjected to rigorous supervision with respect to the R-indicator and partial R-indicators, while the control group was treated as the rest of the regular LLS. In Figure 1 and Figure 2 we have described the interview process for the control group and the experiment group, respectively.

The first two steps are common for all surveys at SN, the planning phase (step 1) and the sampling phase (step 2). In these two steps questions, administrations, modes, data collection period, sample frame and sampling procedure etc. are decided. Then, sample units are assigned directly to interviewers or to the CATI call management system (step 3). In step 4, the interview phase starts; contact and cooperation. In step 5, all sample units with status non-contact or non-cooperative are evaluated, and re-assigned if the sample unit is regarded as possible for re-contact. This procedure is almost completely subjective.

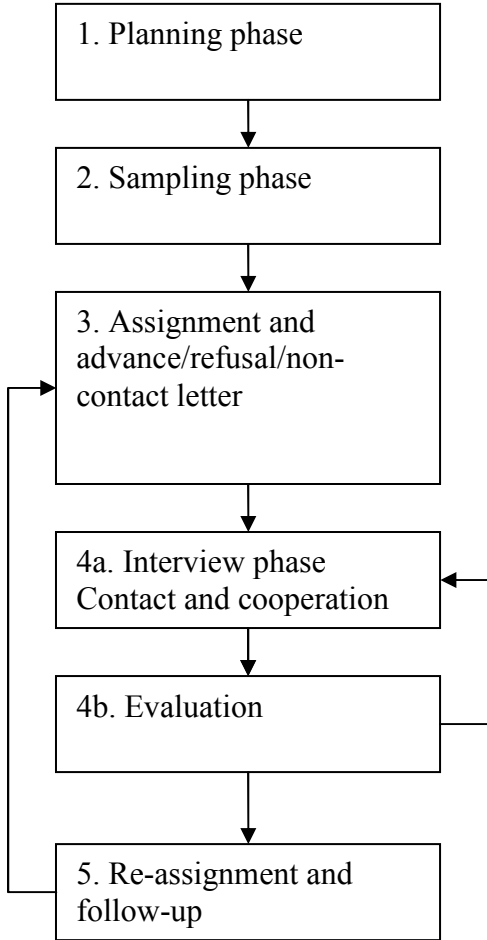
In our experiment, we can look ahead of step 1, 2, 3 and 5. Only step 4 will be different between the two samples and step 5 will not be a part of the experiment data collection this time. The difference between the regular procedure and the experiment procedure is mainly due to the fact that during data collection the R-Indicators and partial R-Indicators will be used as tools to facilitate differentiated fieldwork strategies.

The R-Indicators and partial R-Indicators will be registered on a daily basis in order to observe how the indicators fluctuate over time. However, it is probably more rational to evaluate progress once a week and then decide upon follow-up action. Actions include recalls and reassignments according to prioritised background characteristics of respondents. Background characteristics to be monitored are age, sex, centrality, education and panel status .

**Figure 1: Interview process of the control group**



**Figure 2: Interview process of the experiment group**



**2.1 Data**

The sample of LLS 2009 was linked to SN’s Population Database. The database is a copy of the National Population Register (folkeregisteret), which is overseen by the Directorate of Taxes (Skattedirektoratet). The register contains comprehensive information on people living in Norway, such as names, addresses, family size, citizenship, identification numbers, position of employment and civil status of people. The data is gathered for tax, electoral and population purposes by local tax offices. The Population Database furthermore refines some variables in order to provide more background variables, such as immigration groups, and how central to a city centre a persons dwelling is located. Hence, the Population Database yields three standard demographic background variables to be used in our monitoring, namely age, sex and centrality.

The LLS 2009 sample was also linked to SN’s Education Register, which contains information on various aspects of the Norwegian population’s education. Data on the respondents’ level of completed education was imported to monitor the data collection. Survey research shows a strong relationship

between level of education and response propensity in household surveys; respondents with a low level of education are less inclined to participate in surveys.

Table 2 below shows a distribution of the sample on the background characteristics age (grouped), sex, address (centrality) and level of education.

**Table 2: Background characteristics; number and percent of the pilot sample, and percent in population.**

	Number	Percent in sample	Percent in population
<b>Age group</b>			
18-34	944	31,5	32,8
35-59	1 553	51,8	52,0
60-69	503	16,8	15,2
<b>Sex</b>			
Male	1 570	52,3	50,9
Female	1 430	47,7	49,1
<b>Centrality</b>			
Most peripheral	275	7,2	-
Less peripheral	192	6,4	-
Less central	503	16,8	-
Most central	2 030	67,7	-
<b>Education</b>			
Primary school and lower secondary school	948	31,6	27,5
Upper secondary school	1 207	40,2	43,2
Higher education	845	28,2	29,4

Compared to population statistics, the pilot sample has a slight overrepresentation of older persons, men and persons with a low level of education. Conversely, young persons, women and persons with upper secondary school as their highest level of education, are underrepresented.

### 3. Fieldwork strategies – an outline of the experiment

The likelihood of obtaining an interview with a sample member cannot be fully predicted. Unfortunately, this type of uncertainty implies lack of control over the cost, timeliness, and ultimately the error structure of our survey data. One implication is that complete specification of the survey design *prior* to the data collection is unlikely to be optimal. Most survey designs are grounded on fixed design features prior to the initiation of data collection. These include sample design, sample size, length of data collection period, number of interviewer hours, travel costs, and, sometimes, number of calls to cases prior to the first contact, number of contacts, type and level of calling following a sample person expressing some reluctance to participate. In the presence of the uncertainties reviewed above, some of these may be candidates for real time data collection alteration.

In our experiment treatments are conducted during the data collection based on information from our indicators. Our first intervention was done to stimulate the chance of obtaining information from young adults (under 35 years). Our remedy was to prioritise young adults in the CATI call schedule. In addition our interviewers were briefed to only use available mobile phone numbers based on a hypothesis that the contactability and willingness to respond to the survey request differs between persons with different telephone accesses i.e. only land-line, only mobile phone and mix. The second and last intervention was conducted after we expanded the variables in our model to also include panel status. Based on results from the partial R-indicators we changed the prioritising of the call schedule from young adults to former nonrespondents. The interviewers were briefed on persuasion strategies.

These outlines of the experiment are broad description just to give an overview of the process. Further work will detail the evaluations undertaken, the follow-up action decided upon, and the consequent results for the data collection. Thorough analyses of representativeness, cost, response rates and other aspects of the data collection process will be conducted in the coming months and compiled in a separate report.