A Middle Class Image of Society

A Study of Undercoverage and Nonresponse Bias in a Telephone Survey

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Abstract. We studied undercoverage and nonresponse in a telephone survey among the population of the City of Groningen, the Netherlands. The original sample, drawn from the municipal population register, contained 7000 individuals. For 37 percent of them, the telephone company was unable to produce a valid telephone number. Of those with a known telephone number, 49 percent did not answer the telephone or refused to cooperate. As a result, the final respondents comprised merely 32 percent of the original sample. To study distributional bias, we used individual-level data compiled from municipal records as our benchmark. Bivariate as well as multivariate analyses showed the undercoverage to be strongly related to all sociodemographic variables studied, except gender. Nonresponse was related to age, country of origin, marital status, and household size and composition, but not to gender, unemployment, social assistance benefit, and education. Both undercoverage and nonresponse contributed to a strong middle class bias in the final data set: middle-aged and older, economically secure people, of Dutch origin and living with others in a household are overrepresented, while persons in disadvantaged and marginal positions, such as the young, people of foreign stock, the unemployed, persons depending on public income support and singles are underrepresented.

Key words: middle class bias, nonresponse, telephone survey, undercoverage

1. Introduction

Over the last decades, interviewing by telephone has become a popular instrument among survey researchers and telemarketeers alike. In a recent Dutch study, 45 percent of the respondents claimed to be called at least twice a month (Wunderink and Van Benthem, 2000). The irritations caused by these frequent telephone calls make people less and less willing to cooperate in a telephone survey. Therefore, nonresponse is a serious threat to the quality of surveys, but it is definitely not the only one and perhaps not even the most important one. Another source of bias is undercoverage. Undercoverage arises when a part of the population studied falls outside the sampling frame (usually an administrative register) and therefore cannot be examined. Undercoverage is studied rather little. As Groves (1987: S160) put it some years ago: “Coverage error is the forgotten child among the family of errors to which surveys are subject.” In this article, we want to fill this gap with

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a study of undercoverage in a telephone survey among the inhabitants of the City of Groningen, the Netherlands. We also studied the nonresponse. In this way, we were able to compare the bias caused by both types of errors.

2. Undercoverage, Nonresponse and Middle Class Bias

2.1. UNDERCOVERAGE

In a telephone survey based on a list of numbers supplied by the telephone company, persons or households without a telephone subscription, with an unlisted telephone number, or who (as in the Netherlands) have instructed the telephone company not to provide others with their number for telemarketing purposes are unavailable for study. This is the situation we were facing in this study.

The number of people dropping out in a telephone survey as a result of undercoverage has not been studied systematically in the Netherlands. However, on the basis of information obtained from KPN Telecom (the Dutch national telephone company), we can expect 25 to 30 percent of all households to get lost in this way.\(^1\) Which people drop out has not been studied frequently either, but the information available (Kersten and Moning, 1985; Kerssemakers et al., 1987; Engbersen, 1990; Engbersen and Vervaart, 1993) suggests that the population categories dropping out are much the same as in other western countries (Brunner and Brunner, 1971; Groves, 1990; Smith, 1990; Keeter, 1995).\(^2\) People from lower socioeconomic classes, with lower incomes, lower education, and long-term unemployed persons more often have no telephone subscription or an unlisted number. The same applies to the youngest and oldest age categories, single or divorced persons, and members of ethnic minorities.\(^3\)

2.2. NONRESPONSE

Unlike undercoverage, nonresponse is studied rather frequently. Since long, response rates are declining steadily (Steeh, 1981; Goyder, 1987; Hox and De Leeuw, 1994; Baruch, 1999). International comparisons reveal that nonresponse rates in the Netherlands are relatively high (Maas and De Heer, 1995).

A number of sociodemographic characteristics has emerged from research indicating which people are overrepresented among nonrespondents (O’Neill, 1979; Goyder, 1987; Hartmann and Schimpl-Neimanns, 1992; De Leeuw and Hox, 1998). Accessibility is determined primarily by living arrangements, use of time, and lifestyle: for instance, people who live on their own, are highly mobile, or have a job are less accessible. Refusers have a somewhat other profile: they are of lower socioeconomic status, less well educated, without work, older, not-married, living on their own, and of ethnic minority origin.