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Nonresponse in household surveys:
A survey of nonrespondents from the repeated cross-sectional study
”Mobility in Cities – SrV” in Germany

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Abstract

Low response rates and thus a certain level of nonignorable unit nonresponse in household surveys cause growing uncertainty about the reliability and validity of the results. Within the scope of „Mobility in Cities – SrV 2013“, 4.802 persons who had not participated in the main study were successfully encouraged to fill in an abbreviated questionnaire. Hence, it was possible to collect important information concerning the nonrespondent’s person and daily mobility. The analysis methodology used is based on multivariate analysis tools. It allows for explanations of failure mechanisms, effectiveness of weighting procedures as well as their consequences regarding potential bias of estimators.

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Keywords: nonresponse; nonresponse bias; response rate; mixed-mode survey; household survey; travel behaviour; cross-sectional survey; multivariate analysis; logistic regression; propensity score

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1. Introduction

The household survey “Mobility in Cities – SrV“, conducted periodically since 1972, was carried out for the tenth time in 2013. Starting in January 2013, more than 120,000 persons in over 50,000 households retrospectively reported their daily mobility behavior for specified travel days. The survey was conducted as a mixed-mode survey. Depending on the success of obtaining a landline telephone number, households were either written to once and subsequently interviewed directly per landline or, in a first stage, sent a short questionnaire requesting they supply a telephone number (screening) before completing the telephone interview in a second stage. Both sample groups were able to participate online during all stages using a personalized login to access the form. A fundamental discussion of advantages and disadvantages of mixed-mode strategies, including expected nonresponse bias, can be found for example in de Leeuw (2005), Dillman et al. (2009) and Beebe et al. (2012). Braunsberger et al. (2007) contribute an interesting argument for the higher level of reliability of online surveys in contrast to telephone interviews due to the lack of interview effects.

In recent decades a clear decline in response rates in household surveys can be observed in developed countries (Groves, 2006: 647; Smith, 2011: 389; Beebe et al., 2012: 1739; Massey & Tourangeau, 2013: 226). This trend is continuing. Brick & Williams (2013) attempt to provide a detailed explanation for the decreasing responsiveness in cross-sectional surveys in the USA. The response rate achieved during the SrV 2013 survey totaled 23 percent (see Fig. 1). This number suggests that only one in four contacted households participated in the survey. Similar results could already be seen in the last round of repeated cross-sectional surveys of German travel behavior SrV 2008 as well as MiD 2008 (NHTS).

A high nonresponse rate does not have to be associated with a nonresponse bias per se and there is no minimum response rate, under which biased estimators are necessarily to be expected (Groves, 2006: 650). However, participation is generally seen as one of the most important evaluation criteria for determining the quality of survey data, although it constitutes only one of several components of a potential nonresponse error (Groves, 1989: 133, Shlomo et al., 2012: 201). Participation as the sole quality criterion is therefore misleading.

For example, in depth analyses of one of the largest German studies in social sciences (ALLBUS) from 1994, 1996 and 2000 show that for random samples no appreciable systematic distortions have to appear even with a response rate of less than 50 percent (Schneekloth & Leven, 2003: 16). The 2009 nonresponse study carried out for the 2008 SrV also reached a similar conclusion (Ahrens et al., 2009: 30). Studies outside of Germany follow the same reasoning. According to these studies, efforts to increase the response rate frequently have only limited influence on the nonresponse error (Fricker & Tourangeau, 2010: 935, Davern, 2013: 908).

It is, however, indisputable that a high response rate is not only desirable but also an important criterion for evaluating surveys, since high response rates reduce the risk of a potential nonresponse bias (Shih & Fan, 2009: 27). The decline in response rates has led to an increased awareness in the research field for carrying out more detailed nonresponse analyses and, in particular, complex (and costly) studies of the occurrence of nonresponse bias (Groves, 2006: 657). However, without examining nonrespondents the occurrence of distortions cannot be ruled out.

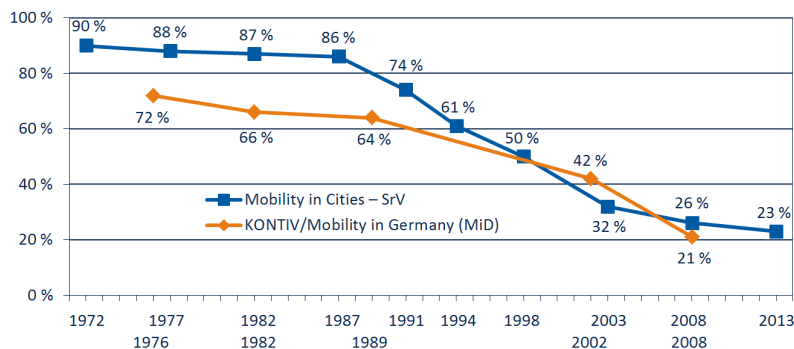


Fig. 1. Development of the SrV and KONTIV/MiD responses since 1972 (KONTIV/MiD survey response rates: Scheiner, 2009: 77; Follmer et al., 2003: 52, and 2010: 27).

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