

IAB-Colloquium zur Arbeitsmarkt- und Berufsforschung

Evaluating Effects of Mode Choice on Selection Error in Surveys of the Dutch General Population

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The extent of selection error in a survey estimate is an important quality criterion of survey designs. The choice of survey mode has perhaps important implications for the extent of expected selection error. In fact, the primary motivation to conduct mixed-mode surveys is the concern for larger selection error in some modes with low response rates and incomplete frame coverage, such as web surveys. Mixed-mode surveys can increase response rates and reach non-covered population units, which might signify potential to reduce selection error. However, in the absence of validation data it is usually unknown, whether selection error differs across single-mode surveys, because mode-specific selection error is confounded in mode comparison studies with mode-specific measurement error. Likewise, it is normally unknown, whether mixed-mode surveys can reduce selection error.

In this lecture, selection error and mode-specific differences are first defined formally on the level of probability distributions. Subsequently, methods to estimate the strength of mode-specific differences in selection error are discussed assuming that the analyst has validation data that is free of measurement error or equal in measurement error for all units and modes. We then apply a specific method, dissimilarity indices from log-linear models, on a specific data set.

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zur Arbeitsmarkt- und Berufsforschung

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The practical problem, which needs to be solved first, is acquiring such validation data. Typically, socio-demographic variables are used for this assessment. These can either be assumed free of measurement error in all modes or are available from an external source, such as a register. However, socio-demographic variables are not very informative about selection error on the target variables of a specific survey, such as opinions or answers to factual questions. Acquiring validation data for target variables is, however, more complicated, because measurement error cannot be assumed equal across all modes. It is proposed that this problem can be addressed by a special two-wave experimental design. In this design, units are first randomly assigned to different survey modes (in our case face-to-face, telephone, mail, and web), but then all units are approached again by a single mode where many questions are repeated (e.g. face-to-face). These re-measurements are then treated as validation data with unit nonresponse, where measurement error is now equal for all units due to single-mode measurement.

In the present application, the four major contemporary single-modes of data collection and three sequential mixed-mode designs are compared in the context of the Dutch Crime Victimization Survey ('CVS'). Contrary to our expectations, only small differences in selection error between the single-mode designs were found on socio-demographics and CVS target variables (e.g. factual questions about victimization and attitudinal questions about safety). The impact of mixed-mode designs on selection error was also negligible. These results question the necessity of a mixed-mode design as a tool to reduce selection error in the CVS. Should results generalize to more diverse contexts, our findings strongly challenge current research practice using mixed-mode surveys.