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Workshop Synthesis: Comparing and combining survey modes

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Abstract

This paper summarizes the discussions held during an in-depth six-hour workshop on the challenges of combining data from different survey modes with the anticipated aim of identifying current research needs. The main theme of the workshop was mixing survey modes as a way to meet the challenge of low response rates. However, the use of multi-mode surveys introduces new sources of bias: not all households have access to certain survey media (coverage bias); the response rate using one or another of the survey modes is correlated with social demographics (non-response bias); the sampling frame is dependent on the mode (sampling bias) or the instrument itself may affect the responses (measurement bias). The aim of this report is present the workshop's discussion on the identification of research needs with related to combining data from different survey modes.

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Keywords: survey modes; combining survey data; travel survey; face-to-face survey; telephone survey; web survey

1. Introduction

This paper summarizes the discussions held during an in-depth six-hour workshop on the challenges of combining data from different survey modes with the anticipated aim of identifying current research needs. The workshop benefited from the participation of 22 individuals from 12 countries all around the world. As a result there was a good coverage of contexts and experiences in combining data from more than one survey mode.

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The paper opens with a short overview of the papers which were presented in the workshop (Section 1). The sources of biases due to the choice or mixture of survey modes are discussed (Section 2) and the research needs are identified (Section 3).

2. Presented papers

Bayart and Bonnel (2014) presented comparisons of data collected from three different survey media in two separate household travel surveys. In each case web surveys were administered to those who refused to respond or could not be contacted for a face-to-face or telephone interview. A systematic socio-demographic bias was noted for respondents who eventually filled out the survey online. After applying corrections for these biases, web based respondents were still found to report lower mobility as compared to the face-to-face or telephone interviews. The paper goes onto apply a method to detect under-declarations for each specific mobility indicator.

Assessing the impact of new bicycle track on the prevalence of cycling and perceptions of safety, the second paper from Dill et al. (2014) compared data obtained from traditional survey methods with on street video surveillance. Two modes of self-reported surveys – mail-out/mail-back and web surveys – were augmented by ongoing video observations and traffic counts along the cycling route. The authors focused on controlling for the desirability bias.

Seary et al. (2014) reported on a computer-aided software field trail for face-to-face household travel surveys. They note that results from the computer aided collection were consistent with their ongoing pen and paper survey instrument. The migration toward computer-aided surveys seems therefore desirable, but the authors insist on the need to investigate the usability of the software and to take advantage of mapping tools for address geocoding. The last paper from Hess et al. (2014) discusses the potential of combining "simple" stated preference surveys with simulator experiments.

Three posters were also presented. Christensen et al. (2014) outlined the process of post-harmonization of eleven National Travel Surveys and the results in terms of data comparison. Tebar et al. (2014) presented the test of two survey media (web and postal) for the realization of a panel survey. Lastly Fifer and Rushton (2014) investigated the impact of survey media (face-to-face vs. web) in scale measurement for customer satisfaction surveys.

All papers and posters provided useful input for the workshop discussions.

3. Main biases related to survey media

The main focus of the workshop was how to achieve representativeness of the targeted population even when multiple media was employed to recruit respondents and collect data. The workshop adopted standard classifications of biases (e.g., Groves and Lyberg, 2010; Alsnih, 2006). These divide the sources of bias into coverage bias, sampling bias, non-response bias and measurement bias. The discussions on each source focus on the contribution towards the bias of survey media.

3.1. Coverage bias

In theory coverage biases are lower for face-to-face surveys in part because they do not rely on access to a telephone or to the internet. However, in practice the availability of an accurate and up to date database of households affects all survey modes. Sampling methods should be based on a frame which covers the whole targeted population, but the quality of the databases used as the sampling frames varies greatly. Typical registries are the census, telephone listings, public utility billing data and the post office's households address listings. No matter which frame is chosen limitations exist. The database will contain errors, not be completely up to date or omit a segment of the targeted population (e.g., homeless people or an individual in institution). It is necessary to assess the limits of each database and to evaluate the risk of biases being introduced and how they will impact the objective of the survey.