

# Dissertation Defense

## Mobile Web Surveys: a First Look at Measurement, Nonresponse, and Coverage Errors

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Via video to 1218 LeFrak, JPSM at University of Maryland

Respondents are increasingly responding to Web surveys on their smartphones instead of their personal computers (PCs), and this change raises several questions related to quality of data obtained from “mobile Web” surveys. For example, can respondents accurately record their answers when using a small screen?; who is willing to respond to such surveys?; and do these surveys allow for inference to general populations? Careful evaluations of survey data quality in mobile Web surveys, which can inform approaches to reduce errors, are starting to be published but are still somewhat rare. Furthermore, most of the research in this area is limited to focusing on only one source of error rather than multiple sources. The primary purpose of this dissertation is therefore to investigate the implications of this new mode for various sources of error using a Total Survey Error (TSE) perspective.

Each chapter reports on a different aspect of a two-period crossover experiment that I designed to compare the effect of completion device (smartphone vs. PC) on survey errors. The experiment was carried out using the LISS panel (Longitudinal Internet Studies for the Social Sciences), a probability-based Web panel administered by CentERdata at Tilburg University in the Netherlands.

The first analysis (Chapter 2) compares response quality in the two modes. When using smartphones, respondents in this study really were more *mobile* and more engaged with other people and other tasks compared when using PCs. Despite this, response quality – conscientious responding and disclosure of sensitive information – was equivalent between the two modes.

The second analysis (Chapter 3) investigates the causes of nonresponse in the mobile Web version of the experiment. I found that several social, psychological, attitudinal, and behavioral measures to be associated with nonresponse. These include not only factors that are known to influence participation decisions in other modes such as personality traits, civic engagement, and attitudes about surveys, but also factors that may be specific to this mode such as smartphone use, social media use, and mobile e-mail use.

The third analysis (Chapter 4) estimates multiple sources of error simultaneously in the mobile Web version of the experiment. Errors are estimated as a mode effect against the PC Web survey, which serves as the benchmark. I find few overall mode effects and no evidence whatsoever of measurement effects, but a significant impact of non-coverage bias for over one-third of the estimates. Collectively, these findings suggest that non-observation errors (i.e., coverage and nonresponse), not measurement errors, are the largest obstacle to the adoption of mobile Web surveys for population-based inference.