Chapter 3
Volunteer Panel Web Surveys in Urban Planning

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ABSTRACT

Web surveys have been adopted as a practical data collection tool notably due to their economic nature and a fast turn-around time. One popular type of Web survey bases the sample on a group of Internet users who voluntarily join survey panels. Often labeled as a "volunteer panel Web survey," this approach is widely used in various social science studies, including urban planning. Unfortunately, its practice appears to have highlighted its benefits and downplayed its limitations. This chapter provides an overview of volunteer panel Web surveys, including their operational procedures and methodological advantages and disadvantages. Arguably, its main methodological disadvantage is lacking representativeness of the results arising from selection biases in the selected samples. A post-survey statistical adjustment based on propensity score analysis has been suggested as a potential solution. The author introduces detailed procedures of propensity score adjustment and discusses future research directions for improving the utility of the volunteer panel Web surveys.

INTRODUCTION

Technological developments have made Internet an everyday communication medium in many places around the world. According to World Bank (http://data.worldbank.org/indicator/ IT.NET.USER.P2), over twenty countries show an Internet penetration rate over 70%. It is now a standard practice to use email address as main contact information, and Internet has become a solid communication channel in the society. Especially with the emergence of smart phones, Internet is more accessible than ever before.

Most research data for social sciences including urban planning as opposed to natural science are collected through communication with people. Of course, there are social science studies using data from administrative or patient records or researchers' pure observations, hence, not involving any communication. However, because human society is the ultimate research object in social sciences, communication is indispensable in data collection. Any changes in how people communicate directly influence data collection methods (Dillman, 2000; Tourangeau, 2004). Naturally, researchers and non-researchers alike speculate the utility of Internet as an emerging data collection and research tool. The field of survey methods has examined the possibility of using Internet as a data collection medium (Couper & Miller, 2008). Internet provides unique benefits and challenges and has its own place in research. Data are collected to generate new knowledge. This knowledge is at times aimed to be exploratory and other times generalizable. For population-based research which relies on sample survey data, Internet is still regarded as having numerous inferential issues to overcome as theoretical underpinnings are lacking to support inferential representativeness (Couper, 2007).

It is important to note that there is a fine difference between Internet as a research tool and a data collection tool. Data collection is one part of research activities. Other research activities, such as facilitation of research topics (e.g., behavior interventions, educational curricula) or dissemination of research information, can be carried out successfully via the Internet. While seemingly convenient, lumping different Internet research activities may blur assessing the value of Internet as a research tool (e.g., Farrell & Petersen, 2010). Therefore, this chapter will focus on the Internet as a data collection tool.

More specifically, this chapter will attempt to provide practical understandings about inferential properties of volunteer panel Web surveys. In the following section, different types of web surveys will be reviewed, and volunteer panel Web surveys will be compared to other types of Web surveys with respect to sampling and operation processes. The main focus of the chapter will be on the problematic inferential statistical properties of volunteer panel Web surveys. Propensity score adjustment, a remedy proposed for such problems, will be introduced in detail along with its caveats. Potential future research topics will be suggested as a way of improving the effectiveness of propensity score adjustment. A discussion on the trade-off between cost savings and expected errors of volunteer panel Web surveys will conclude the chapter.

BACKGROUND

The most frequently noted data quality issue of Internet-based surveys is their lacking coverage for the general population. Unlike the telephony communication system where only a small proportion of the general population may be missed in the developed parts of the world, Internet is not used by a sizable amount of the general population. Moreover, Internet nonusers are known to be different from users: they are likely to be older, less educated and less affluent. This is termed as, "digital divide," which in turn is related to numerous characteristics that research addresses.

One of essential element of any survey data collection is the frame from which samples are drawn. Often, frames are a list of individual units in the well-defined population of interest. They contain contact information of the units which allows researchers to contact sampled units and conduct interviews to collect data. An issue more troubling than the coverage for the Internet to become a practical single-mode data collection tool is the fact that there are no reliable frames. When considering an Internet survey targeting the general population, a list of email addresses of all population units where one individual unit in the population is matched to one email address

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