

Measuring Network Size and Recruitment Productivity in Respondent Driven Sampling

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Abstract

Respondent driven sampling (RDS) has been used as a method to sample from populations with sampling frames that are difficult to construct, in particular rare, hidden, and/or marginalized populations. This method leverages the respondents' social networks to reach people from the target population. Though a popular method touted for being able to overcome the issues of cost and efficiency in reaching these populations, slow recruitment in RDS studies has been reported. In addition, there is no standardized way respondents are asked for their network size, which is used to developing sampling weights to account for the overrepresentation of highly-networked individuals. This dissertation focuses on the methodological issues in planning RDS research, starting with the construction of the personal network size (PNS) question, followed by an attempt to understand the peer recruitment process, and finally, RDS study characteristics that are associated with successful RDS data collection.

The first study examines how respondents interpret and answer a set of PNS questions commonly asked in RDS studies. This work shows that respondents interpret PNS questions very differently from each other, and that general PNS question appear to have more measurement error compared to specific PNS questions (more heaping responses on the general PNS question in the web-RDS, more ranges and estimation given in the in-depth interviews). Therefore, PNS questions need to be more specific and target the network of likely invitees. The second study examines the peer recruitment mechanism in RDS studies. It shows that respondents cooperate with recruitment requests due to altruism, monetary incentive, and interest in the survey topic but that cooperation can be harmed by insensitive survey question-wording. The "top of mind" for RDS respondents in terms of the alters they prefer to invite are those who are similar to them in age, race, and ethnicity, friends, those perceived to be close, and whom they have known for at least a few years. Younger respondents seem better at recruiting their alters into an RDS study in a web-RDS setting than their older counterparts. The third study examines the characteristics of RDS studies in recent years to understand what characteristics, if any, are conducive to a successful RDS study, defined by its overall productivity (how well did the RDS study manage to adhere to the target sample size) and overall seed productivity (the number of recruits each seed generated on average). This chapter indicated that fielding an RDS survey on the web is associated with lower overall productivity, while seed productivity is affected by the location of the RDS study. RDS studies fielded in the U.S. have lower seed productivity compared to studies fielded outside of the U.S.