1. Background on University of Michigan's Survey Research Center.

UM's Survey Research Center is an academically-based survey research organization. SRC conducts surveys on behalf of investigators housed within UM's Institute of Social Research, investigators at other universities, and is a contractor on surveys for the federal government. These surveys include the Health those listed in Table 1.

Health and Retirement Study	Panel	Face-to-Face, Telephone
Panel Study of Income Dynamics	Panel	Face-to-Face, Telephone
Monitoring the Future	Cross-section, Panel	PAPI, Mail, Web
Survey of Consumers	Rotating Panel	Telephone
National Survey of Family Growth	Cross-section	Face-to-Face
Army STARRS	Panel	Web, Telephone

Most of these studies use sampling frames that have very little information. Our face-to-face surveys use area probability sampling. These frame have population characteristics at various levels of geography. The exception is the Army STARRS project which links consenting soldiers to administrative data from the Army.

These studies use are in-house sample management system, SurveyTrak, to collect call record data, interviewer observations about neighborhoods, housing units, and persons. Interviews are largely conducted using Blaise software. These data are processed on a nightly basis into monitoring tools designed specifically for each project.

SRC is currently building a new sample management system that is labelled the Michigan Sample Management System (MSMS). This sample management system is specifically designed for mixed mode surveys.

2. Current Use

The NSFG has been using responsive design techniques since Cycle 6 in 2002. Since 2006, the NSFG has been run on a continuous basis. This design allows changes to be made over time in order to improve the design. We monitor a variety of indicators. Some of these indicators relate to the risk of nonresponse bias. For example, we monitor the proportion of households with and without children that respond. If these rates become imbalanced, we intervene to restore this balance. See Wagner et al. (2012) for a summary of current status, and Kirgis and Lepkowski (2013) for a discussion of how the initial design was developed.

Many experiments have been run to evaluate changes in design. For example, we are currently evaluating early prioritization of cases predicted to be eligible. Eligible cases tend to more difficult to recruit and take longer. Therefore, prioritizing these cases earlier may improve outcomes.

3. Current Research

I have been exploring the use of regression diagnostics to guide data collection (Wagner, 2014). The idea is to estimate models predicting the survey outcome variable and store the regression diagnostics. We then prioritize cases that are highly influential. These are regions of the covariate space with high variance and/or low numbers of interviews. I implemented an experiment on the NSFG where I prioritized cases for one week of a twelve week quarter. I found that this method can led to the recruitment of different kinds of persons, but it was difficult to influence the overall estimates. I proposed to expand this experiment to be conducted earlier in the field period and for a longer time than just one week. This experiment is in the queue.

A second area of research has to do with understanding interviewer decisionmaking in the field. A few years ago, I found that interviewers in the field would not follow recommendations for calling times. Since then, I have been exploring how interviewers make these decisions. We have conducted several surveys of interviewers and used GPS to follow their paths through area segments. We are currently examining which "strategies" are associated with successful field outcomes (response rates, contact rates, etc.).

Along with Gina Walejko at the US Census Bureau, I am looking at interviewer compliance with centrally specified protocols. In field studies, compliance with recommendations from the central office is an important prerequisite for adaptive designs. In this case, we are examining whether interviewers expended more effort on cases that were prioritized by the central office. The prioritizations were based on the results from response propensity models.

We are in the planning stages for a series of follow-up surveys with the Army STARRS respondents. These surveys will have a web-telephone design. We are currently developing rules for phase boundaries and building complementary design features in each phase. We are analyzing existing data for these purposes. We are also planning several experiments. Data collection will begin in October.

I have been working with the National Agricultural Statistics Service. They conduct a quarterly survey of agricultural operations. This is an establishment survey. However, many of the establishments are also households (owner-operator farms). We are using simulations to identify operations that lead to changed estimates when they fail to respond. NASS does a Census of farms every 5 years. We use data from the Census and paradata from the quarterly surveys in the simulations. Our goal is to identify farms that change adjusted estimates when they fail to respond and have response propensities that can be manipulated. Large operations do not fall into this group since they already receive maximal effort. For example, we might identify a subset of medium-sized operations that are difficult to contact.

4. Proposed Research

I've been working with Brady West and Michael Elliott to look at how to specify priors for daily response propensity models. We look to use existing data, but also methods for incorporating expert opinion. We are also looking at using a Bayesian framework for updating design parameters during data collection.

Mike Elliott and I have a proposal under review to run an experiment to see the impact of maximizing different indicators on nonresponse bias. The survey would use a sample frame with some interesting

variables on it. These variables are to be used as a gold standard. This would allow us to assess nonresponse bias across different designs. Each of the designs is aimed at maximizing different indicators. The indicators would include the response rate, R-Indicator, and the regression diagnostics. The focus is on empirical justification for adaptive design aimed at maximizing alternative indicators.

5. Collaborations

I have been working with Brady West and Mike Elliott on related problems. We have a proposal under review on developing priors and modeling paradata with Bayesian approaches. I am also working with Mike Elliott on evaluating nonresponse indicators both theoretically and experimentally. On the theory side, we are interested in the behavior of the fraction of missing information when data are NMAR.

I have been working with the Census Bureau. They have conducted two field experiments of adaptive design methods. My work has been mostly on interviewer compliance with the protocol.

I continue to work with Jaki McCarthy and folks at NASS on the problems described earlier. We expect to have our simulation work done by the end of the academic year.

National Institute of Statistical Sciences (NISS) is interested in organizing a workshop on adaptive design. This workshop would likely be held in May 2016. Past workshops have included invited presentations, brainstorming, and resulted in white papers on various topics.

References

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