

## DISCUSSION

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The paper by Judith Lessler *et al.* presents a methodology highly suitable for longitudinal surveys. Politz-Simons techniques and extrapolation methods which relate the effort required to obtain a response—the number of callbacks or of mail requests—to the response obtained are not suitable for longitudinal surveys.

Diagram 1 depicts the procedure outlined in the paper.

As shown in the diagram the parameters of interest in the study of the impact of nonrespondent subsampling on precision are the four nonrespondent subsampling fractions  $r_2$ ,  $r_4$ ,  $r_6$ , and  $r_8$ . The following table indicates a possible selection.

**Table 1**  
**Possible Settings for the**  
**Nonrespondent Sampling Fractions**

	$r_2$	$r_4$	$r_6$	$r_8$
Design 1	1.0	1.0	1.0	1.0 (Full sample)
Design 2	0.1	0.1	0.1	1.0
Design 3	0.1	1.0	0.0	1.0
Design 4	0.1	0.1	0.1	0.5

Design 1 corresponds to the procedure—no subsampling of nonrespondents. Design 2 corresponds to subsampling; all nonrespondents are intensively followed up in all later follow-up studies. In Design 3, nonrespondent subsampling is done in the first follow-up study, but (1) in the second follow-up study none of the unselected nonrespondents of the first follow-up study are intensively followed up, and (2) all of the respondents of the first follow-up study are intensively followed up in the second follow-up study. This design is appropriate under the assumption that it is approximately the same group of persons who are nonrespondents in both follow-up studies (for then,  $n_4$  is relatively small and  $n_6$  is relatively large).

It should be recognized that the response rates may vary considerably across different subpopulations. This situation suggests that it may be desirable to employ different nonrespondent subsampling rates to these different subpopulations.

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N. M. Lalu and P. Krishnan's paper certainly presents an easy rule through a sequential procedure to estimate the sample size needed for normal approximation in finite population sampling. However, the most important concern of the survey statisticians in this regard is the distortion of the confidence interval due to imperfect normal approximation. Hence, a very useful extension of their work will be to calculate the 95 percent confidence intervals for different values of  $\epsilon$  in different populations and also examine the rate with which they approach the standard  $\pm 2\sigma/\sqrt{n}$  interval.

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The statistical community of the new world is certainly thankful to Ali Rashid and John Rumford for keeping us informed of the surveys that are being conducted in the Kingdom

of Saudi Arabia. The decision to resort to sample surveys rather than complete enumeration was certainly a wise one.

The trend survey includes a set of only four questions and is conducted by interviewers visiting the establishments. I was wondering whether the survey could be conducted by mail, especially for those units which are not included in the sample for the other three surveys.

The construction survey is conducted in September. Is it possible that the on-site subsample will provide an underestimate since construction work may be curtailed in June-September due to extremely hot weather?

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Martin David's paper is certainly very timely and the difficulties involved in such a survey are truly monumental. Various components of wealth have to be clearly defined and complementary surveys have to be conducted to estimate those various components of wealth—which together will provide estimates for total wealth.

The apprehension of a large proportion of nonresponse is, of course, natural. However, we must bear in mind that before Kinsey's monumental work in the '50's, few statisticians believed that information on sex lives of people could be obtained through standard sample surveys. The same may be true for surveys aimed at estimating wealth. After all, people are becoming more and more aware that in surveys conducted by the government, the privacy and confidentiality of the information provided by the respondents are truly respected.

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National network surveys of diabetes by Monroe Sirken *et al.* is another application of the multiplicity survey technique introduced by Monroe Sirken nearly 15 years ago. It is not very difficult to understand the counting rule weight. Consider a diabetic with, say, four siblings. Visualize that he is cut up in five parts and one part is deposited with each of the four siblings and one part is kept in his house.

In our culture many people, especially old people, are out of touch with their siblings. Hence, the dejure sibling estimate may possibly be an underestimate. It seems to me that there is one way one can check to see if there was overreporting of diabetic parents or underreporting of diabetic-selves by enumerated persons in the data. Take the households where the parent lives with at least one child. Assuming that the person's information and the child's information coincide, compare the proportion of parents with diabetes living with children with parents not living with any one of the children.

One reason for the discrepancy between the dejure and the dejure-children estimate is that the survey covered only households and diabetes patients have a considerable chance of being hospitalized or living in a nursing home.

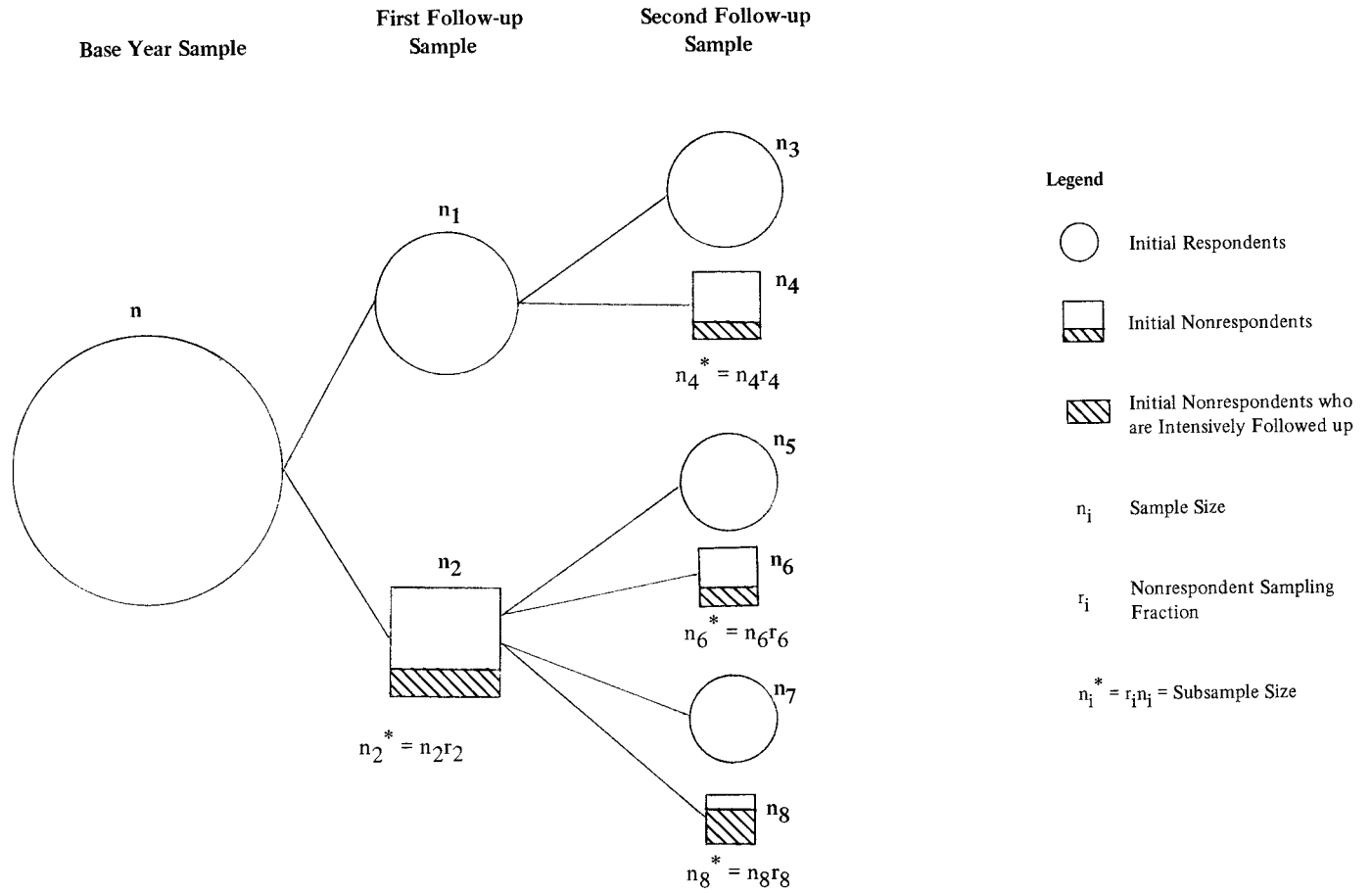


Diagram 1. Illustration of Nonrespondent Subsampling in a Longitudinal Study