

DISCUSSION

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The subject matter, measurement variation over time, was too interesting to pass on an eleventh hour request to replace a speaker as the discussant. Yet, I was concerned about time to prepare and maybe more so about being the last speaker of the last session on the last day and only several blocks from Disneyland. Then I realized that the people who would be most concerned were the authors who were not expecting a discussant and now had to have a paper and presentation ready for one. At a minimum, I hoped to find some clever way to tie the papers together. This task was a challenge since the organizers, Pat Guenther and Dan Kasprzak, did an excellent job of selecting papers with common threads and interesting differences.

These papers use the term measurement variation very broadly, considering the spectrum of error sources which can result in biased parameter estimation. Frame changes, specification error, and nonresponse error were considered as well as measurement errors in the familiar response error sense. All of these sources contribute to the variation of the estimates over time, that is, they affect the reliability of the series. The authors deserve thanks for presenting some very interesting examples of the problems.

In these times of shrinking budgets and increasing demands for data, it is hard to find the resources to assure a reasonable mean squared error of the estimate in one year. Yet, these papers provide a reminder that differences between years also need attention. We must consider the implications of well intended reductions of the bias in a given year, a situation where good turns bad if we can not quantify the effect on period to period estimates of change.

Three elements of interest are common to these papers: The idea of a meaningful difference, a review of errors, and explanation of the methodology used to evaluate the reliability of the series. Pat Guenther presents testing issues (Effect of Procedural Differences in the Nationwide Food Consumption Survey). She discusses basic but important and often forgotten decisions including defining a meaningful difference and evaluating the power of the test. More discussion of these ideas would be useful in the NCHS paper (Implications of Changes in Laboratory Methods - Comparing Results From Several Cross - Sectional Surveys) since there was brief mention of a lack of power for some items.

Error reviews or error profiles help sort out the errors in a survey. The effort, followed by Pareto analysis (concepts used to improve processes), can help find errors needing immediate attention, and help with funding decisions when resources are limited. Extensive error reviews can help to stimulate interest in a survey which has been neglected or assumed to be in great shape. The profiles can also present documentation for changes in a well controlled survey. Tom Smith's Table 2 is an example which I especially liked.

Half samples are a common testing methodology. Tom and Pat discuss this methodology a bit. Often studies were done in only one period. What about

effects which change over time, such as the interviewer's understanding of new procedures? Although resources often restrict us, one study may not be enough!

Now, focusing on Pat's paper, I have two comments. First, the lack of difference due to the changes in interviewer procedures is interesting. Assuring stability of the level is a performance standard which is sometimes overlooked. Possibly because it is often difficult to generate enthusiasm and resources to study procedural changes which we expect will make a difference in the level of the statistic. This survey can be commended for the commitment to study possible level changes. Not finding a level change makes me curious about why the procedural changes were called "improvements." Perhaps reasons such as enumerator preference or lower cost could be provided. My second comment is a commendation on the quality of the presentation. We all have good excuses, like lack of resources or time, for not producing eye catching graphics, yet we should recognize the value of these materials for conveying descriptive information in a captivating manner.

The draft of the paper by Johnson, Looker and Gunther could use more detail. Still, I fully agree with their conclusion which asks for historical documentation of changes in and studies of the survey.

Similarly, I agree completely with Tom's opening sentence: "The way to measure change is not to change the measure." Unfortunately, such as strict code would present problems itself. Who will want to work on a survey which could not be changed? Staff willing to do so may not be able to see a problem developing as the target population changes in ability or desire to respond as specified. Allowing change presents the formidable task of creating an institutional memory. For example, Tom's table 1 presented a list of changes which is half the paper. Such thorough documentation is commendable. I was even more in awe, given the volume of change, when I read: "Overall, GSS has succeeded in its mission of monitoring true change free of measurement effects." It is a heroic effort if all the studies had sufficient power to measure all effects. It would certainly leave most of us in Federal survey work envious of the GSS for having such resources.

In closing I would again like to thank the speakers for their informative and clear presentations of issues and experiences in measuring change over time. We should now better appreciate the difficulty of ensuring that we have good measures of change. I hope interest in this area grows. Specifically, I would like to see more guidelines on when to consider change and methodology developed to incorporate procedural changes more formally. Remember the authors' message that we cannot stop looking at these problems in subsequent periods.

I hope all the authors' dreams for research resources come true. In any case, I feel good about the future of these surveys with such dedicated people looking after them.