ON PROVIDING POPULATION DATA TO IMPROVE RESPONDENTS' ESTIMATES OF AUTOBIOGRAPHICAL FREQUENCIES

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INTRODUCTION

Recent research has shown that survey respondents are not very accurate in estimating autobiographical frequencies (cf. Marquis, Marquis and Polich 1986; Burton and Blair 1990). Autobiographical frequency questions, once considered simple to answer, are now known to present respondents with a formidable memory task that often results in large errors.

One possible way to reduce the burden that frequency questions place on respondents' memories, and possibly improve subsequent estimates, is to provide respondents with data about the distribution of frequencies in the population. Population data are always available, from survey pre-tests if from no other source. Such information may help respondents scale their estimates, and/or facilitate a rapid "anchor and adjustment" estimation process that is more accurate than the processes it replaces.

Will respondents use population data if provided? There is quite a bit of psychological research on magnitude estimation, such as the research on "anchor and adjustment" effects, which suggests that respondents will be influenced by any quantitative information presented to them. Also, and more specifically, Schwarz et al. (1985) show that frequency estimates are affected by the response categories offered in closed-ended frequency questions, and hypothesize that these effects occur because respondents use the response categories as information about the distribution of frequencies in the population. This explanation, if correct, implies that respondents will use direct information about the population distribution to guide their answers to frequency questions.

On the other hand, Schwarz (1990) notes that respondents are most likely to be influenced by response categories when they have little other information on which to base their answers. For example, response categories have much larger effects when respondents are asked to estimate magnitudes for others than when respondents are asked to answer for themselves. Since respondents should be able to draw on some memory base in making autobiographical frequency estimates, population data may have little influence on these estimates.

Even if respondents use population data in making frequency estimates, will the result be beneficial? For population data to help respondents, it seems that they would need to have a reasonable sense of how their personal frequencies compare with those of others. In fact, for population data to improve estimates, it seems that respondents would need to have a better sense of relative frequency than of absolute frequency. We think

this condition will not often be met.

A plausible scenario, in our opinion, is that providing respondents with information on the population distribution will encourage them to move autobiographical frequency estimates toward the middle of that distribution. This might occur because of the leading effects of appeals to the norm, or simply because people think that others behave as they do. The move toward the middle of the distribution would reduce the variance of frequency reports. It also would tend to lower their mean, because most behavioral frequency distributions have longer tails on the high side and are likely to show more effects from compression on this side. There would be large gains in individual-level accuracy for respondents who cannot or will not do a good job of frequency estimation and thus might give wild answers without the stabilizing influence of the population data. On the other hand, the movement toward the middle of the distribution would cause a loss in accuracy for many individuals, and, by reducing discrimination among respondents, would make the frequency reports less useful for cross-tabular or correlational analyses. Overall, the effects of population information on the quality and usefulness of frequency estimates would depend very much on the quality of those estimates without population data, and on their intended uses.

We undertook the present research to learn more about how survey respondents might use population data in estimating autobiographical frequencies. Our research was exploratory, but we did have certain expectations. We thought that respondents generally would show less confidence in estimates of their relative frequencies than in estimates of absolute frequencies. We also thought that respondents would not consider population data very helpful in making frequency estimates. Nonetheless, we thought that population data might influence estimates. We thought this influence would be very small for infrequent, vivid, and/or regular behaviors, because respondents would have a strong sense of autobiographical frequency for such behaviors (based on episode retrieval or knowledge of an occurrence rule). We thought the influence of population data would be greater for frequent, irregular and/or non-vivid behaviors. We also thought that population data would be considered more helpful and would be more influential for relatively public behaviors, because respondents would have a better sense of relative standing on these behaviors. Finally, we thought that the influence of population data would vary across different forms of presentation.

METHODS

We conducted two studies to explore our ideas. Both studies used self-administered questionnaires, with junior-level students from Marketing classes at the University of Houston as respondents ($n = 178$ in Study 1, $n = 536$ in Study 2). These students mostly are in their early 20s, have independent living arrangements, and should average higher cognitive skills than the

population at large.

Study 1 had two phases. In the first phase, respondents were asked a series of open-ended questions measuring absolute autobiographical frequencies. One-half of the respondents provided frequencies for a one-week time frame, and one-half provided frequencies for a six-week time frame. After answering these absolute questions, respondents were asked how confident they were that each answer was correct (very confident, moderately confident, slightly confident, or not at all confident). Next, respondents were asked how their absolute frequencies would place them within their Marketing class. One-fourth of the respondents provided these relative estimates in thirds (e.g., would their absolute frequency of eating at restaurants place them in the highest 33%, the middle 33%, or the lowest 33%), one-fourth answered in quartiles, one-fourth answered in quintiles, and one-fourth provided open-ended percentiles. (The four relative frequency measures were crossed with the two absolute frequency time frames in a 4 X 2 between-subjects design, with random assignment of questionnaires to respondents.) Finally, respondents were asked how confident they were that each relative frequency estimate was correct.

Behaviors measured in Study 1 were: consuming soft drinks, washing clothes, dining at restaurants, eating hamburgers, seeing a movie at a movie theater, watching movies on TV or videotape, making long distance telephone calls, reading from magazines, shopping for clothing, making a purchase from a vending machine, writing checks, withdrawing money from an automatic teller machine, and using credit card to make a purchase. These behaviors were intended to cover a range of vividness, frequency, regularity, and publicness. We had used several of the behaviors in previous studies of respondents' cognitive processes (cf. Blair and Burton 1987; Burton and Blair 1990).

In the second phase of Study 1, conducted two months later, the same respondents were asked for open-ended, absolute frequencies for five of the same behaviors (consuming soft drinks, dining at restaurants, making long distance phone calls, shopping for clothes, and writing checks). All questions covered a six week time frame, and contained distributional information compiled from the first phase data. Half of the respondents received this information in the form of median splits from Phase 1, and half received the quartile splits. (For example, for the soft drink frequency question, respondents in the median condition were told that, for those students who gave a six week frequency other than zero in the previous questionnaire, "50% gave a number in the range 1 to 30, and 50% gave a number in the range 30 or more." Respondents in the quartile condition were told "25% gave a number in the range 1 to 10; 25% gave a number in the range 10 to 30; 25% gave a number in the range 30 to 50; and 25% gave a number in the range 50 or more.")

After answering each frequency question, respondents were asked how confident they were that the answer was correct. Then, after answering all of the frequency and confidence questions,

respondents were asked how helpful they found the distributional information in coming up with accurate answers for each frequency question (very helpful, moderately helpful, slightly helpful, or not at all helpful).

Study 2 measured frequencies for the same five behaviors, again with a six week time frame, in a new group of respondents. Respondents in Study 2 were assigned to one of five conditions: one group received no population data in making their estimates, one group received median splits as per the second phase of Study 1, one group was given the median for each behavior in the form "the average person gave an answer of," one group received quartile splits as per the second phase of Study 1, and one group received these quartile splits and was asked for closed-ended responses using the quartiles as categories. As in the second phase of Study 1, respondents indicated how confident they were in the accuracy of each frequency estimate after providing it; they did not, however, rate the helpfulness of the distributional information.

CONCLUSIONS

Overall, our results do not provide convincing evidence that respondents used population data to guide autobiographical frequency estimates. The means and standard deviations of reported frequencies did not change significantly when population data was provided. Also, respondents' confidence in the accuracy of their frequency reports did not change. These findings, combined with the lack of differences in response to various formats for the population information, suggest to us that respondents did not use the data.

There is a good reason why respondents may not have used the population data. The results from Phase 1 of Study 1 suggest that respondents cannot assess their positions in the population very well, and have low confidence in their abilities to do so.

We did not measure response accuracy in this research, so we can't make any definite statements about the effects of population data on respondents' accuracy in estimating autobiographical frequencies. However, if respondents do not use population data, then there is no reason to believe that it will help improve their answers.

The idea of providing population data to improve reports of autobiographical frequencies may merit some additional research before it is discarded. For example, population information may be stronger when provided by an interviewer, or may have stronger effects for behaviors we did not consider. Also, population information almost certainly will have stronger effects for threatening questions, and for non-autobiographical phenomena.

(Details of results and tables available upon request from contact author.)