Using a Randomized Response Research Design to Eliminate Non-Response and Response Biases in Business Research

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INTRODUCTION

In sampling a human population, two nonsampling errors which frequently distort the research findings are respondents’:

1. Refusing to answer, or
2. Deliberately recording inaccurate answers.

Several researchers have observed that when the respondent is afraid of losing prestige, or believes the question is personal, he will often refuse to answer or will give incorrect information [2, 7].

The bias produced by these two types of errors is sometimes large enough to make the sample estimates seriously misleading. The questions which people tend to avoid or falsify are those which are viewed as intimate or sensitive, yet personal opinions, controversial topics and intimate behavior are frequently the topics business researchers want to survey.

Spring, 1980, Vol. 8, No. 2, 83-91
0092-0703/80/0802-0083$2.00

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A SPECIFIC RESEARCH DESIGN FOR INTIMATE QUESTIONS

Warner [16] developed a research technique that, to a large extent, eliminates the cause for non-response and non-truthful responses when asking sensitive questions. Warner theorized that if the respondent was assured that his answers could not be attributed to him, he would lose his fear of self-incrimination. The technique is called the "Randomized Research Design." As yet, it has been field tested successfully by only a few researchers in the social sciences to investigate drug usage, abortions, shoplifting, and racism [2, 5, 6].

THE RANDOMIZED RESPONSE TECHNIQUE

The procedure is to construct a questionnaire that contains pairs of questions. Each pair contains a sensitive and a non-sensitive question. The respondent is instructed to answer only one. The question he answers is determined by the outcome of a randomized device. Frequently, a coin or a two-colored spinning top is used as the randomizing device. Since the respondent operates the randomizing device, he is assured that the question he answered is unknown to everyone but himself. If he is the only one who knows the question to which his answer applied, he is certain that the answer cannot incriminate or embarrass him. The researcher cannot match the answer to a particular question. With this assurance, there is no reason to leave a question blank or to answer falsely. Mendenhall, et al., in their recent statistical sampling text, have proposed the technique as a way to eliminate non-response errors [11].

As an example, suppose the paired questions were:

1) a. Have you purposefully shoplifted in the last 12 months?
   b. Have you made a purchase from a catalog in the last 12 months?

   Answer __________________

The "a" question is very sensitive, "b" is innocuous. If the randomized device is a coin, the respondent flips the coin (let him use his own coin). If heads, he answers "a"; if tails, he answers "b." Only the respondent sees the outcome of the coin flipped. He fills in the blank with a "yes" or "no." The researcher never knows to which question the answer refers.