

DISCUSSION

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The topic of survey methods in developing countries interests me because I too have experienced some of the "frustrations and delights" of working with the people in underdeveloped countries. I am specially interested in this session because I feel that there exists a need of more communications among the agencies involved in helping underdeveloped countries; so much of the literature on the topic exists only as intra-agency publications and is not in the open literature. The problems of designing and implementing surveys in underdeveloped countries are many and difficult, as pointed out by the three authors. The people charged with these duties can use all the help they can get and a vehicle of communications among the agencies involved is sorely needed.

I found the papers presented here today very interesting and, for the most part, well written. However, I was left with a few doubts and questions. I would first like to raise some of these questions and then make some more general comments.

I wonder if the ages of women in the first paper refer to their ages during the survey or to the time when the children were born? Also, I am surprised that no women of age 14 or 40 has ever had a child in developing countries. I personally have known (not in the biblical sense) women of 14 in this country who had a child. Why is 10 the oldest age of a child being considered? Indeed, how old can a person be and still be considered a surviving child? Also if $q(a)$ is defined as the probability of dying between birth and exact age a , why are the ages of 1, 2, 3, 5 and 10 year-olds the only ones being considered?

I was also curious as to how success was being defined when it was stated that the first application of the procedure was a success. It seems to me that the only confidence that we as statisticians can have in our results lies in theoretically sound samples and estimators. It was stated that the censuses were not designed to collect high quality survivorship data and yet success was achieved.

I am convinced that anyone working directly with the project would have no trouble in responding to everyone of the questions which I have raised. However, as an outsider I am perplexed. The point I am striving to make is that quite often the writer is so thoroughly familiar with his topic that he inadvertently neglects to define certain basic terms. I believe that if a paper is to serve as an effective avenue of communications among the agencies that it should be written so that those not directly involved with the particular project being discussed can understand.

On the discussion of error rate evaluation in the second paper presented, the fatigue theory was dismissed because of varying difficulty among the sections. I submit that there exists confounding between fatigue and level of difficulty and suggest that several versions of the questionnaire be made by permuting the sections and then see if the magnitude of the error rate for a given section is the same regardless of its

position within the questionnaire.

I was somewhat bewildered when the author states that in the Dominican Republic "a serious area in response error occurred when the respondent was asked to disaggregate the distribution of his crop production by sales, consumption, seed, etc." yet cites as a major innovation the acquisition of data in Bolivia at the crop level when all that was needed was data at the farm level. I believe that the reason we as statisticians want to obtain a clear statement of the objectives is so that we can design an efficient sample survey; one in which only the data necessary is collected. Otherwise we are wasting resources. The time wasted tabulating the crop level data, for example could have been used for other purposes such as badly needed interviewer training. Also, collecting data which is not used in the analysis makes for longer questionnaires which adds to respondent burden. Moreover, it was stated that the procedure reduced the possible number of data cells dramatically, but, in fact, the number of data cells used should have been the same as that which would have been needed had the data been acquired at the farm level to begin with. One might argue that the procedure of taking more detailed data than required is valid in case the consultee decides, after the data collection, that he/she really wanted more detailed information. If this is the case then I say that a clear statement of the objectives was not realized at the outset. I would recommend that the respondent be asked for farm level data and if he/she is unable to respond then disaggregation to the crop level might be considered.

The third paper nearly covered the gamut of problems that might be encountered while designing a sample survey. Of course, one does not have to travel to a developing country to be confronted with such problems. The problem of language differences, which is akin to that of cultural differences, cited as being prevalent in Nepal is the same problem which many claim led to an undercount of some four millions Spanish surname Americans during the 1970 census. While it was interesting to hear about the problems faced by a technical advisor in developing countries, it would have been even more interesting to hear how some of these problems are being resolved.

I was amused when Ms. Bergsten mentioned that one of the problems is the rivalry that exists among the different agencies in developing countries. I was amused because this is a problem that I see in this country. To be sure, this is a real problem in developing countries. I found it quite a handicap in both Chile and Paraguay, but frankly I found the rivalry between the USDA and the Census Bureau, in particular, to be an even bigger problem. This rivalry is somewhat manifested in what Ms. Carlson called an innovation in Bolivia, namely the use of the Dibujo. This technique has been used by the USDA for some time.

The need for training people in underdeveloped countries on the skill of designing and implementing sample surveys as well as analysing the resulting data is truly a grave one. In the entire statistical section of the Ministry of Agriculture

in Peru I found only one book on statistics and only one individual that had training in statistics. The person who was trained in statistics (master from Chapingo, Mexico) was considering leaving the Ministry of Agriculture because nobody else there understood statistics or even seemed to care about statistics. I was often told, while in South America, that people who are sent to the United States to earn a degree in statistics become frustrated at their job upon returning and take a better paying job in a developed country where they can interact with other statisticians. It seems that the way to keep trained personnel in underdeveloped countries is to train them but not give them a degree. In this way, they are able to do the job but do not entice developed countries. This, I believe, can be accomplished by having an on the job training program where professionals from the U.S. would take a temporary duty assignment (TDY) in an underdeveloped country to design and implement a sample survey and at the same time to train several host-country counterparts. Thus, the persons trained would be trained specifically in techniques which are pertinent to their own country rather than in techniques which apply in

some developed country but may or may not be functional in a developing country. One problem with this procedure, of course, is finding people willing to take TDY's in underdeveloped countries. It is my contention that if the Agency for International Development (AID) were to offer to pay all or part of the tuition to U.S. citizens in exchange for a 2 or 3 year TDY that there would be some volunteers. Moreover, I am confident that the Committee of Minorities in Statistics, for one, would be very willing to do some recruiting for this purpose. This procedure would not only aid underdeveloped countries but it would help needy students in the U.S. get an education.

I am grateful to Maria Elena Gonzalez, chairperson of the Section on Survey Research Methods, for giving me the opportunity to speak here today. I congratulate the organizer, chairman and speakers on a good and productive session. I am hopeful that this session will not be the last such session and that it will lead to more cooperation and communication among the agencies involved in the noble endeavor of giving assistance to underdeveloped countries.