ON STATISTICAL SURVEYS AS LEGAL EVIDENCE (ABSTRACT)

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The principles that govern successful presentation of a statistical survey as legal evidence are much the same as for the presentation of a scientific paper, namely, say what you know, say it so that your audience can understand it, and don't say what you don't know, as every word is subject to challenge.

It is important that the statistician stay within his field of competence. If he steps out of his field and into someone else's, he will make statements that he can not substantiate, and which will almost certainly conflict with the testimony of other witnesses who are qualified to answer the question that the statistician is not.

There are well recognized statistical standards for the statistician to follow. It is important that he observe the limitations as well as the power of statistical theory. Part of the statistician's job on an engagement is to provide statistical controls that will detect departures from instructions and other operational blunders, so that he may be in position to testify whether the departures detected do or do not preclude meaningful use of the theory of probability for generalizations to the frame that the sample came from.

The theory of probability enables the statistician to generalize to the frame that the sample came from, provided the statistical controls show that the sampling procedures as actually carried out did not depart too far from the specifications. Generalizations made by theory, under proper conditions, can not reasonably be challenged, as they are mathematical consequences, with standard objective interpretations the world over.

Generalization to other material or conditions not included in the frame, or to future dates, requires substantive knowledge, not statistical knowledge. It is important for the statistician's testimony to differentiate clearly between the assertions that he can make on the basis of probability, and those that he or others make on the basis of judgment. Anyone has a right to say what he believes, and to sign his own name, but he has not the right to use the theory of probabilities where it does not apply.

An important part of the statician's engagement is to separate, in the planning stages, the responsibilities of the statistician and of the expert in the subjectmatter. This is important from the standpoint of good science; and also to avoid conflicting responsibilities and conflicting testimony.

The full paper will contain examples of testimony and of statistician's reports.