

SPECIAL PAPER

PRINCIPLES OF PROFESSIONAL STATISTICAL PRACTICE¹

BY W. EDWARDS DEMING

Washington, D. C.

I. PURPOSE AND SCOPE

1. Purpose. Application of statistical theory has found wide acceptance and has made notable contributions in agriculture, medicine, industry, accounting, administration, and consumer research. It has made equal contributions to the natural and social sciences. Sampling and survey-design, along with statistical theory of response and non-response, form the structural framework of government statistical series of divers types, and of censuses of population, agriculture, and commerce.

Statistical theory grows year by year more difficult and abstract, more and more a specialism, more and more powerful in application. Statistical theory is transferable. The specialist in statistical methods may find himself applying the same basic theory in a dozen different fields in a week, rotating through the same projects the next week. Or, he may work day after day primarily in a single substantive field.

Either way, the statistician requires certain principles of practice for effective use of statistical knowledge. Knowledge of statistical theory is necessary but not sufficient. Statistical theory does not provide a road-map toward effective use of itself. The purpose of this paper is to propose some principles of practice, and to explain their meaning in some of the situations that the statistician encounters.

The statistician has no magic touch by which he may come in at the stage of tabulation and make something of nothing. Neither will his advice, however wise in the early stages of a study, ensure successful execution and conclusion. Many a study, launched on the ways of elegant statistical design, later bogged in execution, ends up with results to which the theory of probability can contribute little.

Even though carried off with reasonable conformance to specifications, a study may fail through structural deficiencies in the method of investigation (questionnaire, type of test, technique of interviewing), to provide the information needed. The statistician may reduce the risk of this kind of failure by pointing out to his client in the early stages of the study the nature of the contributions that he himself must put into it. [The word client will denote the man or group of people who will use the results of the study. Or, the same word may denote an expert or

Received 15 April 1965.

¹Special invited address at the meeting of the Institute of Mathematical Statistics, Boston, 28 August 1958.