

AFTERNOTE 2
To
INTRODUCTION

Why is Statistics Such a Difficult Subject?

Why is statistics such a tough subject for so many people?

“Among mathematicians and statisticians who teach introductory statistics, there is a tendency to view students who are not skillful in mathematics as unintelligent,” say two of the authors of the best-selling introductory text (McCabe and McCabe, 1989, p. 2). This is out-and-out wrong; lack of general intelligence on the part of students is *not* the root of the problem.

Scan this book and you will find almost no formal mathematics. Yet nearly every student finds the subject very difficult—as difficult as anything taught at universities. The root of the difficulty is that the *subject matter* is extremely difficult. Let’s find out *why*.

It is easy to find out with high precision which movie is playing tonight at the local theater; you can call on the phone and ask, or look in the newspaper. But consider by contrast how difficult it is to determine with accuracy a) what will be the result of more than a hundred million Americans voting for president a month hence; the best attempt usually is a sample of 2000 people, selected in some fashion or another that is far from random, weeks before the election, asked questions that are by no means the same as the actual voting act, and so on; b) to assess, on the basis of the data on the prices of a single brand of liquor in 42 states, 16 of which have liquor distribution systems run by state government and 26 run privately, whether prices will be higher in a state newly admitted to the union if it chooses the private system; or c) how blacks feel about whites and vice versa.

The cleverest and wisest people the world has ever known have pondered for thousands of years how to obtain answers to questions like these, and made little progress. Dealing with uncertainty was completely outside the scope of the ancient philosophers. It was not until two or three hundred years ago that people began to make any progress at all on these sorts of questions, and it was only about one century ago that we began to have reasonably competent procedures—simply be-

cause the problems are inherently difficult. So it is no wonder that the body of these methods is difficult.

So: The bad news is that the subject is extremely difficult. The good news is that you—and that means *you*—can understand it with hard thinking, even if you have no mathematical background beyond arithmetic and you think that you have no mathematical capability. That's because the difficulty lies in such matters as pin-pointing the right question, but not in any difficulties of mathematical manipulation.