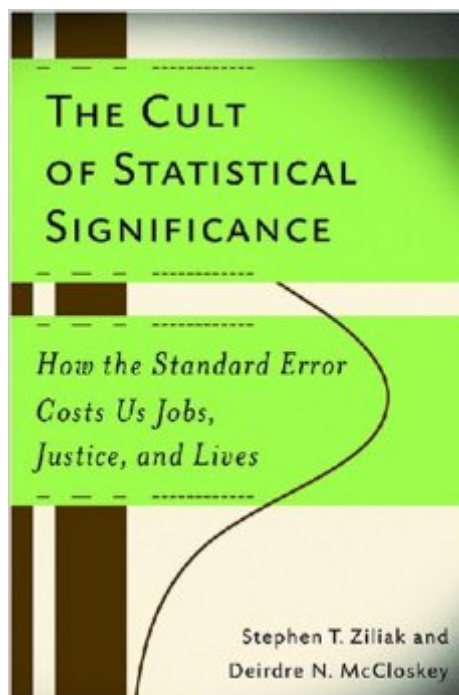


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# The Cult Of Statistical Significance: How The Standard Error Costs Us Jobs, Justice, And Lives (Economics, Cognition, And Society)



## Synopsis

“McCloskey and Ziliak have been pushing this very elementary, very correct, very important argument through several articles over several years and for reasons I cannot fathom it is still resisted. If it takes a book to get it across, I hope this book will do it. It ought to.”—Thomas Schelling, Distinguished University Professor, School of Public Policy, University of Maryland, and 2005 Nobel Prize Laureate in Economics

“With humor, insight, piercing logic and a nod to history, Ziliak and McCloskey show how economists—and other scientists—suffer from a mass delusion about statistical analysis. The quest for statistical significance that pervades science today is a deeply flawed substitute for thoughtful analysis. . . . Yet few participants in the scientific bureaucracy have been willing to admit what Ziliak and McCloskey make clear: the emperor has no clothes.”—Kenneth Rothman, Professor of Epidemiology, Boston University School of Health

The Cult of Statistical Significance shows, field by field, how statistical significance—a technique that dominates many sciences, has been a huge mistake. The authors find that researchers in a broad spectrum of fields, from agronomy to zoology, employ “testing” that doesn’t test and “estimating” that doesn’t estimate. The facts will startle the outside reader: how could a group of brilliant scientists wander so far from scientific magnitudes? This study will encourage scientists who want to know how to get the statistical sciences back on track and fulfill their quantitative promise. The book shows for the first time how wide the disaster is, and how bad for science, and it traces the problem to its historical, sociological, and philosophical roots.

Stephen T. Ziliak is the author or editor of many articles and two books. He currently lives in Chicago, where he is Professor of Economics at Roosevelt University. Deirdre N. McCloskey, Distinguished Professor of Economics, History, English, and Communication at the University of Illinois at Chicago, is the author of twenty books and three hundred scholarly articles. She has held Guggenheim and National Humanities Fellowships. She is best known for *How to Be Human\* Though an Economist* (University of Michigan Press, 2000) and her most recent book, *The Bourgeois Virtues: Ethics for an Age of Commerce* (2006).

## Book Information

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## Customer Reviews

Tests of statistical significance are a particular tool which is appropriate in particular situations, basically to prevent you from jumping to conclusions based on too little data. Because this topic lends itself to definite rules which can be mechanically implemented, it has been prominently featured in introductory statistics courses and textbooks for 80 years. But according to the principle "if all you have is a hammer, then everything starts to look like a nail", it has become a ritual requirement for academic papers in fields such as economics, psychology and medicine to include tests of significance. As the book argues at length, this is a misplaced focus; instead of asking "can we be sure beyond reasonable doubt that the size of a certain effect is not zero" one should think about "how can we estimate the size of the effect and its real world significance". A nice touch is the authors' use of the word oomph for "size of effect". Misplaced emphasis on tests of significance is indeed arguably one of the greatest "wrong turns" in twentieth century science. This point is widely accepted amongst academics who use statistics, but perversely the innate conservatism of authors and academic journals causes them to continue a bad tradition. All this makes a great topic for a book, which in the hands of an inspired author like Steven Jay Gould might have become highly influential. The book under review is perfectly correct in its central logical points, and I hope it does succeed in having influence, but to my taste it's handicapped by several stylistic features. (1) The overall combative style rapidly becomes grating. (2) A little history -- how did this state of affairs arise?

I attended a seminar by McCloskey when she announced she was working on this then-upcoming book. So I knew beforehand that its style would be more like a victim-tells-all revenge than a fun-seeking discovery typical of most popular science books. The first half of the book (up to Chapter 13) did turn out to be bitter. However, at least that part was largely based on facts, such as

a comprehensive count of academic papers failing to meet certain standards. The second half of the book was devoted to the biographies of key persons who led to the rise of what the authors called the "cult of statistical significance". The book lost any pretense of integrity at that point, and just started slinging muds. Gosset was portrayed as a good-natured figure who worked hard like a bee; and Fisher, a mad scientist who stole the labor of others and would attack people by any means to defend his status. At one point the authors didn't even bother to call Fisher by his name, and just referred to him as the Wasp. They also dragged Fisher's mother into the ordeal by making suggestions that she was responsible for turning Fisher into a cold-hearted person that they claimed. I was not only disgusted by this kind of tabloid sensationalism, but was also disappointed by how little useful information I got out of this long-awaited book. The authors "irrationalized" the popularization of statistical significance by framing it as the work of a cult. To further illegitimize the use of statistical significance, they argued that it is wrong to rely on it to evaluate scientific hypotheses because (1) what we really want is how likely for a hypothesis to be true given the data, not the other way around; and (2) there are other clues just as, if not more, important, especially the effect size.

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