Review of *Stat-Spotting: A Field Guide to Identifying Dubious Data* by Joel Best

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Abstract

Best, Joel. *Stat-Spotting: A Field Guide to Identifying Dubious Data*. (Berkeley: University of California Press, 2008) 144 pp. $19.95. ISBN 1-978-0-520-25746-7.

Stat-Spotting is a practical, do-it-yourself manual for detecting questionable claims reported in the media. Using examples drawn mostly from mass media sources, *Stat-Spotting* provides readers with a number of useful tips for identifying potentially problematic statistics. The author's skillful analyses and explanations presented in clear and concise prose make *Stat-Spotting* an ideal guide for anyone who reads a newspaper, watches television, or surfs the Web. In short, everyone.

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Among the many wonderful examples of questionable numbers found in Joel Best's new book, *Stat-Spotting: A Field Guide to Identifying Dubious Data* (University of California Press, 2008, $19.95, 144 pages), the one that sticks most in my mind is a Web site's claim that pet cats in North America kill over 1 billion song birds every year. Possible? Perhaps. Probable? Not very, especially after Best points out that the American Veterinary Medical Association estimates that there are 71 million pet cats in the United States. For the math to work, the average pet cat would have to permanently end the singing careers of 14 birds every year. (To be fair, Best should also count pet cats living in Canada if the Web site does in fact mean "North America.") As someone who always answers "dog" when asked which makes for a better pet, cat or dog, I was quite ready to accept that we had a felonious feline problem in this country. Best's back-of-the-envelope thinking cast doubt on that belief and reinforced an old one, namely, that most pet cats are lazy enough—and smart enough—to let their devoted owners bring them food.[1]

Best's "ornithicide" example is as good as any for illustrating the organization of *Stat-Spotting*. The book aims to be a practical, do-it-yourself manual for detecting questionable claims reported in the media. Many of the errors that he highlights have been discussed in his two earlier books—*Damned Lies and Statistics* (Best, 2001) and *More Damned Lies and Statistics* (Best, 2004). But unlike those two books, *Stat-Spotting* develops a number of succinctly worded tips—labeled with the heading *Look for* alongside a drawing of a little binoculars—that one "might ask when encountering a new statistic and considering whether it might be flawed" (p. 5). For example, Best uses the billion bird deaths example to illustrate "Look For: The name says it all: big round numbers." Best points out that big round—and false—numbers often get used when the goal is to make a big round impression on the reader. As one would expect based on his earlier books, the political motivations underlying much dubious data are never far from Best's thinking: "A good first question is, Who produced this figure? That is, who did the counting—and why?" (p. 27).

In addition to "Big Round Numbers," *Stat-Spotting* alerts the reader to look out for "Shocking Claims," "Expanding Definitions," "Misleading Samples," "Selective Comparisons," and so on. Each potential problem identified by Best receives typically two to three short pages of lucid elaboration plus an example or

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[1] I haven't quite given up on that 1-billion figure but I probably will soon. Some quick calculations of my own suggest a theoretical scenario in which 75% of pet cats have no bird blood on their paws whatsoever for an entire year while the other 25% average a little more than one bird kill per week or roughly 56 bird kills per year. Therefore, $(0.25 \times 71 \text{ million}) \times (56 \text{ bird kills/year}) \approx 1$ billion bird deaths per year due to cats. My friend Gina once owned a cat named Buddy who perpetrated more than one aggravated bird assault every week—at least during the summer months. In contrast, her other two cats Micro and Kelly pretty much spent their entire lives napping on the couch.

two drawn mostly from media sources. Best gets to the heart of each problem quickly and clearly. It adds up to a slim and efficient volume—*Stat-Spotting* is all of 144 pages—worthy of its self-proclaimed, Audubon-inspired moniker of "field guide."

Best clearly set out to write a book that wasted few words. His writing style is crisp, and his explanations get right to the point. But without question, the abundant examples make for the most interesting and important feature of *Stat-Spotting*. Without them, the pedagogical impact of Best's effort would dissipate pretty quickly. I found the majority of his examples to be more nuanced than the standard illustrations of quantitative blunders—Best is not just talking here about misplaced decimal points (although he does cite such an example), pie graphs that add up to more than 100%, percentage-point change misinterpreted as percentage change, the deceptive use of the mean rather than the median to describe a typical value, and so on. Best's well-chosen examples of "innumeracy" tend to be less obviously flawed—and thus more provocative—than what others have documented before. And while he does indulge himself occasionally with the low-hanging rotten fruit of partisan Web sites, Best takes on all comers including the British Heart Foundation, *Newsweek*, the *Archives of Pediatric and Adolescent Medicine*, CNN.com, the *New York Times*, and the U.S. Fish and Wildlife Service.

Another of my favorite examples will resonate with many educators who have lectured to their students on the dangers of unvetted Web sites. Under the heading of "Look for numbers presented without sufficient information about measurement choices," Best examines the first 100 hits for a Google search on "lost productivity"—the work that would have been done had American workers not been hindered in one way or another. Adding up the estimated costs of wasting time at work ($544 billion), stressed parents ($300 billion), health problems ($260 billion), hidden grief ($75 billion), e-mail spam ($20 billion), etc., Best finds that the total equals 10% of the total U.S. Gross Domestic Product. And that was based on just the first 100 hits! Best writes, "One suspects that a thorough search for all lost productivity numbers might produce a total that equals—or exceeds—the economy's total productivity." As Best points out, measures of lost productivity involve assumptions about the number of workers affected, the length of time the typical worker is affected, and the value of an average worker's productivity. Good luck coming up with a reliable figure.

I found it impossible to read *Stat-Spotting* without finding useful advice on nearly every page. I was particularly pleased to see that Best wasted no time in praising the virtues of having at least a few benchmark statistics at one's fingertips: "Just a few benchmark numbers can give us a mental context for assessing other figures we encounter" (p. 7). Figures like 300 million Americans, 4 million births per year, and a U.S. GDP equal to $13 trillion can help us spot

suspicious numbers like a Web site's claim that 4 million women are battered to death every year—a number that exceeds the overall annual death toll of 2.4 million men and women from all causes. In fact, I just checked that overall death rate with my *Statistical Abstract of the United States* located just an arm's reach away from my desk. Best lists this resource as an indispensable one for the amateur stat-spotter and I could not agree more.

In keeping with the field guide theme, Best concludes *Stat-Spotting* with a bullet-point summary of his major points, a checklist of qualities that make for good statistics, and a list of resources for those inspired to do more stat-spotting on their own. I was a little disappointed, however, that Best did not include a list of benchmarks here but that's a trifling criticism. (Coming up with a list of benchmarks will be a good Assignment #1 for students in my research methods course.) Apart from that minor omission, these concluding sections only helped to enhance the overall utility of *Stat-Spotting* as a reference guide.

Best's skillful analysis of statistical blunders presented under tightly worded "Look For" headings—e.g., "Look For: Superlatives—"the biggest," "the worst," and so on"—make *Stat-Spotting* a concise and useful reference book for students and teachers alike. The book should work well as a supplemental text in a social research methods course or a social statistics course. I know Best's examples and explications will help my college undergraduates understand such topics as sample selection bias, omitted variables bias, reliability, validity, and measurement error. More than any other book that I have read in this genre— books like *Innumeracy* (Paulos, 2001) and *The Numbers Game* (Blastland and Dilnot, 2009)—*Stat-Spotting* makes a concerted effort to teach the reader how to expose those flaws for herself. Read closely, *Stat-Spotting* will undoubtedly improve one's ability to confront a wide, wide world of dubious data.

References

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