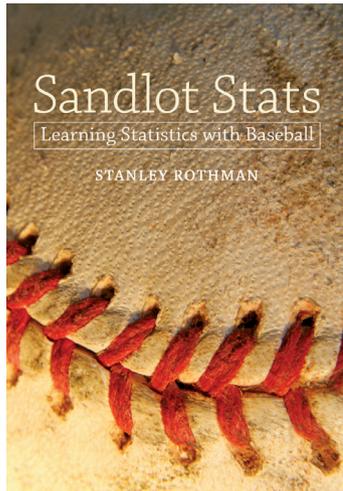


Sandlot Stats: Learning Statistics with Baseball



Stanley Rothman; Johns Hopkins University Press; 586 pp.; September 2012; \$85.00, £44.50; ISBN 9781421406022 (hardback)

“Sabermetrics”. Mean anything to you? For me, the image of Napoleon measuring swords came straight to mind. Needless to say, I was completely off-base. Sabermetrics is in fact the term used to define the analysis of data from one of America’s most famous sports: baseball.

Relative to any other team sport, baseball provides the most data on an individual player’s performance. The recording of individual player statistics was pioneered by Henry “Father of Baseball” Chadwick in the 1860s (Note to UK readers: Chadwick was born in Exeter and began as a cricketer; he organised an American tour of England which played both games – Ed.). Player data became commonplace in many American newspapers by the 1920s. Today the sport is meticulously analysed by numerous groups, including the Society of American Baseball Research (SABR), whose acronym forms the root of “Sabermetrics”.

The different statistics used to compare players are numerous (see for yourself on the Wikipedia page on Baseball Statistics); in fact it is pretty intimidating just considering them, let alone attempting to

work with them and deduce the best batter, which strategies are likely to fail, or the probability of someone smashing Joe DiMaggio’s 56-game hitting streak out of the park. So what can we do with all these statistics?

Step up to the plate *Sandlot Stats*, a new book by Professor Stanley Rothman of Quinnipiac University. Rothman’s work takes a slightly different approach to several publications that document the history of baseball and its statistical obsession. Born of a Baseball and Statistics 101 course, the book aims to teach the basics of undergraduate statistics within the context of baseball.

It is an interesting idea: take something that people have a passion for, then use it as a conduit to teach statistics. It seems to work, too. The book teaches the core topics of your standard statistics textbook well, with an additional focus on all things statistical-cum-baseball. Chapter 8 – “Sports Betting” – is a particularly interesting interlude that helps to implement previous chapters on probability and descriptive measures.

With plenty of examples, exercises, data sets and referrals to baseball databases, the book certainly provides all the tools for readers who follow baseball to learn statistics. On the other hand, it is perhaps not the best text for a statistician to learn about baseball. I do not believe that this is the intended purpose of the book, but the vast number of abbreviations alone have the potential to dissuade those unfamiliar with the sport. As for those who eat, sleep and breathe baseball, only batting statistics are covered. However, with the many examples and clear explanations of statistical methods given, there is no reason why a creative fan cannot apply their newly acquired statistical knowledge to pitching or fielding data.

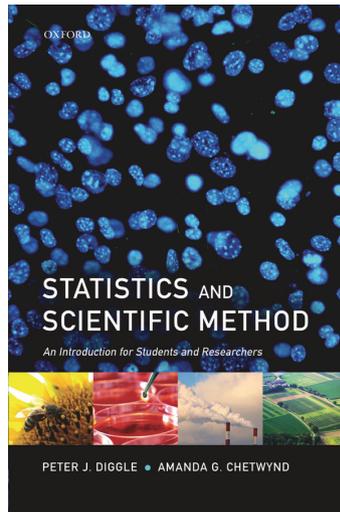
The book closes with three chapters on baseball-specific problems, namely streaking – not *that* sort of streaking (Note to US readers: *that* sort of streaking is a cricketing term denoting an occasional spectator warm-weather activity – Ed.) – achieving record-breaking batting averages and ranking players. The

collation of all prior chapters in analysing these problems helps to illustrate the role of statistics in baseball and – hopefully – leaves the reader statistically better off.

Finally, online supplementary material available on the book’s official website extends the book chapters with interesting tales and trivia from the world of baseball. Overall, *Sandlot Stats* is a readable and resourceful introductory textbook for statistics. It just requires knowing a little bit about baseball beforehand.

Graham Wheeler
Cambridge

Statistics and Scientific Method



Edited by Peter Diggle and Amanda Chetwynd; Oxford University Press; 192 pp.; August 2011; £19.95, \$34.95; ISBN 9780199543199 (paperback)

Despite the oft-repeated claims about the malleability of statistics to particular points of view, it is a scientific methodology. Unfortunately, most books overlook this detail, choosing to concentrate on a new technical development, or on interpreting the mathematical aspects of statistics in order to make them easier.

Diggle and Chetwynd have risen to this challenge, developing the concepts of statistics from basic ideas with the support of a number

of examples. The book is derived from a course they have taught for postgraduates, aiming to educate those who know they need statistics but are not quite clear about what they are really for. They admit that it does not cover social science (e.g., sampling) very well, but that simply leaves the opportunity for another, complementary, book – if authors could be found.

Starting from the very basics of simple measurement error is more difficult than it appears as experimental apparatus is designed precisely to minimise such errors. Other abstractions are more straightforward, although we are subjected to the hoary old coin-flipping example and the Bayes question is relegated to a discussion of further reading.

The scientific ideas are developed after the mathematical fashion with chapters building on each other, meaning that some application is necessary to follow the text. However, some terminology is still introduced with a presumption of familiarity which underlines the postgraduate audience. Although the mathematics is not difficult to follow and even has an illuminating clarity (in the case of the general linear model especially), scientific ideas pile up rapidly.

Unusually, the concepts are scaffolded alongside analysis of real data to answer questions that are not contrived to illustrate the methods. The examples used are drawn from a considerable range, without drawing on classic data sets, with supporting materials available from a website. Another rare feature of this book is that it strives to be independent of software while still reporting results of analyses explicitly.

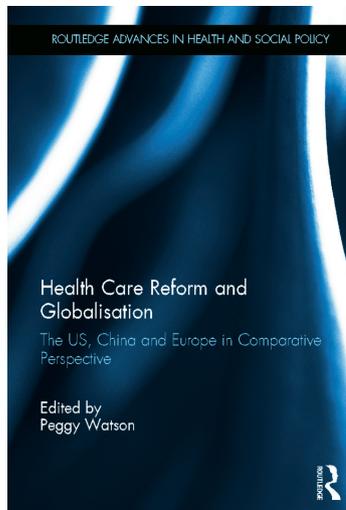
Choosing the examples to use in a text for a general applications audience must be very difficult and the authors have done a good job. There is a time series of population growth, spatial models of experimental data from Rothamsted, and survival analysis of kidney dialysis patients. There are also a sufficient number of examples to allow for a range of questions to be considered without returning to the same examples too often.

Statistics and Scientific Method is an unusual book for a statistics text

as it deserves to be read rather than referred to or studied. It may prove a challenge for an individual non-statistician due to the rapid accretion of ideas of statistical inference and the wide range of disciplines the examples are drawn from. However, it should be ideal to support a post-graduate course as planned, or as the basis for discussion for a mixed group of applied statisticians.

Tom King
Newcastle upon Tyne

Health Care Reform and Globalisation: The US, China and Europe in Comparative Perspective



Edited by Peggy Watson; Routledge; 218 pp.; August 13th, 2012; \$145.00; ISBN 9780415691086 (hardback), eBook 9780203106785

Few issues generate as much as division in the US as healthcare; few generate as much bafflement outside the US. In Britain we complain about the NHS, but we would not want to be without it and find it hard to comprehend that a civilised nation would find the very concept of a national healthcare system controversial. *Health Care Reform and Globalisation* is a compilation of articles that explore and

analyse recent healthcare reforms with a critical and comparative view. The authors have selected very well. They present arguments that challenge those which are traditionally fed to us in policy analysis by the media and politicians.

The study of health systems often begins in the Cold War era when the apparent divergence in human rights was born, with the US championing civil liberties and the Soviet Union championing healthcare as a right for all. The difference with this book, however, is that it begins after this era, instantly making it more current, more here and now.

The first chapter walks us through the attempts to address the much troubled and fragmented US healthcare system and the staunch opposition faced by many reforms. The authors are very frank in their analysis of the actions of lobby groups and their complete disregard for public interest. Although the power of “the lobby” on Capitol Hill will be of no surprise to many, perhaps the actions of the American Medical Association may be unexpected. This chapter is full of “gems” (those little nuggets of knowledge you can show off with) such as that a child born in Bosnia has a longer life expectancy than one born in the US, or how the term “nanny state” was indirectly manufactured by the tobacco industry (surprise, surprise).

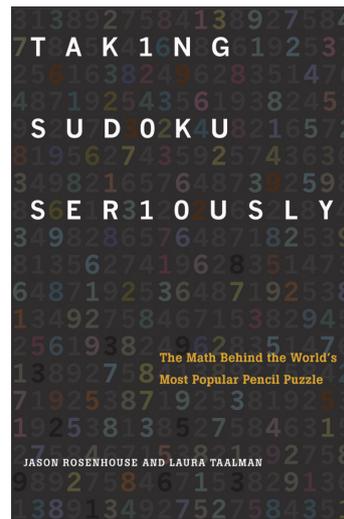
Following chapters analyse the “isations” affecting healthcare provision in other major geopolitical regions. There is the privatisation of NHS GB, the marketisation of healthcare in China, and the commoditisation of health in the European Union. The analysis throughout is compelling and thought-provoking, and although the concluding chapter does present an alternative vision for the future based on practice in South America, an overarching chapter pulling together a lot of the commonalities between the apparent needs for such reforms would have been useful.

The only downside here (apart from the bleak outlook) is the lack of “statistics” or any relation of these reforms to health outcomes. But rather than this being a fault with of book, it really just highlights

how little health outcomes are considered in the consultation process of healthcare legislation.

Seema Patel
London

Taking Sudoku Seriously: The Math behind the World’s Most Popular Pencil Puzzle



Jason Rosenhouse and Laura Taalman; Oxford University Press; 208 pp.; 2012; £13.99, \$21.95; ISBN 9780199756568 (hardback)

I am certainly an avid player of sudoku, but not quite as desperate a case as I once was. I used to search discarded newspapers for a blank grid; now I have upgraded to an all singing, all dancing app on my phone. I have even played with some optimisation code for solving the problems – although that took all the fun out of it. But I am not sure I have ever really taken it seriously...so now was my chance perhaps.

I embarked on reading this book thinking it was just about sudoku. Well, how wrong I was. Had I read the book sleeve, I would have seen that it was billed as “a fun-filled introduction to higher mathematics”. And that was just what it was.

Sudoku was used as the key example in exploring the concepts of graph theory, Latin squares, equivalence and group theory, to name but a few of the mathematical concepts that are touched upon. While the book emphasised (perhaps a few too many times) that sudoku is mathematics, the theoretical content is kept light-hearted and the equations to a minimum.

The book takes you through a series of questions that you may ask about sudoku, and in providing the answers leads you on a mathematical journey to the solution. For example, in answering the question of the number of possible sudoku squares (I will not spoil the fun and give you answer!), you are taken through the theories of counting, combinations and permutations, probability and, finally, computer simulation to come up with the answer. I did feel that at times the book went a little off track in its quest to discuss as many mathematical concepts as possible and that the link to sudoku became tenuous at best – complex polynomials was perhaps a step too far!

I enjoyed the book, but I must admit that had I not been reviewing it I would have simply skipped some of the middle chapters and rushed to the brightly coloured puzzles at the back (thankfully all with solutions included). I was also left, however, wondering who would enjoy this book: the content may be deemed a little simplistic for mathematicians, and a little too diverse for real puzzle enthusiasts. But it does do what it says on the sleeve: it gives an overview of advanced mathematical topics.

One key message seemed to be that we need to make sure everyone understands that sudoku is mathematics. I am not sure I am fully in agreement with this. It seems a shame to ruin the fun of those who call themselves “maths phobic”. Better for the enlightened to be smug in the knowledge that there are many more mathematicians out there than know it!

Nicola Tilt
Newcastle-upon-Tyne

More reviews are on our website at www.significancemagazine.org.