

**A REVIEW OF STATISTICAL BOOKS
FOR USE IN EMPLOYMENT
DISCRIMINATION LAWSUITS**

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Over the past fifteen years, the statistical evidence offered as proof in employment discrimination lawsuits has become increasingly more sophisticated, and a number of books have been written on the statistical concepts and techniques used in these cases. Some of these books provide an excellent introduction to the use of statistics to detect discrimination; others provide more advanced treatises, including specific information that might be helpful during cross-examination or rebuttal. In this article, we review some of the books currently available and provide information about each to help interested attorneys decide which statistical resources are most appropriate for particular needs.

WHY SHOULD ATTORNEYS KNOW ANYTHING ABOUT STATISTICS?

Lack of direct evidence of discrimination may mean that quantitative proof is the only evidence available to the court. It is then up to the attorney to present this evidence convincingly to establish (or rebut) a prima facie case. Having an understanding of the validity of the quantitative proof and the inferences that can be supported by the statistical evidence is vital to this effort and help attorneys provide their clients with an accurate assessment of the merits of the case.

At this point an astute reader may ask, isn't this need filled when attorneys hire experts who are knowledgeable about the use of statistics in employment discrimination lawsuits? We are not advocating that these experts be replaced by technically sophisticated attorneys. Rather, we are arguing that attorneys will become more effective collaborators if they possess some knowledge of quantitative methods.

Attorneys will be better able to take charge of their trial proceedings if they are familiar with statistical methods and theory. Consider the task of cross-examining the opposing side's statistical expert. Assume that the attorney has consulted with his or her expert prior to trial to prepare a list of cross-examination questions. Suppose, however, that the expert's response is not anticipated. What does the attorney with no knowledge of statistics ask next? If the attorney does not know whether the statistical techniques were used properly, or what inferences can be appropriately made given the data, he or she will not be able to probe deeply enough into the analysis or to ask the tough questions that might undercut the opposing side's case. Furthermore, once the expert realizes that the cross-examining attorney is reading from a script—which will not take long—the expert might

deliberately try to answer questions using language unfamiliar to the attorney in an attempt to make the attorney appear confused and therefore less effective.

Experts in statistical analysis are not necessarily skilled in the art of verbal persuasion. The attorney must still organize the evidence and put the trial testimony into a framework that will make sense to legal as well as lay persons. As David Barnes and John Conley observe, "unless . . . the lawyer can participate knowledgeably in structuring the statistician's presentation, the determination of trial strategy, the essence of the advocate's role, will fall to the statistician by default."¹

In our experience, trial attorneys who are knowledgeable about statistical methods are more effective during the pretrial preparation phase of a case, because they can take a more proactive stance when working with labor economists, industrial psychologists, and other experts to plan data collection, data analysis, and rebuttal activities. They understand what proof is needed for their case-in-chief and know that the analyses will be appropriate and provide them with the information they need. They can speculate about what analyses might be presented by the opposing side (and have their own expert carry out parallel analyses prior to rebuttal), and they can anticipate (and therefore prepare for) possible attacks on the analyses that they present. All of these activities lead to a more coherent and effective presentation at trial.

Attorneys have been characterized as having high intelligence, high verbal skills, and low quantitative skills; this profile may be changing, as more attorneys see the importance of using quantitative techniques. Introductory courses on the uses of statistics in litigation are increasingly becoming a standard part of the legal training offered in law schools. However, because of the wide gap between the usual statistical training of attorneys and the analytic "thermonuclear battle"² of a class-action employment discrimination lawsuit, where the statistical proofs can become quite advanced, both attorneys and social scientists have written books aimed specifically at the needs of such cases.

We selected books for this review that explicitly attempt to *instruct attorneys* about statistics *within the framework of the law*; we omitted books that explain the law to social scientists using statistics. We also excluded several works that teach the general principles of quantitative methods to attorneys without showing how the methods have been or could be applied to legal situations.³ Attorneys who have avoided confronting

statistics up to now are likely to benefit more from statistical discussions if the analysis techniques and methods are applied directly to litigation problems of the type they face on a day-to-day basis.

The books we reviewed fall into three categories: (1) books presenting statistical methods within the framework of what constitutes legal proof with respect to the employer's various personnel practices, (2) books presenting quantitative methods organized by statistical technique, and (3) books presenting specialized treatments, such as a particular method or theory.

Books Organized by Legal Proof Relating to Particular Personnel Practices

In 1980, David Baldus, attorney, and James Cole, statistician, published *The Statistical Proof of Discrimination*, which has become a classic. Their stated purpose for the volume was to provide information to judges and lawyers involved in discrimination litigation on the meaning and reliability of the numbers used to determine the cause and effects of allegedly discriminatory practices. "Like spotlights, different statistical methods illuminate different aspects of the selection procedure at issue, and some provide better light than others. The challenge is to weigh intelligently the strengths and weaknesses of the available methods and to use them creatively to focus on what is at issue under substantive law."⁴

The book is organized by the different models of proof. Where quantitative methods can be used to illustrate a point, the appropriate techniques are described. To ensure that the readers understand how to apply the techniques, the authors introduce three hypothetical employment discrimination cases concerning hiring, height and weight requirements, and salary; these same cases are then used to illustrate many of the points discussed throughout the book. While the authors also cite actual cases to illustrate usage of a particular technique or the discussion of an issue, the unifying theme for all of the quantitative methods is their application to the same sets of data for the hypothetical cases. The cases are presented in increasingly more detail as the reader progresses through the book.

For example, *Smith v. Welding Co.* is a hypothetical two-stage hiring case in which the plaintiffs allege that blacks are denied employment as welders because of their race. (The data for the second stage are taken from an actual case.) The case is introduced in chapter 1 with a discussion of the selection process and the

various models of individual and classwide proof. In chapter 2, a simple statistical model of the applicant selection process is introduced—one that is applied without taking the qualifications of the applicants into account. This model compares the actual treatment of the protected group with an ideal standard of treatment to derive a summary measure of discrimination, which is then examined to determine what factual inferences the measures will support. How to summarize the actual treatment of the protected group (whether in terms of numbers selected or rate of representation) is discussed in chapter 3, along with discussions of the problems caused by small samples, inadequate data, and low selection rates. In chapter 4, the case is used to discuss the advantages and disadvantages of using applicants or labor force census pools for proxies of applicants to obtain the most appropriate measures of actual and ideal treatment. The comparison of the actual and ideal treatments is carried out in chapter 5. The qualifications that need to be taken into account in the hypothetical case, including discussions of how qualifications are distributed among all of the black and nonblack applicants, are presented in chapter 6. Comparing subgroups of applicants based on one or more criteria—such as years of experience as a welder—is discussed in chapter 7. Use of multiple regression to predict the dichotomous outcome (selected or not selected)—taking into account several measures of qualifications—is presented in chapter 8, along with extensive discussions of possible limitations of the method. Tests of significance and issues related to hypothesis testing (such as problems of small samples and the difference between practical and statistical significance) are introduced in chapter 9. Chapter 10 discusses the interpretation of results to determine if there was disparate treatment or adverse impact present in the hypothetical case.

Discussion of the hypothetical cases is interwoven with the presentations of the quantitative methods and progress from simple concepts, at the beginning of the book to more complex issues (e.g., determining the extent to which discriminatory impact can be inferred) at the end of the book. Because of this, it is best to read the book from start to finish. The book is intended for attorneys with no statistical background. Thus, the text focuses on discussions of statistical concepts; formulas and other technical information in footnotes or appendices. The book is an excellent resource for individuals who are seeking an easy-to-read presentation of quantitative methods. Those who already have a foundation of statistics and wish to consult the book for information on the various issues of quantitative proof may find its reliance on the hypothetical cases as the primary teaching tool somewhat frustrating. Various aspects of the cases are discussed in more detail as the book

progresses, a reader who has forgotten what the key issues and facts in the hypothetical case cannot find a single description of all aspects of the case in one place in the text.

Although the book has been updated since 1980 (with the most recent supplement in 1987 and another supplement scheduled for publication in 1991), it does not cover statistical techniques that have been introduced in employment discrimination cases during the last decade (e.g., logistic regression and survival analysis).

Use of Statistics in Equal Employment Opportunity Litigation by Walter Connolly and David Peterson, another collaboration between an attorney and a statistician, was also first published in 1980. (The book, in its seventh update now, includes Michael Connolly as an author.) Unlike Baldus and Cole, who attempted to present statistical techniques that had been used successfully in the courts, Connolly et al. state that their orientation is more "proactive" than "retroactive." While all of the methods that they discuss are consistent with the methods found acceptable in the current case law, they present some analysis techniques that (at least at that time) had not yet been introduced to the courts. They begin by laying out the proof required in making (and rebutting) a prima facie case and by describing how statistics have been used in previous employment discrimination cases. They continue to discuss the applications of statistical methods and techniques to make and rebut a prima facie case in each of the types of personnel decisions made by an employer. The hiring process, including ways to estimate the racial composition of the employer's labor pool, is discussed in chapters 4 and 5; discipline and discharges are discussed in chapter 6; job assignments, transfers, and promotions are discussed in chapter 7; testing is discussed in chapter 8; and pay issues, including equal pay, wage mobility, and back pay awards, are discussed in chapter 9. The use of statistics in making and rebutting claims of age discrimination are presented in chapter 10. The authors conclude with treatments of more specialized issues, such as the possible effects of sex bias in race discrimination cases; the difference between practical and statistical significance if a finding of discrimination can be inferred; and the selection of the appropriate statistical model (such as the binomial or the hypergeometric) to detect disparate treatment or impact. More technical information about the theory of probability, multivariate statistical models, and the use of regression in discrimination cases is presented in several appendixes.

One of the strengths of the book is that the authors describe new ways of looking at legal problems. For example, the authors spend considerable effort in chapter 5 to discuss different ways in which an employer's labor pool may be defined and refined. The authors use different units of census data (e.g., townships or particular

tracts) as well as applicant data, together with knowledge of preferred commuting patterns and about the racial composition of the population within certain distances from the employer, to calculate the numbers of blacks expected to reside in the employer's labor force. One of the features of the chapter on age discrimination (chapter 10) is its easy-to-understand presentation of how some of the less well-known statistical techniques, (e.g., the Kolmogorov-Smirnov test or the Mann-Whitney U test) can be used appropriately to analyze data from age discrimination cases.

The authors state that "the level of mathematics is quite undemanding" in the main part of the text and, as such, readers having "some remembrance of high school mathematics" should be able to comprehend the book. We believe that attorneys who are familiar with probability theory and statistical methods are more likely to benefit from reading the book than those who are not. Readers with very little statistical training can skip the technical discussions and the equations presented in the more theoretical chapters and focus on the merits of the issues being discussed. Having a methodological background, however, will make some of the chapters more meaningful—such as the discussions of the hiring process or of the various probability models used to detect wage disparities.

Books Organized by Statistical Technique

David Barnes in 1983 published *Statistics as Proof: Fundamentals of Quantitative Evidence*. He wrote the book for attorneys who have no statistical training "or who, as bold undergraduates, ventured into the lion's den only to be torn to shreds."⁵ His approach is to present increasingly complex statistical concepts as the reader progresses through the book. Beginning with descriptive statistics, Barnes proceeds with an introduction to inferential statistics (i.e., hypothesis testing), standard deviations, significance testing, inferring from a sample, and regression analysis. He concludes with caveats pertaining to several analytical issues. His intent was not to cover all statistical techniques that could be used in litigation but to provide sufficient coverage of the basics so that attorneys could understand the reasoning behind the most commonly used methods. He illustrates the use of each technique introduced by including the actual text from a court decision where the technique was discussed. By highlighting the use of quantitative proof by the courts, he shows readers the importance of an understanding

of statistical procedures. To ensure that the reader understands how the technique should be used and how the results should be interpreted, he includes questions and problems at the end of each section.

Barnes suggests that attorneys who have some statistical background may be frustrated by his materials. "They include only enough background arithmetic to enable the blissfully ignorant to understand the ways statistical methods can be used to describe and draw conclusions from facts."⁶ He makes a concerted effort to break each statistical procedure into a number of discrete steps that the reader can carry out. For example, he provides five steps on how to use the binomial table and nine steps on how to calculate standard deviations when discussing the *Castaneda*⁷ test.

This is an excellent introductory book for readers who have no statistical training. The book is best read from start to finish, as each section builds upon the knowledge gained in the earlier sections. All statistical formulas are presented in discrete steps, and appendixes contain tables that allow readers to learn how to determine the significance of a result. Individuals who are already familiar with the analytical methods introduced in the book might benefit most from reading the discussions and problems presented after each court decision. The problems provide opportunities to examine the decision from a statistical point of view. An interesting example is taken from the court's decision in *Gay v. Waiters' and Dairy Lunchmen's Union*, 694 F.2d 531 (9th Cir. 1982). Readers are asked to take what they have just learned about calculating Z-scores and apply it to the data presented in this case. In this instance, the court carried out its own statistical calculations. How many previous reviewers of this case detected the fact that the court ignored the digits after the decimal points when calculating the Z-scores?

Barnes, in collaboration with John Conley, published a more advanced book in 1986 entitled *Statistical Evidence in Litigation: Methodology, Procedure, and Practice*. While the authors still contend that their book is written for attorneys who have no statistical training, we rate it more intermediate than introductory. Its more comprehensive coverage of analysis techniques and methods⁸ coupled with discussions or tactics for defending (or attacking) a statistical case made by qualified experts (for example, analyzing explanatory power of the method, limitations and possible attacks on particular methods) suggest that the volume is more likely to be used as a resource by attorneys with some quantitative background.

As with the earlier book written by Barnes, the authors continue to present all steps needed to calculate a particular statistic. The steps and calculations are now effectively included in a separate figure, which means that the text is interrupted less often—a feature that more technically sophisticated readers will appreciate. Even more complicated procedures, such as calculating the hypergeometric probability that four females were randomly selected out of a group of four females and eighteen males, are presented in a figure that is easy to follow. Instead of reprinting large portions of the court decisions as in the earlier volume, more cases are described but in less detail; often there is only a one-paragraph summary of the highlights of the data or of the main points made in the statistical case. Although the inclusion of larger portions of text from the court decisions in the previous book gave a better feeling for the decisionmaking process using statistical data and concepts, the shorter summaries in this book enable the authors to focus on the most relevant issues in the cases and to include discussions of many more cases.

While the authors have continued to present new information by defining all of the terms and carefully presenting all steps for a procedure, the book will have greater appeal to attorneys who have at least studied the earlier book by Barnes or another statistics book. This is not to suggest that attorneys who are new to statistics cannot benefit from the book. Even if an attorney does not feel comfortable actually calculating a chi-square statistic, for example, he or she would benefit from the discussions of the limitations of the method (and how to attack its use) if chi-square analysis were encountered in court.

A book published in 1990 entitled *Statistics for Lawyers* was written by Michael Finkelstein and Bruce Levin. Because this book is part of the publisher's series of texts on statistics, it is catalogued with statistics books, which means that an attorney browsing in a library would not find this book shelved along side of the other legal books reviewed in this article. The writing style is designed to appeal to persons with little prior knowledge of probability or statistics. The tone is set when the authors lay out their intentions for the volume: "The vehicle for this entertainment is a series of case studies interlaced with sections of mathematical exposition."⁹ Despite the authors' efforts to present the statistical material in easy-to-understand language, their emphasis on more sophisticated methods, such as regression models and survival analysis, and their inclusion of more advanced topics, such as correlation in the chapter on descriptive statistics, places the volume at an intermediate rather than introductory level.

Perhaps the most comprehensive treatment in the book is provided in chapter 12: Regression Methods. Almost one-third of the book is devoted to discussions of regression models. This emphasis is not surprising, since both authors have been applying regression analyses to legal problems for more than a decade.¹⁰ They have tried to present the material using as few technical terms as possible—given the complexity of the subject matter. Footnotes are used to define commonly used technical terms and the chapter is separated into thirty-seven sections. Each section is followed either by notes, resources, problems, or a combination of these; an ideal strategy for breaking up what would otherwise have been a fairly lengthy and technical discussion, and one which should appeal to the novice who wants to learn the material. They also present explanatory graphs to help illustrate the points they wish to make; e.g., showing what regression lines look like, illustrating alternate forms of regression models used in employment discrimination cases, or showing the effect of underadjustment bias. The technical statistical sections have headings that are presented in italics to clearly distinguish them from the nontechnical surrounding text. Typically, these sections are presented between two concrete examples or discussions to help keep the novice reader from losing interest. A particularly instructive strategy is the inclusion of sections on the format of computer printouts of regression analyses and how to read and interpret them. Even though the authors take great pains to write the chapter using easy-to-understand language, the chapter is not a superficial treatment of regression methods. The authors manage to cover some fairly sophisticated topics, including alternate regression models, interactions among the explanatory variables, systems of equations, logit and probit analyses for dichotomous outcomes, and the use of the jackknife and bootstrap methods of producing robust estimates of the variability of the regression coefficients.

A more advanced treatment of the use of statistics in law is provided by Joseph Gastwirth, a statistician who has served for many years as an expert in a variety of legal cases. His two-volume work entitled *Statistical Reasoning in Law and Public Policy* was published in 1988. Volume 1 is *Statistical Concepts and Issues of Fairness*, and Volume 2 is *Tort Law, Evidence, and Health*. Volume 1 and chapter 11 in Volume 2 will be of most interest to attorneys seeking employment discrimination applications. His intent is not to cover all statistical methods but to focus on a subset that has been applied to a variety of legal settings. Given his greater reliance on scientific notation and his fast-paced presentation, the book will appeal more to persons who already have a solid foundation in statistics and are looking for appropriate applications in litigation. However, he employs a

number of good teaching techniques that facilitate mastery of the information, such as: use of graphs and charts to illustrate key points; tables of the data values being analyzed in the text; inclusion of problems and answers; use of data taken from actual cases; and lists of recommended references that are annotated to indicate which are elementary or more advanced.

After introducing descriptive statistics, probability, and the principles of statistical inference, Gastwirth illustrates the use of the binomial model in jury selection cases, presents procedures for comparing proportions and distributions, and shows how to measure the relationship between variables with correlation and regression. Chapter 6 is devoted to the application of statistical techniques to employment discrimination cases. For example, using data from particular cases, he shows how data were inadequate (or adequate) to help establish a prima facie case, how data were used to detect race discrimination in promotions, and how to aggregate across several selection events in a discrimination case. Seeing how the data from actual cases can be analyzed is a particularly effective teaching tool.

The book is filled with nuggets of useful information and food for thought—often only several paragraphs in length—appearing in the form of comments following the major discussion. One example is the discussion of the use of census data as a proxy for the employer's labor pool in *Hazelwood School District v. United States*, 433 U.S. 299 (1977). Gastwirth notes that the census data include information on all persons employed in the occupation (teachers in the case), not just new hires. He suggests a way of adjusting the proxy labor pool by excluding persons earning appreciably more than an entry salary, thereby refining the data to better approximate the pool of persons who had recently entered the labor force in that occupation.

Books Providing Specialized Treatments

The final three books to be reviewed differ from the preceding books in several respects: (1) they presume a degree of statistical sophistication in their audience, (2) they are compendiums of separately written chapters around a unifying theme rather than the coherent work of one author or one group of authors, and (3) their focus is on the methodological and conceptual issues at the frontier of statistics and the law. None is a suitable primer for a reader who is seeking a basic introduction to statistical methods and significance testing. On the other hand, many of the points made in the Fienberg book¹¹ can be understood and appreciated by any

intelligent reader with some rudimentary understanding of descriptive statistics and hypothesis testing. The Kaye and Aickin book¹² focuses specifically on statistical methods in discrimination litigation, but it is also the most technically demanding and the only that makes any significant use of mathematical formulas and notation in its presentation.

Statistical Methods in Discrimination Litigation, edited by David Kaye and Mikel Aickin and published in 1986, is primarily aimed at statisticians and other experts "conversant with statistics but not fully initiated into the mysteries of the legal profession."¹³ A second important audience is attorneys and the courts. The authors' intent is first to provide attorneys with some guidance about what to expect from experts who carry out statistical analyses of discrimination data, and, second, to help courts recognize flawed or incomplete analyses and "lead them to remain open to intelligent variations or improvements on traditional methods."¹⁴ The chapters vary considerably in the level of statistical expertise required from the reader; with the distinctive contributions of the volume residing in those chapters that are most technical. These include three chapters on regression analysis, which explore some of the fine points of model specification and measurement error and provide further examination of reverse regression, and a chapter on the validation of employee selection procedures. A final chapter by co-editor Mikel Aickin discusses the issues and problems that arise when statistical methods are adapted to the adversarial arena of the court room, including the ways in which hypothesis testing can be manipulated to favor one or the other party in the suit and the threats to validity that occur when each side selects only the most favorable analysis results for presentation to the court. As Aickin states: "It can be taken as fact that back in the statistician's office there are twenty pounds of computer output representing a month's worth of study of the company's data set [by the plaintiff's expert]. The defendant's lawyer should now turn to investigating how twenty pounds came to be reduced to a fraction of an ounce."¹⁵

Statistics and the Law, edited by Morris DeGroot, Stephen Fienberg, and Joseph Kadane, published in 1986, is organized as a series of case studies of legal cases, or types of legal cases, in which statistical analyses were important elements. Many of the chapters were written by the statisticians who actually participated in the cases, and these are followed by comments by other statisticians with divergent viewpoints. One stated purpose for the book, which the editors describe as developed by statisticians for statisticians, is to provide useful background and information about the use of statistics in the law to individuals who may serve as expert

witnesses or consultants. At the same time, the editors want to improve the communication between attorneys and their experts by providing the attorneys with a better understanding of the statistical methods used in litigation. The level of the presentation is such that readers with a modest grasp of statistics can still derive significant insights from the work.

The book contains three chapters that focus specifically on employment discrimination law. "What Happened in Hazelwood: Statistics, Employment Discrimination, and the 80% Rule"¹⁶ traces the evolution of legal precedent concerning statistical evidence in employment discrimination cases and raises questions about both the statistical appropriateness of the models employed and the legal relevance of the information obtained. A second chapter, "Regression Analyses in Employment Discrimination Cases,"¹⁷ argues for the suitability of reverse regression as an alternative analysis technique for evaluating inequities in pay. (In standard regression analysis, the question that is addressed is: Are persons with the same qualifications paid the same, regardless of class membership? In reverse regression, the question is changed to: Do persons at the same salary level possess the same qualifications, regardless of class membership?) Reverse regression tends to provide less evidence of inequity than standard regression, but its appropriateness in employment discrimination cases is questioned, as shown by the comments that follow this chapter. A third chapter focusing on employment discrimination, "The Use of Court-Appointed Statistical Experts: A Case Study,"¹⁸ is based on *Carter v. Newsday*, 528 F. Supp. 1187 (E.D.N.Y. 1981), one of the few cases in which the court has taken advantage of the provisions of Rule 706 of the Federal Rules of Evidence to appoint its own expert statistical witness.

The Evolving Role of Statistical Assessments as Evidence in the Courts, edited by Stephen Fienberg and published in 1989, is the report of a panel convened by the National Research Council. Panelists included economists, political scientists, sociologists, and psychologists as well as statisticians and jurists. This volume covers some of the same ground as the earlier *Statistics and the Law*, and, indeed, some of the same authors contributed to both volumes. The report, which is the result of more than three years of research, uses a series of brief case studies (three concerning employment discrimination)¹⁹ to discuss the potential merits as well as the pitfalls of using statistical evidence at trial. Also included is a chapter that provides a slightly different perspective on the same topic by offering essentially a chronological review of the use of statistics in three selected areas of litigation—one of which is Title VII employment discrimination litigation.

The book closes with a chapter titled "Statistics, Law, and Expert Testimony,"²⁰ which offers a thoughtful examination of the major differences between legal and statistical thinking and the resulting implications for successful working relationships between scientists and lawyers. The same chapter also examines the problems inherent in giving statistical testimony, such as differentiating between a role as advocate or as impartial evaluator or educator, and how these might tend to lead judges and jurors to undervalue or overvalue statistical evidence. The book concludes with the panel's recommendations concerning the ethical and scientifically accurate use of statistics in the law.

CONCLUDING REMARKS

We concur with Judge Higginbotham's conclusion that "[e]conometric techniques . . . are not discrimination CAT scanners—ready to detect alien discrimination in corporate bodies. It may reveal shadows but its resolution is seldom more precise. Ultimately the findings of fact here are not numerical products and sums but a human judgment that the facts found are more likely true than not true."²¹ At the same time, we believe that attorneys as well as the courts will be better able to make an assessment of the facts if they have some understanding of statistical methods. In this article, we have reviewed books that will enable attorneys—regardless of their analytical backgrounds—to derive insights into the realm of quantitative methods and statistical analysis. In the table that follows, we list each book and indicate whether the book is written at an introductory level, an intermediate level, or at more of an advanced level.

Books Reviewed on Statistical Analyses to Detect Employment Discrimination		
Organization of the Book	Information about the Book	Level of the Book
Legal Proof Relating to Personnel Practices	<i>Statistical Proof of Discrimination</i> by David C. Baldus & James W.L. Cole Shepard's/McGraw-Hill (Published originally in 1980; a new supplement is scheduled to be released in 1991) 386 pages (\$95 for library binding)	Introductory
	<i>Use of Statistics in Equal Employment Opportunity Litigation</i> by Walter B. Connolly, Jr., David W. Peterson, & Michael J. Connolly Law Journal Seminars-Press (Originally published in 1980; seventh update was in 1989) 500 pages (\$70 for looseleaf)	Intermediate
Statistical Techniques	<i>Statistics as Proof: Fundamentals of Quantitative Evidence</i> by David W. Barnes Little, Brown and Company (Published in 1983) 464 pages (\$25 for library binding)	Introductory
	<i>Statistical Evidence in Litigation: Methodology, Procedure, and Practice</i> by David W. Barnes & John M. Conley Little, Brown & Company (Published in 1986; supplement published in 1987) 686 pages (\$85 for library binding)	Intermediate
	<i>Statistics for Lawyers</i> by Michael O. Finkelstein & Bruce Levin Part of Springer-Verlag's Texts in Statistics (Published in 1990) 608 pages (\$59 for library binding)	Intermediate
	<i>Statistical Reasoning in Law and Public Policy, Volume 1: Statistical Concepts and Issues of Fairness</i> by Joseph L. Gastwirth Part of Academy Press's Statistical Modelling and Decision Science Series (Published in 1988) 465 pages (\$95 for library binding)	Advanced
Specialized Treatments	<i>Statistical Methods in Discrimination Litigation</i> edited by D.H. Kaye & Mikel Aicken Marcel Dekker, Inc. (Published in 1986) 232 pages (\$65 for library binding)	Advanced
	<i>Statistics and the Law</i> edited by Morris H. DeGroot, Stephen E. Fienberg, & Joseph B. Kadane Part of Wiley's Probability and Mathematical Statistics Series (Published in 1986) 512 pages (\$60 for library binding)	Advanced
	<i>The Evolving Role of Statistical Assessments as Evidence in the Courts</i> edited by Stephen E. Fienberg Springer-Verlag (Published in 1989) 374 pages (\$35)	Advanced

NOTES

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The authors have worked with trial attorneys on more than twenty lawsuits involving Title VII employment discrimination or age discrimination.

1. D.W. BARNES & J. M. CONLEY, *STATISTICAL EVIDENCE IN LITIGATION: METHODOLOGY, PROCEDURE, AND PRACTICE* 22 (1986).
2. *Vuyanich v. Republic Nat'l Bank of Dallas*, 521 F. Supp. 656, 661 (N.D. Tex. 1981). For an excellent discussion of statistical techniques in an employment discrimination decision, *see Vuyanich v. Republic Nat'l Bank of Dallas*, 505 F. Supp. 224 (N.D. Tex. 1980).
3. Included in this category are *STATISTICAL CONCEPTS FOR ATTORNEYS: A REFERENCE GUIDE* by Wayne Curtis (1983) and *SOCIAL SCIENCE RESEARCH METHODS FOR LITIGATION* by Donald Vinson and Philip Anthony (1985). Also excluded from this discussion is Richard Wehmhoefer's book entitled *STATISTICS IN LITIGATION: PRACTICAL APPLICATIONS FOR LAWYERS* (1985). Although Wehmhoefer presents information organized both by analytical method and by kind of discrimination (such as age, housing, and so forth), many of the chapters are reprinted from journal articles previously published by other writers. We did not think that this compendium of materials warranted a separate review.
4. D.C. BALDUS & J.W.L. COLE, *STATISTICAL PROOF OF DISCRIMINATION* 3 (1980).
5. D. BARNES, *STATISTICS AS PROOF: FUNDAMENTALS OF QUANTITATIVE EVIDENCE* 2 (1983).
6. *Id.* At 1.

7. *Castaneda v. Partida*, 430 U.S. 482 (1977).
8. (For example, both hypergeometric and binomial probability distributions for testing statistical significance; extensive coverage of analyzing sample data taken from populations; and more in-depth information on nonlinear as well as linear regression models.)
9. M. FINKELSTEIN & B. LEVIN, *STATISTICS FOR LAWYERS*, vii (1990).
10. *See, e.g.*, Finkelstein, *The Judicial Reception of Multiple Regression Studies in Race and Sex Discrimination Cases*, 80 COLUM. L. REV. (1980), and Levin & Robbins, *Urn Models for Regression Analysis, with Applications to Employment Discrimination Studies*, LAW & CONTEMP. PROBS. (1983).
11. THE EVOLVING ROLE OF STATISTICAL ASSESSMENTS AS EVIDENCE IN THE COURTS (Stephen Fienberg, ed., 1989).
12. STATISTICAL METHODS IN DISCRIMINATION LITIGATION (David Kaye & Mikel Aicken eds., 1986).
13. *Id.* at vi.
14. *Id.* at vii.
15. *Id.* at 172.
16. STATISTICS AND THE LAW 1 (Morris DeGroot et al. eds., 1986).
17. *Id.* at 107.
18. *Id.* at 305.
19. *E.E.O.C. v. Federal Reserve Bank of Richmond*, 698 F.2d 633 (4th Cir. 1983); *Carter v. Newsday*, 528 F. Supp. 1187 (E.D.N.Y. 1981); and *Vuyanich v. Republic Nat'l Bank*, 505 F. Supp. 224 (N.D. Tex. 1980).
20. THE EVOLVING ROLE OF STATISTICAL ASSESSMENTS AS EVIDENCE IN THE COURTS 139 (Stephen Fienberg, ed., 1989).
21. *Vuyanich v. Republic Nat'l Bank of Dallas*, 505 F. Supp. 224, 394 (N.D. Tex. 1980).