

社会学精品原版教材系列

Social Statistics

Fourth Edition

A Text Using MicroCase®

社会统计学
应用MicroCase®软件的课本

William Fox (美) 著

外语教学与研究出版社

FOREIGN LANGUAGE TEACHING AND RESEARCH PRESS

Social Statistics: A Text Using MicroCase® (Fourth Edition) provides an exciting program that makes it easy to analyze real data. The author integrates data management techniques into statistical analyses and offers examples of statistical write-ups. The book uses updated and expanded data sets and incorporates a new version of the MicroCase software.

Very powerful, yet simple to use, the software can be run from the enclosed CD-ROM and disk with no installation required, or it can be installed on your personal computer or network. The diskette contains completely updated data in three data sets: GSS, STATES, and GLOBAL.

Social Statistics

A Text Using
MicroCase®

A MicroCase® Workbook for Social Statistics is the Student's Workbook for *Social Statistics: A Text Using MicroCase®*. Most workbook chapters contain three kinds of exercises: Basic Ideas/Discussion Issues are questions about the "why" of statistical analyses and the principles that underlie statistics; Paper-and-Pencil Exercises have you do statistical analyses without using MicroCase; Analyses: GSS Data or STATES Data or GLOBAL Data offer statistical exercises for you to carry out using the computer.

Instructor's Resource Guide and Test Bank is the Teacher's Book for *Social Statistics: A Text Using MicroCase®* and *A MicroCase® Workbook for Social Statistics*, which offers some thoughts on teaching the ideas and procedures. The author's thoughts on teaching sketch his experience with and approaches to teaching the statistical ideas. The book also includes a few nitty-gritty suggestions for helping students learn statistics concepts and techniques.

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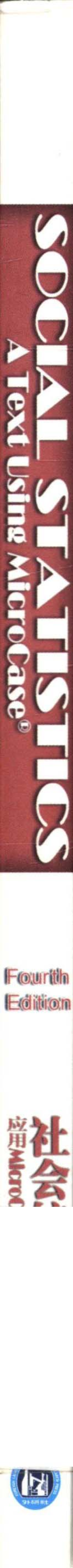


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《社会应用微机文字用户》

第四版

Fourth Edition

社会应用微机文字用户

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清华大学出版社

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社会统计学

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社会学精品原版教材系列

总 序

中国是一个有着几千年文明史的国家，中国人在哲学、历史、伦理、文学、天文、算学、医学等领域的研究都有悠久的历史，形成了自己独特的学术传统。但是到了近代却在对自然界和人类社会的研究方面长期闭关自守，裹足不前，最后古老的中国终于败在西方国家的“坚船利炮”之下。

被一连串失败震动了的中国人，开始仿照西方国家开办新式学校，讲授西方的各种学科知识。发源于西方社会的自然科学、社会科学、人文科学、医学、工程学等开始进入中国学校的讲堂。这些变化使中国进入了一个新的时代，与世界接轨的时代，改变了中国的教育体系，改变了中国人的知识结构，也改变了中国人的思想观念。

进入21世纪之后，世界各国之间依然存在激烈的竞争。对于中国来说，与西方发达国家竞争的激烈程度丝毫不逊于近代史上的任何时期。当年落后的中国败于“鸦片战争”，败于“甲午海战”，当年内部分裂的中国在日寇进攻下一度失去了半壁江山，面临民族存亡的危机。中华人民共和国的建立使得中国人团结起来了，在政治上站起来了，但是必须承认，我们在科学技术、社会科学、经济建设等不少方面仍然远远落在西方发达国家的后面。

要想让中国人真正站起来，就必须使中国人在科技、教育等各个方面赶上西方发达国家。也正是在这样的形势下，党中央提出了“科教兴国”的策略。一个国家如果没有真正先进的教育，就不可能有高素质的国民，不可能产生先进的科学技术，不可能发展强大的经济。当代社会财富的增值主要来自技术的创新，而技术的创新来自基础科学的创新，基础科学的创新人才又来自我们的学校教育。一个真正强大的国家，不仅要有先进的自然科学与工程技术，也必须发展出先进的人文学科和社会科学。人是社会的动物，不把社会的基本结构、组织形式、运行机制研究清楚，不培养和造就高素质的国民，我们怎么去组织和管理这个社会包括它的经济活动呢？

社会学是起源于西方的一门社会科学，研究的是在社会形态下的人如何思想和行动，最早被严复翻译成“群学”，因为它研究的不是作为生物体的人，而是生活在社会之中并与其他人保持密切交往的人。社会学一方面教给人们如何去理解社会变化的规

律，学习认识社会的研究方法，另一方面也在教导人应当如何在社会中生活，应当如何做人。中国的文化传统对这两点是很强调的，儒家首先讲的就是“修身齐家”，然后才是“治国平天下”。中国有自己的文化传统，这是几千年发展出来的一个知识体系，这个知识体系中凡是好的东西，仍然要继承下去，比如中国的“和而不同”的思想，对于不同文化之间、不同民族之间的交流与共处，就是很有价值的思路。中国人在几千年里的族群交流、文明碰撞中能够发展出今天这样一个地域辽阔、族群繁多、文化多元的国家，形成了一个“多元一体”的中华民族，是有它的道理的，根就在我们的文化传统中。

在现代化进程当中的中国必须与其他各国打交道，与各国做生意，所以必须了解西方社会和它们的文化传统、思想观念和学术体系，需要了解它们的社会研究方法 with 理论，了解它们的社会学这门学科的系统性知识。可惜的是，建国后这个学科曾经一度被取消，随着70年代后期“改革开放”方针的确立，党中央又决定在我国重建社会学。20多年过去了，应当说我们在恢复这个学科的教学和研究工作方面，做出了不少成绩，使得这个一度被社会遗忘的学科，再次有了一定的知名度。但是要看到这个学科仍然不够成熟，各个学校的发展也不平衡，在许多方面还需要断续“补课”，需要培养一批高素质的教师，需要编写高质量的教材，同时需要组织一批密切结合我国社会变迁发展的研究课题，组织出版相应的研究成果。

要想使中国的社会学发展起来，在开始阶段要做两件事：一是继续学习和了解西方国家社会学的最新研究方法 with 研究成果；二是脚踏实地地在中国做实地调查研究、了解国情、分析各种社会学理论对于中国社会的适用性，研究中国社会的发展规律。做好了这两件基础性的工作，我们就有可能借鉴国外的知识，研究中国社会的实际现象，在分析中努力提出具有创新性的命题与理论，再经过跨国比较研究，使这些从中国社会提炼出来的知识变成世界知识体系的组成部分。

近年来，我们注意到西方国家的知识和技术的发展与更新速度在不断加快，这使得我们学习与研究的速度也不得不加快。以自然科学为例，现在世界上最新的前沿课题与研究成果都及时刊登在英文的学术期刊上。只有在大学本科期间就使用国外英文版教科书来学习基础物理、基础化学、基础生物学等课程的学生，才可能通过学习来熟练地掌握相关的英文术语和表达方式，也才有可能在研究生阶段比较熟练地阅读这些学科的英文期刊，在研究生毕业后才有可能迅速接近世界学术前沿。也正是看到了这一点，教育部在积极推动我国大学课程的英语授课。

在使用英文教科书方面，我国文科的紧迫性也许不如自然科学，但是同样也需要提到日程上来。前几年为了补充国内教材的不足，我们与华夏出版社合作，组织翻译了《高校经典教材译丛——社会学》，已先后出版了十几本翻译版的国外教材，总的来说反响是好的。现在外语教学与研究出版社（外研社）愿意组织出版一批英文原版的社会学教科书，这同样是一件好事。如果我国有一些本科生或研究生能够通过阅读这些英文原版教材来学习社会学，这无疑为他们阅读英文社会学杂志搭了一座桥，我想这对于社会学这个学科的建设与对外交流是非常有益的。

这样来看，社会学这个学科未来的教材可以包括以下四个部分：一是国内学者创造性的著述，二是国内学者借鉴西方知识体系同时结合我国国情研究撰写的系统教材，三是翻译成中文的西方教科书，四是英文原版教科书。在本科生学习期间，以第一部分为主，后三部分为辅。到了本科高年级和研究生学习期间，再进一步增加对中文和英文的研究专著、学术期刊的阅读。这样中西结合，互相补充，取其精华，去其糟粕，既有助于学生拓展视野、丰富知识，又可以促进比较分析，提高学生独立判断与思考的能力。这对于中国社会学的教学与研究工作，对于中国社会学的对外交流，必将有所促进。我国派到美国和欧洲去留学的学生，在国外的大学里主要也是在读这些书，如果我们大学里的图书馆能够订购到系统和丰富的英文教科书和学术期刊，就可以至少在阅读材料方面为我们的学生们提供一个较好的条件。

当然，在历史上中国有自己的发展道路与传统文化，在今天的现代化进程中中国也有自己的政策与国情，西方的社会学理论与观点是否符合中国社会的实际，需要检验才可以证实。我们在阅读原版教材时，也必须以辩证的眼光去分析和辨别。但我们在21世纪的今天，必须放眼世界，无论在自然科学还是在社会科学的知识发展方面都必须做到“知己知彼”，了解国外的社会学理论与研究成果，也就是了解其他国家是在以什么样的思路来分析和理解中国。

21世纪决不会是一个平静的世纪，全球化是一个不可抗拒的发展大势，它增进了不同国家、不同文化之间的接触与交流，同时在国家利益的相互碰撞中，在不同文化的相互碰撞中也隐藏着矛盾与冲突，甚至会出现局部的战争。我们需要了解我们中华民族的文化传统与发展历史，也需要了解其他国家的文化传统、社会制度、价值观念和行为规范，逐步在中外社会、中外社会学思想的比较中更加深刻地认识自身与他人，真正做到中国人的文化自觉。我想这应当是中国社会学者不可推卸的历史责任。在这个过程中，我们必须开拓眼界，虚怀若谷，既不固步自封，也不妄

自菲薄，脚踏实地把我们的教学与研究工作做好，使社会学为今后中国社会的发展做出它不可替代的贡献。

我们盼望着由外研社出版的“社会学精品原版教材系列”早日与广大读者见面，以推动我国的社会学教育与研究有更进一步的发展。

A handwritten signature in black ink, which appears to be '费孝通' (Fei Xiaotong), written in a cursive style.

(费孝通)

2003年6月20日

About the Author

William Fox has a B.A. in Political Science from the University of Michigan and a Ph.D. in Sociology from Indiana University. He has taught at the University of Iowa, Florida Atlantic University, and Richmond College in London, and is now Professor of Sociology at Skidmore College in upstate New York. His current research interests are in urban folklore and social history. Bill lives with his wife, Collette, in an empty Victorian nest in Saratoga Springs, New York, where he enjoys biographies, Mozart, and roots music.

Preface

This fourth edition of *Social Statistics* is prompted by the generous reception given previous editions and is guided by their users' comments and suggestions. Students and faculty alike have forwarded their ideas for conveying statistical ideas more effectively and efficiently. I have tried my best to incorporate the sense and substance of their suggestions in this edition. This edition uses updated and expanded data sets and incorporates a new version of the MicroCase software. I have again integrated data management techniques into statistical analysis and offered examples of statistical write-ups. Students welcomed the supportive, interactive style of earlier editions, and I have continued the same in this edition.

MicroCase

This text uses a student version of MicroCase, a straightforward, no-nonsense piece of statistics software. MicroCase does data analysis and gets the job done efficiently, competently, and intelligently. You will learn statistics, and substantive social science too, with minimal distraction from the computer itself. No inundation with esoteric options. Just learning statistics (or whatever). Just doing data analysis. I have written this text in the same pragmatic spirit as MicroCase.

You will like MicroCase a lot. It can do just about any sort of statistical analysis that you are ever likely to want to carry out. Here are some of the things that MicroCase can do:

- Compute percentages.
- Produce statistical tables.
- Produce pie charts and bar graphs.
- Draw outline maps showing geographic distributions of variables.
- Compute means and medians.

- Compute standard deviations and variances.
- Compute cross-tabulations, chi squares, and measures of association.
- Do t tests and analyses of variance.
- Compute regression and correlation coefficients.
- Compute multiple regression and correlation coefficients.
- Create new variables from old ones and manage data in useful ways.

There's no need to worry if you don't know what some of these things are. You will know all of them after finishing this text and accompanying workbook.

MicroCase is available for Windows-compatible computers like IBM, Dell, and Compaq computers. (Sorry, fellow Apple fans, but we have to use Windows computers for MicroCase.) You already own MicroCase. A version called Student MicroCase came on a CD-ROM disc with this text's workbook. Student MicroCase is a slimmed down but still powerful version of the full MicroCase.¹

Don't worry if you don't know much about computers or even if you have never used one. You don't need to know much about computers themselves to make good, intelligent use of MicroCase to do statistics. You don't have to write computer programs or design computer systems—nothing like that. The accompanying workbook will give you all the information you need.

What to Expect in This Text

Let me explain how I have organized this text. We will learn statistics by beginning with the simplest situations and then moving through increasingly complex analyses. We will start with methods for analyzing only one variable at a time. Then we will take up methods for analyzing a relationship between two variables. That's a little more complex. And finally we will consider techniques for studying relationships among three or more variables at a time. That's really complex. Sensibly enough (at least if you know some Latin), these three situations involve *univariate*, *bivariate*, and *multivariate analyses*, respectively. That is how we will proceed in this text. The workbook has exercises that encourage you to apply your knowledge of statistics and carry out computer analyses of real data.

¹ Your school may have the full MicroCase if it participates in the MicroCase Curriculum Plan and has a site license. You can find out from your instructor if the full MicroCase is available at your school.

This book covers basic statistical methods. Although you will not be a full-fledged statistician after finishing *Social Statistics*, you will know enough statistics to critically evaluate others' uses of basic statistical techniques and to analyze data yourself. In other words, you will be both an informed consumer and a responsible producer of statistics. You will also be well prepared to study more advanced statistics should you choose to do so. In short, you won't learn everything about statistics from this text, but you will learn a lot.

I have written this text for students in the social sciences and related disciplines such as social work, criminal justice, public administration, and education. I assume that you need to carry out real analyses using real data, so I do not avoid the problems you and I find in the "real world"—missing information, skewed data, outliers, variables that need to be collapsed, and so on. In this text we will face the messiness that makes the social world so challenging to study and so much fun to live in. This text relies heavily on real data from sources like the U.S. Census, *Uniform Crime Reports*, and the General Social Survey—data that full-fledged social scientists analyze in their own research. Thus, we can't avoid facing the real issues and problems that come with real data. Still, there are times when messiness of data can get in the way of learning statistics, so I have not hesitated to make up data to introduce certain statistical techniques when "clean" examples foster learning. We'll use whatever data—real or imaginary—best helps us learn statistics.

I also assume that you need to present your statistical analyses to others (your instructor now, employers or a larger "public" later in your life), so I include guidelines for writing up statistical analyses, formatting tables, and constructing graphs. You will also find examples of analysis write-ups following several chapters. You will probably find these write-ups useful as models for describing your own research results. You don't need to be a professional statistician to communicate statistical findings effectively to others. You will be able to do so after finishing this text.

So this text does not skimp on nitty-gritty details about doing real statistics in the real world. But I am also concerned that you understand statistical principles and reasoning. You need this understanding to know what statistical procedures are right for given situations and to interpret statistical analyses sensibly. Therefore, I will go beyond formulas and procedures to explain why we are doing what we do. You will find almost no computational formulas in this book to facilitate calculations. Computers render such formulas unnecessary. There is, of course, a place for computational formulas. They mostly belong in a Museum of Statistical Antiquities, maybe in a glass case next to slide rules, to remind us how unpleasant and tedious statistics used to be.

But this text does not shy away entirely from formulas and calculations. To the contrary, we will learn to do calculations “by hand” before using the friendly computer to do this mostly routine work for us. Initially while learning data analysis, calculating statistics with our human brains is essential for understanding why statistics work the way they do and what the computer’s faster brain does for us. However, we will use definitional rather than computational formulas. Although less convenient and more tedious, definitional formulas describe what statistics are really about and thus are the best way to understand how statistics works. The *Doing Statistics Using MicroCase* workbook accompanying this text invites you to do paper-and-pencil calculations before carrying out computer analyses.

But in the last analysis (literally), the computer exercises in the workbook are even more important than the “by hand” exercises. I have written the workbook for you to use actively with a computer. You should, in fact, read and do most of the workbook while using a computer.

You will find this textbook and workbook conversational in style. That’s deliberate. It’s the way I teach. My students and I interact in the classroom and, within the limits imposed by print, there is no reason why you and I should not interact via this text. So, I hope you will not take my use of the second-person “you” as an unwarranted familiarity, nor my frequent use of “we” as either an affectation or a ploy. You and I—*we*—are learning statistics together even though you are learning stat for the first time and I am learning it for the umpteenth time.

When you are finished with this book, I hope you will begin a lifetime using statistics effectively. I trust that you will be an intelligent critic of others’ applications of statistics and will use statistics intelligently yourself. But beyond these practical goals, I hope you will appreciate the beauty, elegance, and grace of statistics. Like other magnificent achievements of human reason, statistics at its core is an aesthetic endeavor.

What You Need to Bring to This Text

You are probably interested in what you need to know *before* you begin to learn statistics. I assume you know basic arithmetic—adding, subtracting, multiplying, and dividing. You should also be reasonably comfortable with fractions and decimals, squares and square roots, and simple equations.

Whatever else you need to know you will learn along the way. All the better if you have had a course in research methods, but that is not essential. Likewise, I hope you have had several substantive