

CHAPTER 1

Introduction

This book is designed to provide the reader with an introduction to one of the most popular computer programs for data analysis: the Statistical Package for the Social Sciences® (SPSS) for Windows®. This computer software provides a comprehensive set of flexible tools that can be used to accomplish a wide variety of data analysis tasks. The book covers the fundamentals of SPSS, and by the time they reach the end of the book, readers will have a working knowledge of how to use SPSS to read, manage, and analyze data. I have written this book using SPSS Version 12.0, which runs on the Microsoft Windows® operating system. However, the material covered in this book is applicable to earlier (and I predict later) Windows versions of SPSS, although the pull-down menus and dialog boxes will not exactly match the figures in this book.

The ability to conduct research is an important skill. If you are interested in learning about service delivery, client perceptions, or the knowledge, attitudes, or behaviors of a group of persons, then you need fundamental skills in research design, data collection and analysis, and report writing. This is particularly true for those interested in program evaluation and for those engaged in collecting data to contribute to policy or decision making (perhaps in support of ongoing program improvement).

When conducting research or evaluation, a suitable data collection instrument must be designed and administered to some number of subjects (from as few as one or two dozen to as many as several hundred thousand). The data, once collected, must be analyzed. In the past, data analysis was a tedious process done by hand (often at least three times for each analysis: once to get the answer, once to check the answer, and once to reconcile differences in the first two answers due to error in the

2 An Introductory Guide to SPSS® for Windows®

calculations). And that was just for the first analysis, perhaps a simple one such as the computation of frequency distributions. Then came more calculations of descriptive and inferential statistics.

Fortunately, we live in an age when high-speed computers take the tedium out of statistical computation (and reduce the likelihood of errors), allowing the calculation and recalculation of statistics in a brief period of time. The ability of the computer to perform these calculations quickly and accurately allows a researcher to spend his or her time searching for patterns in the data and answering questions of interest, rather on the mechanics of computation.

This book is ideally suited to a one-semester introductory course on the use of computers in research, for someone learning SPSS on their own, or for someone who is returning to the SPSS software and is in need of a refresher. I have assumed that readers are already familiar with the material normally covered in a first course in statistics (or are currently becoming familiar with this material). Readers who wish to brush up on their statistics are encouraged to see Sirkin (1995), while readers who wish to explore the field of statistics in greater depth are referred to Gibbons (1985), Gibbons and Chakraborti (1992), Hays (1991), Kirk (1995), and Pedhazur (1997).

I have written this book in as nontechnical a manner as possible so that it is an easy-to-use introduction to the power of SPSS. In doing so, I have pointed straight to the fundamental concepts of the software. However, please be aware that SPSS is capable of far more than what is covered in this book. Once you have become familiar with the software, you can use the SPSS manuals to increase your skills and understanding. In fact, you may find it helpful to keep the manuals (available on the CD that came with your copy of SPSS) nearby as you read this book, so that they may serve to expand on the topics that are introduced here. You will also find it helpful to sit at the computer as you read this book, trying the skills that are being discussed.

Before we continue, let me say a few things about computers. First, *feel free to experiment*. Try the procedures that are presented and have fun. Don't worry, you are not going to break anything, as long as you don't hit the machine with a hammer, toss it off the desk, or anything like that. Sure, you will make mistakes. Everyone does at one time or another, even the best SPSS users. So don't be afraid to try to do the work we are discussing—if things get bad, you can always start over. Just be sure to remember to save your work frequently.

SPSS is available on a variety of platforms. People with access to mainframe computers have the capability of analyzing immense datasets with blinding speed. Mainframe computers may be accessed through workplace terminals or, in some cases, via modem from an outside location (which provides the convenience of working from home or some other site). Others have access to SPSS on personal computers and thus the convenience of performing data analysis on their own stand-alone machines. The information in this book is presented from a Windows perspective, and I have assumed that readers already have a working familiarity with Windows operations (such as clicking to select an item, double-clicking to choose an item, entering text and selecting options in dialog boxes, switching between different windows, etc.). Readers who are in need of a refresher on the Windows operating system are encouraged to review manuals or other books on the subject. Throughout this book, I have used the convention of using **bold** text to indicate operations or choices that the reader will need to make when running SPSS (for example, when I say something like “From the **File** pull-down menu . . .” I mean that you should click on the **File** menu at the top of the SPSS screen).

The SPSS skills covered in this book are introduced and illustrated with sample programs. Each program is designed to analyze data that have been gathered to answer a research question. The output from the program is then presented and interpreted to yield an answer to that question. Exercises are included in several chapters, and solutions are provided in the Appendix. Thus, it is my hope to provide a hands-on approach leading to mastery of basic SPSS skills.

In Chapter 2, we will look at how to organize data in a manner suitable for analysis by SPSS. There will be a review of variables and values, and a discussion of how to code data. The use of a codebook will be illustrated to record, for future reference, how data have been defined. Finally, some thought will be given to data entry.

In Chapter 3, we will begin to use SPSS. First, we will look at the way in which SPSS operates. The different files with which we will be working (syntax, data, output, and chart files) and their relationships to one another will be introduced. By the end of this chapter, readers will have conducted their first analyses using SPSS and viewed the results of the analyses.

It is typically necessary to manipulate data before analyzing them. Data may need to be recoded, computations may need to be made, new

4 An Introductory Guide to SPSS® for Windows®

variables may need to be created, and certain records may need to be selected from the dataset. These tasks will be covered in Chapter 4.

Chapter 5 will introduce some intermediate concepts regarding data files. We will look at how to read data files that were not created in SPSS (such as those that have been saved as simple text files). We will also examine how to append data files (that is, to add cases from one file to another) and how to merge data files (that is, to add variables from one file to another).

The power of SPSS lies in its ability to perform complex statistical operations on large datasets, saving the researcher countless hours of computations. Chapter 6 illustrates the use of SPSS pull-down menus to perform the statistical analyses typically covered in a first statistics course. Each method will be introduced by a statement of a research question, followed by a discussion of how to use SPSS to conduct the analysis. Output from the analysis will be presented and interpreted, and an answer to the research question will be given.

In addition to using pull-down menus to conduct an analysis, users have the ability to write programs using SPSS syntax to manipulate and analyze data. Indeed, many of SPSS's capabilities may be accessed only through the use of syntax. Chapter 7 introduces basic SPSS programming skills, taking the reader beyond the features available via the pull-down menus.

Chapter 8 provides some direction for next steps in your study of SPSS. First, there is a discussion of how to get help in SPSS. Next, I encourage readers to make use of the wealth of information available in the SPSS manuals. The content and the structure of the manuals are reviewed, and examples are provided in which topics not covered in this book are researched using the manuals. This discussion will help readers become successful at using the manuals as reference tools. Finally, I present some topics that will be of interest to those who wish to further develop their SPSS skills.

Some concluding remarks are made in Chapter 9. You will be well on your way to becoming a skilled SPSS user once you have reached this point. I hope that you will have also sensed the adventure and fun of using SPSS.