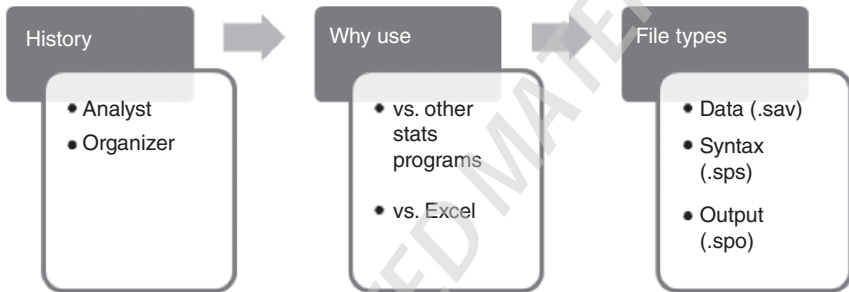


1

What is SPSS?



CHAPTER MENU

Chapter Learning Objectives, 3
What Is SPSS Used For, 4
Summary, 6

Chapter Learning Objectives

1. History of SPSS
2. SPSS uses and capabilities
3. Additional statistical programs
4. Importance of syntax

Welcome to the first stage of your adventure learning how to use SPSS®, one of the more commonly used statistical software programs. The name **SPSS** is an

acronym for Statistical Package for the Social Sciences, and is owned and sold by IBM®. As a valuable tool for running statistical analyses, SPSS is currently used by individuals across a variety of fields and disciplines, expanding past its original market solely within the “social sciences”.

SPSS has two primary functions: (1) as a data organizer/manager and (2) as a data analyst. Both parts will be covered in detail throughout this book, and by the end you should be able to not only create and organize **data** efficiently, but also run statistical analyses based on a variety of data structures. It’s important to keep in mind how crucial the process of data organization is, since analyses run on faulty data can lead to incorrect conclusions and some very confusing output from SPSS. Luckily, we are here to steer you in the right direction.

Like most software programs, SPSS is continually being updated, just like your constant Android or iOS mobile updates. SPSS updates are intended to improve the user experience as well as add additional functionality to help you better analyze and visualize your data. In the beginning versions of SPSS, users were required to use mainframe and DOS-based programs, which required users to *program* (enter computer code language) in order to organize and run analyses. Fortunately, the current version of SPSS (25 as this book is being written) includes a comprehensive set of click and dropdown menus in order to help you perform these functions.

In addition to perpetual software updates, the field of statistics changes over time (improvements and slight alterations are generally made) and new statistics are constantly being “discovered”. To stay current with statistical advancements and platform limitations and changes (such as changes in Microsoft Windows), the SPSS program is frequently updated. Whether you are using the most recent or an older version of SPSS, the information in this book will still serve you the same. All figures and examples will be shown from a PC perspective, but the information is also applicable to a Mac audience.

What Is SPSS Used For

SPSS has the capability to perform a wide variety of statistical analyses, both *descriptive* and *inferential* (these terms will be covered later in Chapters 7 and 8). It is used by researchers (biologists, psychologists, sociologists, and economists) and public and private sector workers (accountants, human resources professionals, and actuaries). These individuals use SPSS to test hypotheses in experimental and field settings, summarize information, and create graphs and figures.

The primary power of SPSS lies in its wide variety of statistical options and its ability to perform these analyses quickly. There are other software programs available that do a nice job of, for example, creating customizable graphs and figures,

but SPSS creates these *in addition* to its primary purpose of processing data using appropriate statically formulae.

The Power of SPSS

Given the vast array of options SPSS offers, running large numbers of analyses can become confusing, especially when trying to repeat something you did previously. For example, you could spend an hour running analyses in SPSS by clicking drop-down menus, and afterward you realized you made a mistake 30 minutes prior. How would you know where you made your mistake? How would you go about trying to fix the issue? Unfortunately, this happens on a frequent basis, even for well-seasoned SPSS veterans. But don't lose hope, because SPSS allows you to keep track of all the work you've previously done, and gives you a physical trail of everything you've done. It does this through what refer to as a **syntax diary**.

We previously mentioned how older versions of SPSS required users to write their own code to run functions. While this is still possible, SPSS also anticipated the needs and common mistakes made by modern users and currently has the capability to *generate code for you*. It then places this code in a file that serves as a record of what you've done (and, if you're a good diary writer, why you've done it). Later chapters will cover how this is done, but take our advice, this function will be your greatest ally in mastering SPSS and impressing your professor, boss, colleagues, or friends of your statistical genius.

SPSS Compared to Other Programs

SPSS was designed specifically for the purpose of performing statistical analyses. There are other software programs that perform statistics as their primary purpose (such as SAS, Minitab, and nQuery). In addition to these, open-source programs are becoming widely popular for performing statistical analyses, with R currently being the most popular. In general, individuals tend to pick one program and rely heavily on learning and using it exclusively, but there is much to be gained from being able to capitalize on a diverse set of tools. That being said, learning to use multiple software programs is no small feat and in terms of learning curves, SPSS is one of the easiest to navigate.

SPSS is also in competition with spreadsheet programs that have statistical potential. These programs (such as **Microsoft Excel**) are generally fine for organization and **descriptive statistical analyses** (statistics that *describe* a given set of numbers: means, standard deviations, and correlations), but they are usually less useful if your goal is to perform **inferential statistics** that make an *inference* about a larger group of numbers (these are the activities that will be further

discussed in Chapters 7 and 8). If you are doing inferential hypothesis-testing, SPSS is the way to go.

Over the years, the SPSS data sheet has actually come to look quite similar in appearance to **Excel**. For the current version of SPSS, you can think of the program as a combination of Word and Excel (to cite the most commonly used word processor and spreadsheet applications). SPSS is conceptually a combination of the two, as data are stored in SPSS's Excel-like spreadsheet component and analyses are performed by writing commands (with text) in SPSS's Word-like processing component.

Summary

SPSS is used not only to perform data analyses, but also used to organize and manipulate data. SPSS is considered superior to data spreadsheet programs (such as Excel) because with SPSS you can *keep a record* of what you have done. This is done through keeping a *syntax diary*.

Key Terms

Data – Anything informative that can be entered into SPSS.

Descriptive statistics – Information summarizing a set of numbers.

Excel – Computer spreadsheet program.

Inferential statistics – Probability-based information relating sample to population characteristics (more to come on this topic later).

SPSS – Computer program used to do data manipulations and analyses.

Syntax diary – Record of “what you’ve done” to your data.

Discussion Questions

- 1 Why is SPSS superior to Excel?
- 2 What are some advantages and disadvantages associated with SPSS's evolution toward an Excel-Word hybrid?