Preface

This book is a concise introduction to the art of Stata programming. It covers three types of programming that can be used in working with Stata: do-file programming, ado-file programming, and Mata functions that work in conjunction with do- and ado-files. Its emphasis is on the automation of your work with Stata and how programming on one or more of these levels can help you use Stata more effectively.

In the development of these concepts, I do not assume that you have prior experience with Stata programming, although familiarity with the command-line interface is helpful. While examples are drawn from several disciplines, my background as an applied econometrician is evident in the selection of some sample problems. The introductory first chapter motivates the why: why should you invest time and effort into learning Stata programming? In chapter 2, I discuss elementary concepts of the command-line interface and describe some commonly used tools for working with programs and datasets.

The format of the book may be unfamiliar to readers who have some familiarity with other books that help you learn how to use Stata. Beginning with chapter 4, each even-numbered chapter is a "cookbook" chapter containing several "recipes", 47 in total. Each recipe poses a problem: how can I perform a certain task with Stata programming? The recipe then provides a complete worked solution to the problem and describes how the features presented in the previous chapter can be put to good use. You may not want to follow a recipe exactly from the cookbook; just as in cuisine, a minor variation on the recipe may meet your needs, or the techniques presented in that recipe may help you see how Stata programming applies to your specific problem.

Most Stata users who delve into programming use do-files to automate and document their work. Consequently, the major focus of the book is do-file programming, covered in chapters 3, 5, 7, and 9. Some users will find that writing formal Stata programs, or ado-files, meets their needs. Chapter 11 is a concise summary of ado-file programming, with the cookbook chapter that follows presenting several recipes that contain developed ado-files. Stata's matrix programming language, Mata, can also be helpful in automating certain tasks. Chapter 13 presents a summary of Mata concepts and the key features that allow interchange of variables, scalars, macros, and matrices. The last chapter, cookbook chapter 14, presents several examples of Mata functions developed to work with ado-files. All the do-files, ado-files, Mata functions, and datasets used in the book's examples and recipes are available from the Stata Press website, as discussed in *Notation and typography*.

The second edition of this book contains several new recipes illustrating how do-files, ado-files, and Mata functions can be used to solve programming problems. Several recipes have also been updated to reflect new features in Stata added between versions 10 and 14. The discussion of maximum-likelihood function evaluators has been significantly expanded in this edition. The new topics covered in this edition include factor variables and operators; use of `margins`, `marginsplot`, and `suest`; Mata-based likelihood function evaluators; and associative arrays.