

Brief contents

Software notes on the original columns

Graphing distributions

Graphing categorical and compositional data

Graphing agreement and disagreement

Graphing model diagnostics

Density probability plots

The protean quantile plot

Smoothing in various directions

Graphs for all seasons

Turning over a new leaf

Spineplots and their kin

Between tables and graphs

Creating and varying box plots

Creating and varying box plots: Correction

Paired, parallel, or profile plots for changes, correlations, and other comparisons

The statsby strategy

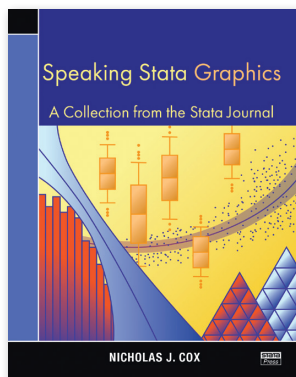
Graphing subsets

Transforming the time axis

Axis practice, or what goes where on a graph

Trimming to taste

Speaking Stata Graphics



By Nicholas J. Cox

Publisher: Stata Press

Copyright: 2014

ISBN-13: 978-1-59718-144-0

Pages: 345; paperback

Price: \$45.00



For more details or to order, visit us online at stata-press.com/books/speaking-stata-graphics.



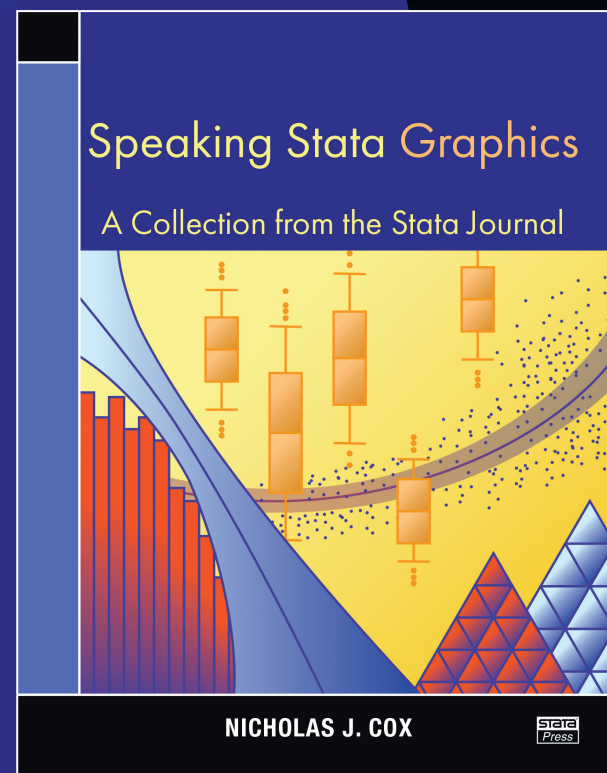
How to contact us

Stata Press
4905 Lakeway Drive
College Station, TX 77845-4512
USA

800-782-8272 (USA)
800-248-8272 (Canada)
979-696-4600 (Worldwide)

service@stata-press.com
stata-press.com

Stata Press presents



About the author

Dr. Nicholas J. Cox is a statistically minded geographer based at Durham University. He is especially interested in statistical graphics, exploratory data analysis, generalized linear models, smoothing and interpolation, distributions, transformations, directional data analysis, and the history of statistics. He has contributed to statistical applications in geomorphology, glaciology, Quaternary geology, hydrology, climatology, and forestry. Dr. Cox has been a user of Stata since 1991 and is well known in the Stata community as a prolific program writer and for many contributions to Stata itself, the *Stata Technical Bulletin* and the *Stata Journal*, the Stata Conference and users' meetings in several countries, and the discussion forum, Statalist. He is currently an editor of the *Stata Journal*. With H. Joseph Newton, he edited *One Hundred Nineteen Stata Tips* and its previous editions.

The book's audience

This is a book for researchers in all fields who are interested in portraying the results of their investigation accurately and effectively using publication-quality graphs.

Comment from the Stata technical group

Speaking Stata Graphics is the compilation of a decade of advice and analysis about statistical graphs provided by Nicholas Cox in the *Stata Journal*. The content ranges from an effective characterization of qualitative features of data to advanced statistical analysis. The breadth of the book makes it an ideal reference for researchers who want to understand the relationships that underlie their data and show the results of their statistical analyses.

The book starts with “Graphing distributions”, which discusses probability density function graphs. This article illustrates the theory and methodology that underlie density estimation by using histograms and builds on these concepts to introduce kernel density estimation. “Graphing distributions” epitomizes the book’s articles in the amplitude of the concepts it covers, the clarity of its exposition, and the intuition it provides.

Speaking Stata Graphics contains other articles that expound on graphing distributions. For instance, “Density probability plots” revisits density estimation and demonstrates how to use quantile–quantile plots to verify nonparametric density estimates. Similarly, “The protean quantile plot” highlights using quantile plots to discern features of the densities of the variables in a study. “Smoothing in various directions” addresses employing double, diagonal, and polar smoothing to extract smooth relationships from the information provided by scatter plots. “Creating and varying box plots” delves into interquartile range and overall statistical dispersion of the distribution of variables using box plots.

The book also includes articles that address concerns on graphing specific data structures. For instance, “Graphing categorical and compositional data” guides readers through the use of the **catplot** command to graph categorical variables and presents cumulative distribution function graphs using **distplot**; the article concludes with a discussion on plots for three-way compositional data on the unit simplex. In the same vein, “Trimming to taste” presents plots for trimmed data as a tool to characterize the levels of a trimmed distribution. Similarly, “Graphs for all seasons”

delves into time-series data. It starts with the basic concept of seasonality and explores the advanced topic of state-space plots.

Whereas the articles above focus on a specific data structure, “Graphing model diagnostics” deals with diagnostic tests that arise from the statistical analysis of different types of data. This article shows how graphs are a fundamental tool to ascertain the feasibility of the assumptions and results of models. It also validates the use of graphs to perform statistical analysis.

A topic that Dr. Cox focuses on involves identifying a way to effectively and concisely summarize the results of different computations and plots into one graph. “Graphing agreement and disagreement”, the first article to address this issue, introduces **pairplot** to graph information about different sets of data on the same scale and **parplot** for parallel coordinate plots. “Paired, parallel, or profile plots for changes, correlations, and other comparisons” revisits the subject and emphasizes panel- and longitudinal-data analysis. In “Between tables and graphs”, Cox illustrates how to create plots that combine tables and graphs to obtain the best of both worlds.

Speaking Stata Graphics also introduces clever ways to customize the information in the axis of graphs and highlights how to use subsets of data. An informative axis is important for the readability of graphs, and “Transforming the time axis” and “Axis practice, or what goes where on a graph” discuss this topic. On the other hand, “The statsby strategy” and “Graphing subsets” show how using subsets of data allows researchers to direct their audience’s attention to the more relevant features of their analysis.

The discussion above does not do justice to the clever advice and the depth of the topics in the book. *Speaking Stata Graphics* is a valuable reference for researchers who want to produce effective, publication-quality graphs and use graphs for rigorous statistical analysis.