> **meta —** Meta-analysis

Remarks and examples

stata.com

Stata does not have a meta-analysis command. Stata users, however, have developed an excellent suite of commands for performing meta-analysis, including commands for performing standard and cumulative meta-analysis, commands for producing forest plots and contour-enhanced funnel plots, and commands for nonparametric analysis of publication bias.

Many articles describing these commands have been published in the *Stata Technical Bulletin* and the *Stata Journal*. These articles were updated and published in a cohesive collection: *Meta-Analysis in Stata: An Updated Collection from the Stata Journal.*

In this collection, editor Jonathan Sterne discusses how these articles relate to each other and how they fit in the overall literature of meta-analysis. Sterne has organized the collection into four areas: classic meta-analysis; meta-regression; graphical and analytic tools for detecting bias; and recent advances such as meta-analysis for dose–response curves, diagnostic accuracy, multivariate analysis, and studies containing missing values.

All meta-analysis commands discussed in this collection may be downloaded by visiting http://www.stata-press.com/books/mais.html.

We highly recommend that Stata users interested in meta-analysis read this book. Since the publication of the meta-analysis collection, Kontopantelis and Reeves (2010) published an article in the *Stata Journal* describing a new command `metaan` that performs fixed- or random-effects meta-analysis.

Please also see the following FAQ on the Stata website:

What meta-analysis features are available in Stata?
http://www.stata.com/support/faqs/stat/meta.html

References

Borenstein, M., L. V. Hedges, J. P. T. Higgins, and H. R. Rothstein. 2009. *Introduction to Meta-Analysis*. Chichester, UK: Wiley.

Crowther, M. J., S. R. Hinchliffe, A. Donald, and A. J. Sutton. 2013. Simulation-based sample-size calculation for designing new clinical trials and diagnostic test accuracy studies to update an existing meta-analysis. *Stata Journal* 13: 451–473.

Crowther, M. J., D. Langan, and A. J. Sutton. 2012. Graphical augmentations to the funnel plot to assess the impact of a new study on an existing meta-analysis. *Stata Journal* 12: 605–622.

Egger, M., G. Davey Smith, and D. G. Altman, ed. 2001. *Systematic Reviews in Health Care: Meta-analysis in Context*. 2nd ed. London: BMJ Books.

Kontopantelis, E., and D. Reeves. 2010. metaan: Random-effects meta-analysis. *Stata Journal* 10: 395–407.

——. 2013. A short guide and a forest plot command (ipdforest) for one-stage meta-analysis. *Stata Journal* 13: 574–587.

Miladinovic, B., I. Hozo, A. Chaimani, and B. Djulbegovic. 2014. Indirect treatment comparison. *Stata Journal* 14: 76–86.

Miladinovic, B., I. Hozo, and B. Djulbegovic. 2013. Trial sequential boundaries for cumulative meta-analyses. *Stata Journal* 13: 77–91.

Ringquist, E. J. 2013. *Meta-Analysis for Public Management and Policy*. San Francisco: Jossey-Bass.

Sterne, J. A. C., ed. 2009. *Meta-Analysis in Stata: An Updated Collection from the Stata Journal*. College Station, TX: Stata Press.

Sutton, A. J., K. R. Abrams, D. R. Jones, T. A. Sheldon, and F. Song. 2000. *Methods for Meta-Analysis in Medical Research*. New York: Wiley.

White, I. R. 2011. Multivariate random-effects meta-regression: Updates to mvmeta. *Stata Journal* 11: 240–254.