Announcing Stata Release 10

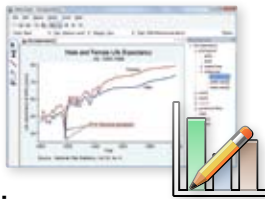## Stata 10 ships June 25. Order now at www.stata.com.

Highlights of What's New in Stata 10

Graph editor

- Add
- Remove
- Move
- Modify
- Anything

Exact statistics

- Logistic binary-response regression
- Poisson count-data regression
- Exact tests and joint tests
- Predictions with exact CIs

Mixed models

- Logistic binary-response regression
- Poisson count-data regression
- Random coefficients and intercepts
- Hierarchical and multilevel models
- Predicted effects

Survey and correlated data

- Cox proportional hazards model
- Parametric survival models
- 27 more estimators now supported
- 48 total estimators

Power analysis

- Solve for sample size, power, or effect size
- Log-rank test of survival curves
- Cox proportional hazards model
- Exponential regression

Multivariate methods

- Discriminant analysis: LDA, QDA, and more
- Multiple and joint correspondence analysis
- Modern nonmetric multidimensional scaling

Dynamic panel data

- Arellano–Bover/Blundell–Bond system estimator
- Smaller bias with persistent AR processes
- Serially correlated disturbances
- Test overidentifying restrictions

Choice models

- Random-utility nested logit
- McFadden's choice model
- Rank-ordered probit
- Unbalanced groups

Endogenous variables

- LIML estimation
- GMM estimation
- Tests of overidentifying restrictions

Time/date variables

- Millisecond resolution
- Optional leap second adjustment
- User-defined display formats
- Easy conversion

Saved results

- Save estimation results to disk
- Compare models
- Restore and perform predictions
- Restore and perform tests

Stata/MP

- Fastest version of Stata
- Dual core through 32 processors
- More commands parallelized
- All survey estimators now parallelized
- Upgrade from IC or SE

More

- Local polynomial regression
- Nonlinear seemingly unrelated regression
- At-risk tables underneath survival graphs
- Three methods for handling singletons in survey data
- More estimation commands supporting bootstrap and jackknife standard errors
- Clustering with both binary and continuous variables by using the Gower measure
- Easy comparison tests for nested models
- Restricted cubic splines
- Windows Automation (OLE)
- Tabbed graph windows in Stata for Windows
- Optimization in Mata
- *23 pages more...*

Find out more inside and even more at www.stata.com.
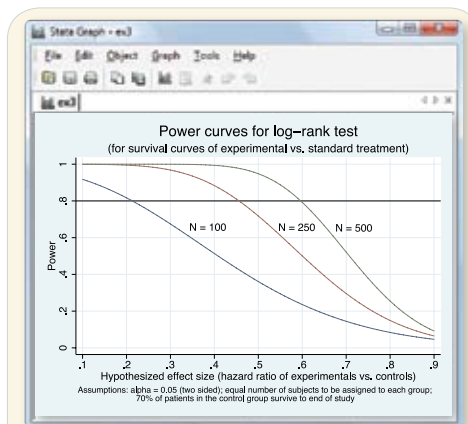
Stata's new **stpower** command does sample size, power, and effect size calculations for survival studies. Above, a study is being designed to compare survival of patients given two different treatments and, given the time available for the study, it is assumed that 70% of the control group will survive to the end. The graph shows the power as a function of effect size for sample sizes of 100, 250, and 500. Results can also be shown in tabular form.
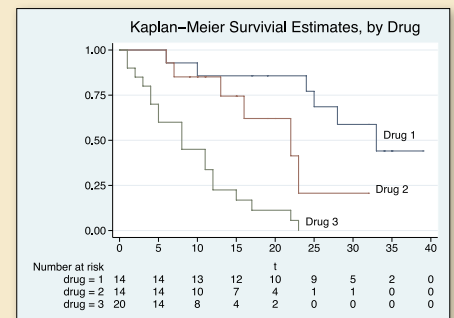
**sts graph**'s new **risktable** option adds number at risk below and aligned with the graph.

Graph editor

With Stata's new Graph Editor, you can change how your graph looks. You can add. You can remove. You can move. You can modify. Anything. Titles, legends, axes, lines, arrows, markers, annotations.

- Add lines and arrows with the Add-line Tool.

- Add text with the Add-text Tool.

- Move titles, legends, lines, etc., by dragging.

- Change a scatterplot to a line plot (or any kind of plot to any other kind of plot) from the contextual toolbar.

- Change the aspect ratio from the contextual toolbar.

- Change the properties—color, size, alignment—of any object—titles, legends, lines, axes, etc.—by double-clicking on it.

- Customize the look of a point and add, remove, or customize its label by right-clicking on the point.

- Add new axis ticks and add, remove, or customize labels by right-clicking on the axis.

- Change spacing between bars, or make them overlap, or stack them, or convert them to percentages, by right-clicking on the graph.

- Hide an object, or lock its position, by right-clicking.

So it's easy: move your mouse to where you want to make a change; click, double-click, or right-click; and within a few seconds you'll have it figured out.
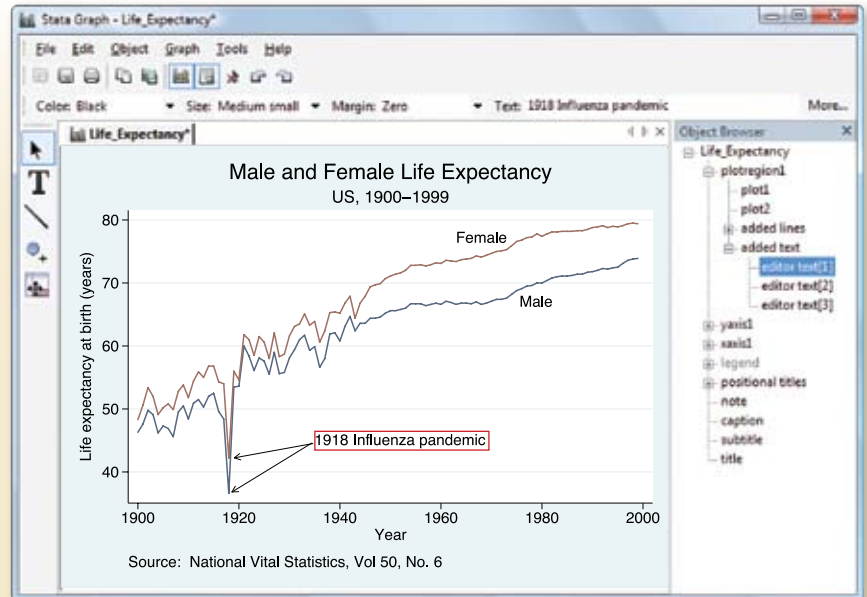
Multiple correspondence analysis (MCA)

MCA explores relationships among categorical variables by projecting onto reduced spaces that may correspond to unobserved factors. MCA is similar to principal components analysis (PCA) but is for categorical data.

Consider a survey measuring attitudes toward three statements: (A) science does more good than harm, (B) we believe too often in science instead of faith, and (C) using science to change nature makes things worse. Responses range from strongly disagree (−−) to strongly agree (++).

To run MCA on these data, type `mca A B C`. To visualize the results in two dimensions that explain the most variation, type `mcaplot`.
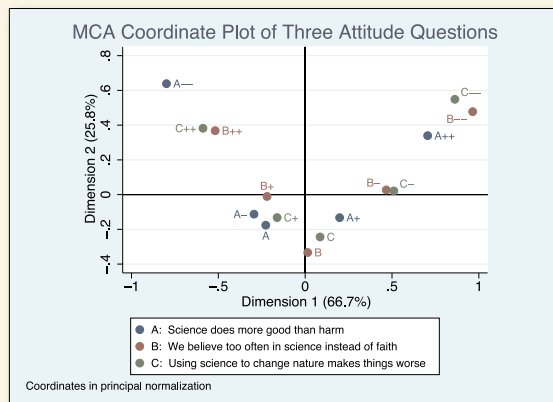
Dimension 1 explains 67% of the variation. Dimension 2 explains an additional 26%, and the two together explain 93%. One interpretation is that the first dimension represents attitude toward science and the second, intensity of feeling.

Stata's new `mca` command handles any number of categorical variables and allows crossed or stacked variables as well. Multiple MCA methods are provided, including methods based on the Burt matrix, the indicator matrix, and the reduced Burt matrix (joint correspondence analysis, or JCA).
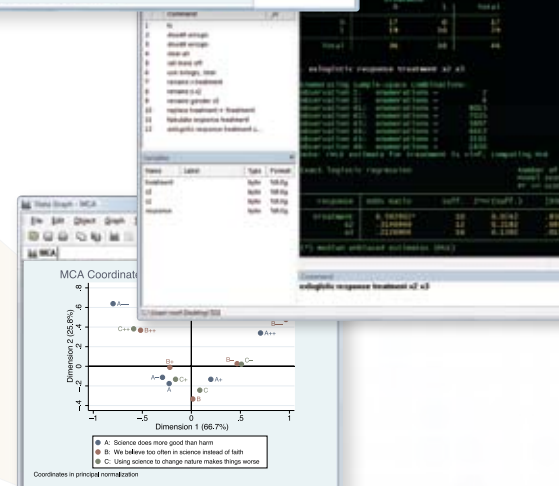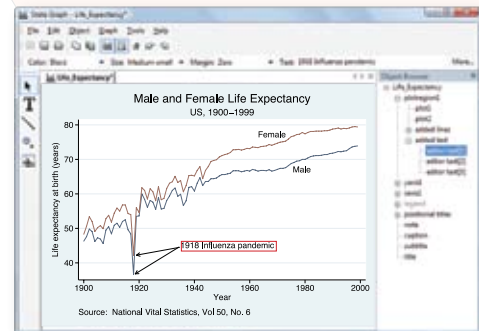
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Mixed models for binary and count responses

Stata's new mixed-models estimation routines **xtmelogit** and **xtmepoisson** make it easy to fit two-way, multiway, multilevel, and hierarchical random-effects models on binary and count data.

To fit a model of graduation with fixed coefficient on **x1** and random coefficient on **x2** at the school level, and with random intercepts at both the school and class-within-school level, you type

```
. xtmelogit graduate x1 x2 || school: x2 || class:
```

The results show that the average coefficient across schools on **x2** is 1.31 with standard deviation .83. There is also a significant overall effect due to school and a somewhat significant effect due to class. The LR test shows that the three random effects, taken together, provide a substantially better fit than does standard (marginal) logistic regression.

Estimation is by ML, and standard errors and confidence intervals (in fact, the full covariance matrix) are estimated for all variance components.

xtmelogit and **xtmepoisson** provide four random-effects variance structures—identity, independent, exchangeable, and unstructured—and you can combine them to form even more complex block-diagonal structures.

```
Viewer (#1) [view xtmelogit.log]

    view xtmelogit.log

Advice    Contents    What's New    News

Mixed-effects logistic regression          Number of obs      =      1108

                    No. of     Observations per Group      Integration
Group Variable      Groups    Minimum  Average  Maximum      Points

      school          26        10      42.6      89           7
       class          68         6      16.3      25           7

                                            Wald chi2(2)    =     57.74
Log likelihood = -607.28615                 Prob > chi2     =    0.0000

    graduate  |    Coef.   Std. Err.     z    P>|z|    [95% Conf. Interval]

          x1  |  .697676   .1314404    5.31   0.000    .4400577   .9552944
          x2  | 1.309437   .2232375    5.87   0.000     .8719    1.746975
       _cons  | -.9546464  .1291644   -7.39   0.000   -1.207804  -.7014889

Random-effects Parameters  |   Estimate   Std. Err.    [95% Conf. Interval]

school: Independent
                  sd(x2)   |   .8279325   .2018337    .5134389   1.335061
               sd(_cons)   |   .4553757   .1247884     .266141   .7791625

class: Identity
               sd(_cons)   |   .2802479   .1840505    .0773611   1.015224

LR test vs. logistic regression:      chi2(3) =     31.78   Prob > chi2 = 0.0000
```

Exact logistic regression

Stata's new exact logistic regression command provides better coverage in small samples than does standard logistic regression.

It also provides parameter estimates and confidence intervals where standard asymptotic methods cannot.

Such cases include small-data problems with binary regressors for which the outcome is 1 whenever the regressor is 1.

In the example below, every treated patient exhibits a positive response. Standard logistic regression cannot estimate the treatment effect. Stata 10's new **exlogistic** command can:

```
. exlogistic response treatment x2 x3

Enumerating sample-space combinations:
observation 1:    enumerations =           2
   <output omitted>
observation 46:   enumerations =        1650
note: CMLE estimate for treatment is +inf; computing MUE

Exact logistic regression                    Number of obs =         46
                                             Model score   =   12.88247
                                             Pr >= score   =     0.0027

    response |  Odds Ratio    Suff.   2*Pr(Suff.)     [95% Conf. Interval]

   treatment |  6.592992*       10      0.0742      .8508871        +Inf
          x2 |  .3146999        12      0.2182      .0499248    1.667561
          x3 |  .2126903        16      0.1392      .0178841    1.437233

(*) median unbiased estimates (MUE)
```

Parameter estimates, standard errors, and CIs are calculated on the basis of permutation without recourse to asymptotic assumptions and results.

Not only is the treatment effect estimated, but tests of significance and reported confidence intervals are based on exact methods.

Stata 10 also includes exact Poisson regression for count data.

6th North American Stata Users Group meeting

Dates: August 13–14, 2007

Venue: Longwood Galleria Conference Center
342 Longwood Ave.
Boston, MA 02115-5745

Day	Price	Student Price
Day 1: Users Group meeting	$85	$35
Day 2: Invited presentations	$95	$35
Both days	$150	$50
Day 1: Optional dinner	$35	$35

The 6th annual North American Users Group meeting will be the first following the release of Stata 10. Talks include using Stata for modeling and analysis, user-written Stata programs, using Stata to import and manage data, using Stata for graphics, teaching Stata, teaching statistics with Stata, surveys or critiques of Stata facilities in specific fields, and software comparisons. Overviews and tutorials will also describe some of the new features in Stata. The talks will appeal to both new Stata users and Stata experts.

The first day will feature 10- to 30-minute talks on a range of subjects, as well as the ever-popular "Wishes and grumbles" session. This year will include a new "Stump the champs" session where you can address thorny questions to a panel of experts, both longtime users and StataCorp staff.

The second day will feature four invited talks, including two on new features in Stata 10.

Register to attend at www.stata.com/meeting/6nasug.

Program committee

Kit Baum, Boston College and RePEc
Marcello Pagano, Harvard School of Public Health
Nicholas Horton, Department of Mathematics and Statistics, Smith College

Day 1: Users Group meeting (preliminary program)

Quantiles, L-moments, and modes: Bringing order to descriptive statistics. Nicholas Cox, Durham University

Extensions to **var** and **svar** estimation. Michael Hanson, Wesleyan University

Meta-analytical integration of diagnostic accuracy studies in Stata. Ben Dwamena, Division of Nuclear Medicine, University of Michigan Health System

Agony and ecstasy: Teaching a modern computationally intensive introductory statistics course using Stata. Nicholas Jon Horton, Smith College

Powerful new tools for time-series analysis. Christopher Baum, Boston College, DIW Berlin, and RePEc

Record linkage in Stata. Michael Blasnik, M. Blasnik & Associates

Ado-lists: A new concept for Stata. Ben Jann, ETH Zürich

Constructing Krinsky and Robb confidence intervals for mean and median WTP using Stata. P. Wilner Jeanty, The Ohio State University

Stump the champs. Panel of Stata experts

Report to users. Roberto G. Gutierrez, StataCorp

Wishes and grumbles. All attendees

More to come. For updates, see www.stata.com/meeting/6nasug/.

Day 2: Tutorials and invited talks

Causal inference with observational data: Regression discontinuity and related methods in Stata. Austin Nichols, Urban Institute

Recent developments in multilevel modeling, including binary and count response. Roberto G. Gutierrez, StataCorp

From estimation output to document tables: A long way made short. Ben Jann, ETH Zürich

Power analysis and sample-size determination in survival models with the new **stpower** command. Yulia Marchenko, StataCorp

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