

Title

intro — Introduction to longitudinal-data/panel-data manual

Description

This entry describes this manual and what has changed since Stata 11.

Remarks

This manual documents the `xt` commands and is referred to as [XT] in cross-references.

Following this entry, [XT] **xt** provides an overview of the `xt` commands. The other parts of this manual are arranged alphabetically. If you are new to Stata's `xt` commands, we recommend that you read the following sections first:

- [XT] **xt** Introduction to `xt` commands
- [XT] **xtset** Declare a dataset to be panel data
- [XT] **xtreg** Fixed-, between-, and random-effects, and population-averaged linear models

Stata is continually being updated, and Stata users are always writing new commands. To find out about the latest cross-sectional time-series features, type `search panel data` after installing the latest official updates; see [R] **update**.

What's new

This section is intended for previous Stata users. If you are new to Stata, you may as well skip it.

1. **MI support for panel-data and multilevel models** includes `xtcloglog`, `xtgee`, `xtlogit`, `xtmelogit`, `xtmepoisson`, `xtmixed`, `xtnbreg`, `xtpoisson`, `xtprobit`, `xtrc`, and `xtreg`. See [MI] **estimation**.
2. **Survey feature support for multilevel models**, `xtmixed`, including multilevel sampling weights and robust variance estimators. See [XT] **xtmixed**.
3. **Documentation for `xtmixed`, `xtmelogit`, and `xtmepoisson` has been modified to adopt the standard “level” terminology from the literature on hierarchical models.** For example, what in previous Stata versions was considered a one-level model is now called a two-level model with the observations now being counted as “level one”; see the *Introduction* section of *Remarks* in both [XT] **xtmixed** and [XT] **xtmelogit** for more details.
4. **Contrasts**, which is to say, tests of linear hypotheses involving factor variables and their interactions from the most recently fit model, and that model can be virtually any model that Stata can fit. Tests include ANOVA-style tests of main effects, simple effects, interactions, and nested effects. Effects can be decomposed into comparisons with reference categories, comparisons of adjacent levels, comparisons with the grand mean, and more. New commands `contrast` and `margins`, `contrast` are available after most `xt` estimation commands. See [R] **contrast** and [R] **margins**, **contrast**.
5. **Pairwise comparisons** of means, estimated cell means, estimated marginal means, predictive margins of linear and nonlinear responses, intercepts, and slopes. In addition to ANOVA-style comparisons, comparisons can be made of population averages. New commands `pwcompare` and `margins`, `pwcompare` are available after most `xt` estimation commands. See [R] **pwcompare** and [R] **margins**, **pwcompare**.

6. **Graphs of margins, marginal effects, contrasts, and pairwise comparisons.** Margins and effects can be obtained from linear or nonlinear (for example, probability) responses. New command `marginsplot` is available after all `xt` estimation commands; see [R] [marginsplot](#).
7. **`xtmixed` now uses maximum likelihood (ML) as the default method of estimation**, where previously it used restricted maximum likelihood (REML). REML is still available with the `reml` option, and previous behavior is preserved under version control.
8. **Estimation output improved.**
 - a. **Implied zero coefficients now shown.** When a coefficient is omitted, it is now shown as being zero and the reason it was omitted—collinearity, base, empty—is shown in the standard-error column. (The word “omitted” is shown if the coefficient was omitted because of collinearity.)
 - b. **You can set displayed precision for all values in coefficient tables** using `set cformat`, `set pformat`, and `set sformat`. Or you may use options `cformat()`, `pformat()`, and `sformat()` now allowed on all estimation commands. See [R] [set cformat](#) and [R] [estimation options](#).
 - c. **Estimation commands now respect the width of the Results window.** This feature may be turned off by new display option `no1stretch`. See [R] [estimation options](#).
 - d. **You can now set whether base levels, empty cells, and omitted are shown** using `set showbaselevels`, `set showemptycells`, and `set showomitted`. See [R] [set showbaselevels](#).
9. **Robust and cluster–robust SEs after fixed-effects `xtpoisson`.** See [XT] [xtpoisson](#).
10. **New residual covariance structures for multilevel models** include exponential, banded, and Toeplitz. See [XT] [xtmixed](#).
11. **Probability predictions now available.** `predict` after random-effects and population-averaged count-data models, such as `xtpoisson` and `xtgee`, can now predict the probability of any count or count range. See [XT] [xtpoisson postestimation](#), [XT] [xtgee postestimation](#), and [XT] [xtnbreg postestimation](#).
12. **Option `addplot()` now places added graphs above or below.** Commands that allow option `addplot()` can now place the added plots above or below the command’s plots. Affected is the command `xtline`; see [XT] [xtline](#).

For a complete list of all the new features in Stata 12, see [U] [1.3 What’s new](#).

Also see

[U] [1.3 What’s new](#)

[R] [intro](#) — Introduction to base reference manual