

Title

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

Description

This entry describes this manual and what has changed since Stata 10.

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] <code>xt</code> | Introduction to <code>xt</code> commands |
| [XT] <code>xtset</code> | Declare a dataset to be panel data |
| [XT] <code>xtreg</code> | 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. New command `xtunitroot` performs the Levin–Lin–Chu, Harris–Tsavalis, Breitung's, Im–Pesaran–Shin, Fisher-type, and Hadri Lagrange multiplier tests for unit roots on panel data. See [XT] `xtunitroot`.
2. Concerning existing command `xtmixed`:
 - a. `xtmixed` now allows modeling of the residual-error structure of the linear mixed models. Five structures are available: independent, exchangeable, autoregressive (AR), moving average (MA), and unstructured. Use new option `residuals()`. Within `residuals()`, you may also specify suboption `by(varname)` to obtain heteroskedastic versions of the above structures. For example, specifying `residuals(independent, by(sex))` will estimate distinct residual variances for both males and females.
 - b. `xtmixed` has new options `matlog` and `matsqrt`, which specify the matrix square root and matrix logarithm variance-component parameterizations, respectively. Previously, `xtmixed` supported the matrix logarithm parameterization only. Now `xtmixed` supports both parameterizations and the default has changed to `matsqrt`. Previous default behavior is preserved under version control.
 - c. `xtmixed` now supports time-series operators.See [XT] `xtmixed`.
3. `predict` after `xtmixed` now allows new option `reses` for obtaining standard errors of predicted random effects (BLUPs).

4. Concerning existing estimation command `xtreg`:
 - a. Specifying `xtreg, re vce(robust)` now means the same as `xtreg, re vce(cluster panelvar)`. The new interpretation is robust to a broader class of deviations. The old interpretation is available under version control.
 - b. Similarly, specifying `xtreg, fe vce(robust)` now means the same as `xtreg, fe vce(cluster panelvar)` in light of the new results by Stock and Watson (2008).
 - c. `xtreg` now allows the *in range* qualifier.See [XT] **xtreg**.
5. All `xt` estimation commands now allow Stata's new factor-variable varlist notation, with the exception of commands `xtabond`, `xtdpd`, `xtdpdsys`, and `xthtaylor`. See [U] **11.4.3 Factor variables**. Also, estimation commands allow the standard set of factor-variable related reporting options; see [R] **estimation options**.
6. New postestimation command `margins` is available after all `xt` estimation commands; see [R] **margins**.
7. Concerning existing estimation commands `xtmelogit` and `xtmepoisson`:
 - a. They have new option `matsqrt`, which allows you to explicitly specify the default matrix square-root parameterization.
 - b. They now support time-series operators.See [XT] **xtmelogit** and [XT] **xtmepoisson**.
9. As of Stata 10.1, existing estimation commands `xtmixed`, `xtmelogit`, and `xtmepoisson` require that random-effects specifications contain an explicit level variable (or `_all`) followed by a colon. Previously, if these were omitted, a level specification of `_all:` was assumed, leading to confusion when only the colon was omitted. To avoid this confusion, omitting the colon now produces an error, with previous behavior preserved under control.
10. Existing command `xttab` now returns the matrix of results in `r(results)` and the number of panels in `r(n)`. See [XT] **xttab**.

For a complete list of all the new features in Stata 11, see [U] **1.3 What's new**.

Reference

Stock, J. H., and M. W. Watson. 2008. Heteroskedasticity-robust standard errors for fixed effects panel data regression. *Econometrica* 76: 155–174.

Also see

[U] **1.3 What's new**

[R] **intro** — Introduction to base reference manual