

xtlogit postestimation — Postestimation tools for xtlogit

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Postestimation commands

The following postestimation commands are available after `xtlogit`:

Command	Description
<code>contrast</code>	contrasts and ANOVA-style joint tests of estimates
<code>estat ic</code>	Akaike's and Schwarz's Bayesian information criteria (AIC and BIC)
<code>estat summarize</code>	summary statistics for the estimation sample
<code>estat vce</code>	variance–covariance matrix of the estimators (VCE)
<code>estimates</code>	cataloging estimation results
<code>hausman</code>	Hausman's specification test
<code>lincom</code>	point estimates, standard errors, testing, and inference for linear combinations of coefficients
<code>lrtest</code>	likelihood-ratio test
<code>margins</code>	marginal means, predictive margins, marginal effects, and average marginal effects
<code>marginsplot</code>	graph the results from margins (profile plots, interaction plots, etc.)
<code>nlcom</code>	point estimates, standard errors, testing, and inference for nonlinear combinations of coefficients
<code>predict</code>	linear predictions and their SEs, probabilities
<code>predictnl</code>	point estimates, standard errors, testing, and inference for generalized predictions
<code>pwcompare</code>	pairwise comparisons of estimates
<code>test</code>	Wald tests of simple and composite linear hypotheses
<code>testnl</code>	Wald tests of nonlinear hypotheses

predict

Description for predict

`predict` creates a new variable containing predictions such as linear predictions, probabilities, and standard errors.

Menu for predict

Statistics > Postestimation

Syntax for predict

```
predict [type] { stub* | newvar | newvarlist } [if] [in] [, statistic
outcome(outcome) nooffset ]
```

<i>statistic</i>	Description
Main	
<code>xb</code>	linear prediction; the default
<code>pr</code>	marginal probability of the specified outcome (<code>outcome()</code>)
<code>pu0</code>	probability of the specified outcome (<code>outcome()</code>) assuming that the random effect is zero
<code>stdp</code>	standard error of the linear prediction

If you do not specify `outcome()`, `pr` and `pu0` (with one new variable specified) assume `outcome(#1)`.

You specify one or k new variables with `pr` and `pu0`, where k is the number of outcomes.

You specify one new variable with `xb` and `stdp`.

These statistics are available both in and out of sample; type `predict ... if e(sample) ...` if wanted only for the estimation sample.

Options for predict

Main

`xb`, the default, calculates the linear prediction.

`pr` calculates predicted probabilities that are marginal with respect to the random effect, which means that the probabilities are calculated by integrating the prediction function with respect to the random effect over its entire support. Unless otherwise specified, `pr` defaults to the first outcome.

`pu0` calculates predicted probabilities, assuming that the random effect for that observation's panel is zero ($\nu_i = 0$). Unless otherwise specified, `pu0` defaults to the first outcome.

`stdp` calculates the standard error of the linear prediction.

`outcome(outcome)` specifies the outcome for which the predicted probabilities are to be calculated. `outcome()` should contain either one value of the dependent variable or one of `#1`, `#2`, ..., with `#1` meaning the first category of the dependent variable, `#2` meaning the second category, etc.

`nooffset` is relevant only if you specified `offset(varname)` for `xtologit`. This option modifies the calculations made by `predict` so that they ignore the offset variable; the linear prediction is treated as $\mathbf{x}_{it}\beta$ rather than $\mathbf{x}_{it}\beta + \text{offset}_{it}$.

margins

Description for margins

`margins` estimates margins of response for linear predictions and probabilities.

Menu for margins

Statistics > Postestimation

Syntax for margins

```
margins [marginlist] [, options]
```

```
margins [marginlist] , predict(statistic ...) [predict(statistic ...) ...] [options]
```

<i>statistic</i>	Description
default	marginal probability for each outcome
pr	marginal probability of the specified outcome (<code>outcome()</code>)
pu0	probability of the specified outcome (<code>outcome()</code>) assuming that the random effect is zero
xb	linear prediction
stdp	not allowed with <code>margins</code>

pr and pu0 default to the first outcome.

Statistics not allowed with `margins` are functions of stochastic quantities other than `e(b)`.

For the full syntax, see [R] [margins](#).

Remarks and examples

[stata.com](http://www.stata.com)

► Example 1: Predicted marginal probabilities

In [example 1](#) of [XT] [xtologit](#), we modeled the tobacco and health knowledge score (`thk`)—coded 1, 2, 3, 4—among students as a function of two treatments (`cc` and `tv`) using a random-effects ordered logistic model. Here we refit the model, obtain the predicted probabilities for all 4 outcomes, and list the first 10 observations.

```

. use https://www.stata-press.com/data/r17/tvsfpors
(Television, School, and Family Project)
. xtset school
Panel variable: school (unbalanced)
. xtologit thk prethk cc##tv
(output omitted)
. predict pr*, pr
(using 12 quadrature points)
. list thk pr1-pr4 in 1/10

```

	thk	pr1	pr2	pr3	pr4
1.	3	.1427312	.2191935	.281714	.3563613
2.	4	.0695318	.1343722	.2459221	.5501739
3.	3	.0695318	.1343722	.2459221	.5501739
4.	4	.1003876	.1756773	.2724781	.4514571
5.	4	.1003876	.1756773	.2724781	.4514571
6.	3	.0695318	.1343722	.2459221	.5501739
7.	2	.1427312	.2191935	.281714	.3563613
8.	4	.0695318	.1343722	.2459221	.5501739
9.	4	.0476276	.0990209	.2082012	.6451503
10.	4	.1003876	.1756773	.2724781	.4514571

For each observation, our best guess for the predicted outcome is the one with the highest predicted probability. For example, for the very first observation in the table above, we would choose outcome 4 as the most likely to occur.

◀

Also see

[[XT](#)] [xtologit](#) — Random-effects ordered logistic models

[[U](#)] [20 Estimation and postestimation commands](#)