

## Postestimation commands

The following postestimation commands are available after `xtprobit`:

Command	Description
<code>contrast</code>	contrasts and ANOVA-style joint tests of parameters
<code>estat ic</code>	Akaike's, consistent Akaike's, corrected Akaike's, and Schwarz's Bayesian information criteria (AIC, CAIC, AICc, and BIC, respectively)
<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>etable</code>	table of estimation results
<code>hausman</code>	Hausman's specification test
<code>lincom</code>	point estimates, standard errors, testing, and inference for linear combinations of parameters
<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 parameters
<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 parameters
<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 ]
```

statistic	Description
Main	
xb	linear prediction; the default
pr	marginal probability of the specified outcome (outcome())
pu0	probability of the specified outcome (outcome()) assuming that the random effect is zero
stdp	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 xtoprobit. 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]
```

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

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

### ➤ Example 1: Predicted marginal probabilities

In [example 1](#) of [XT] **xtoprobit**, 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 probit 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/r19/tvsvfpors
(Television, School, and Family Project)
. xtset school
Panel variable: school (unbalanced)
. xtoprobit 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	.1409978	.2254197	.2750568	.3585258
2.	4	.0614014	.1479641	.2488757	.5417588
3.	3	.0614014	.1479641	.2488757	.5417588
4.	4	.0951857	.187463	.2685807	.4487706
5.	4	.0951857	.187463	.2685807	.4487706
6.	3	.0614014	.1479641	.2488757	.5417588
7.	2	.1409978	.2254197	.2750568	.3585258
8.	4	.0614014	.1479641	.2488757	.5417588
9.	4	.0378048	.1108411	.2188475	.6325067
10.	4	.0951857	.187463	.2685807	.4487706

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] [xtoprobit](#) — Random-effects ordered probit model
- [U] [20 Estimation and postestimation commands](#)

