

xtprobit postestimation — Postestimation tools for xtprobit

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Description

The following postestimation commands are available after `xtprobit`:

Command	Description
<code>contrast</code>	contrasts and ANOVA-style joint tests of estimates
<code>estat ic</code> ¹	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>forecast</code> ²	dynamic forecasts and simulations
<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>	predictions, residuals, influence statistics, and other diagnostic measures
<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

¹ `estat ic` is not appropriate after `xtprobit`, `pa`.

² `forecast` is not appropriate with `mi` estimation results.

Syntax for predict

Random-effects model

```
predict [type] newvar [if] [in] [, RE_statistic nooffset]
```

Population-averaged model

```
predict [type] newvar [if] [in] [, PA_statistic nooffset]
```

<i>RE_statistic</i>	Description
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Main

xb	linear prediction; the default
pu0	probability of a positive outcome
stdp	standard error of the linear prediction

<i>PA_statistic</i>	Description
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Main

mu	probability of <i>depvar</i> ; considers the <code>offset()</code> ; the default
rate	probability of <i>depvar</i>
xb	linear prediction
stdp	standard error of the linear prediction
score	first derivative of the log likelihood with respect to $\mathbf{x}_j\beta$

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

Menu for predict

Statistics > Postestimation > Predictions, residuals, etc.

Options for predict

Main

xb calculates the linear prediction. This is the default for the random-effects model.

pu0 calculates the probability of a positive outcome, assuming that the random effect for that observation's panel is zero ($\nu = 0$). This probability may not be similar to the proportion of observed outcomes in the group.

stdp calculates the standard error of the linear prediction.

mu and **rate** both calculate the predicted probability of *depvar*. **mu** takes into account the `offset()`, and **rate** ignores those adjustments. **mu** and **rate** are equivalent if you did not specify `offset()`. **mu** is the default for the population-averaged model.

score calculates the equation-level score, $u_j = \partial \ln L_j(\mathbf{x}_j\beta) / \partial(\mathbf{x}_j\beta)$.

nooffset is relevant only if you specified `offset(varname)` for `xtprobit`. It 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 $\mathbf{x}_{it}\beta + \text{offset}_{it}$.

Remarks and examples

► Example 1

In [example 2](#) of [\[XT\] xtprobit](#), we fit a population-averaged model of union status on the woman's age and level of schooling, whether she lived in an urban area, whether she lived in the south, and the year observed. Here we compute the average marginal effects from that fitted model on the probability of being in a union.

```
. use http://www.stata-press.com/data/r13/union
(NLS Women 14-24 in 1968)
. xtprobit union age grade i.not_smsa south##c.year, pa
(output omitted)
. margins, dydx(*)
Average marginal effects          Number of obs   =       26200
Model VCE      : Conventional
Expression    : Pr(union != 0), predict()
dy/dx w.r.t.  : age grade 1.not_smsa 1.south year
```

	Delta-method				[95% Conf. Interval]	
	dy/dx	Std. Err.	z	P> z		
age	.0025337	.0015035	1.69	0.092	-.0004132	.0054805
grade	.0094109	.0017566	5.36	0.000	.005968	.0128537
1.not_smsa	-.0199744	.0075879	-2.63	0.008	-.0348464	-.0051023
1.south	-.0910805	.0073315	-12.42	0.000	-.10545	-.076711
year	-.000938	.0015413	-0.61	0.543	-.0039589	.0020828

Note: dy/dx for factor levels is the discrete change from the base level.

On average, not living in a metropolitan area (`not_smsa = 0`) lowers the probability of being in a union by about two percentage points.



Also see

[\[XT\] xtprobit](#) — Random-effects and population-averaged probit models

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