

## biprobit postestimation — Postestimation tools for biprobit

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## Postestimation commands

The following postestimation commands are available after `biprobit`:

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>estat (svy)</code>	postestimation statistics for survey data
<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 <code>margins</code> (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>suest</code>	seemingly unrelated estimation
<code>test</code>	Wald tests of simple and composite linear hypotheses
<code>testnl</code>	Wald tests of nonlinear hypotheses

\* `hausman` and `lrtest` are not appropriate with `svy` estimation results.

# predict

## Description for predict

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

## Menu for predict

Statistics > Postestimation

## Syntax for predict

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

```
predict [type] { stub* | newvareq1 newvareq2 newvarathrho } [if] [in] , scores
```

<i>statistic</i>	Description
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Main

<code>p11</code>	$\Phi_2(\mathbf{x}_j \mathbf{b}, \mathbf{z}_j \mathbf{g}, \rho)$ , predicted probability $\Pr(y_{1j} = 1, y_{2j} = 1)$ ; the default
<code>p10</code>	$\Phi_2(\mathbf{x}_j \mathbf{b}, -\mathbf{z}_j \mathbf{g}, -\rho)$ , predicted probability $\Pr(y_{1j} = 1, y_{2j} = 0)$
<code>p01</code>	$\Phi_2(-\mathbf{x}_j \mathbf{b}, \mathbf{z}_j \mathbf{g}, -\rho)$ , predicted probability $\Pr(y_{1j} = 0, y_{2j} = 1)$
<code>p00</code>	$\Phi_2(-\mathbf{x}_j \mathbf{b}, -\mathbf{z}_j \mathbf{g}, \rho)$ , predicted probability $\Pr(y_{1j} = 0, y_{2j} = 0)$
<code>pmarg1</code>	$\Phi(\mathbf{x}_j \mathbf{b})$ , marginal success probability for equation 1
<code>pmarg2</code>	$\Phi(\mathbf{z}_j \mathbf{g})$ , marginal success probability for equation 2
<code>pcond1</code>	$\Phi_2(\mathbf{x}_j \mathbf{b}, \mathbf{z}_j \mathbf{g}, \rho) / \Phi(\mathbf{z}_j \mathbf{g})$ , conditional probability of success for equation 1
<code>pcond2</code>	$\Phi_2(\mathbf{x}_j \mathbf{b}, \mathbf{z}_j \mathbf{g}, \rho) / \Phi(\mathbf{x}_j \mathbf{b})$ , conditional probability of success for equation 2
<code>xb1</code>	$\mathbf{x}_j \mathbf{b}$ , linear prediction for equation 1
<code>xb2</code>	$\mathbf{z}_j \mathbf{g}$ , linear prediction for equation 2
<code>stdp1</code>	standard error of the linear prediction for equation 1
<code>stdp2</code>	standard error of the linear prediction for equation 2

where  $\Phi(\cdot)$  is the standard normal-distribution function and  $\Phi_2(\cdot)$  is the bivariate standard normal-distribution function.

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

`p11`, the default, calculates the bivariate predicted probability  $\Pr(y_{1j} = 1, y_{2j} = 1)$ .

`p10` calculates the bivariate predicted probability  $\Pr(y_{1j} = 1, y_{2j} = 0)$ .

`p01` calculates the bivariate predicted probability  $\Pr(y_{1j} = 0, y_{2j} = 1)$ .

p00 calculates the bivariate predicted probability  $\Pr(y_{1j} = 0, y_{2j} = 0)$ .

pmarg1 calculates the univariate (marginal) predicted probability of success  $\Pr(y_{1j} = 1)$ .

pmarg2 calculates the univariate (marginal) predicted probability of success  $\Pr(y_{2j} = 1)$ .

pcond1 calculates the conditional (on success in equation 2) predicted probability of success  $\Pr(y_{1j} = 1, y_{2j} = 1) / \Pr(y_{2j} = 1)$ .

pcond2 calculates the conditional (on success in equation 1) predicted probability of success  $\Pr(y_{1j} = 1, y_{2j} = 1) / \Pr(y_{1j} = 1)$ .

xb1 calculates the probit linear prediction  $\mathbf{x}_j \mathbf{b}$ .

xb2 calculates the probit linear prediction  $\mathbf{z}_j \mathbf{g}$ .

stdp1 calculates the standard error of the linear prediction for equation 1.

stdp2 calculates the standard error of the linear prediction for equation 2.

nooffset is relevant only if you specified `offset1(varname)` or `offset2(varname)` for `biprobit`.

It modifies the calculations made by `predict` so that they ignore the offset variables; the linear predictions are treated as  $\mathbf{x}_j \mathbf{b}$  rather than as  $\mathbf{x}_j \mathbf{b} + \text{offset}_{1j}$  and  $\mathbf{z}_j \boldsymbol{\gamma}$  rather than as  $\mathbf{z}_j \boldsymbol{\gamma} + \text{offset}_{2j}$ .

scores calculates equation-level score variables.

The first new variable will contain  $\partial \ln L / \partial (\mathbf{x}_j \boldsymbol{\beta})$ .

The second new variable will contain  $\partial \ln L / \partial (\mathbf{z}_j \boldsymbol{\gamma})$ .

The third new variable will contain  $\partial \ln L / \partial (\text{atanh } \rho)$ .

## margins

### Description for margins

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

### Menu for margins

Statistics > Postestimation

### Syntax for margins

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

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

<i>statistic</i>	Description
<code>p11</code>	$\Phi_2(\mathbf{x}_j\mathbf{b}, \mathbf{z}_j\mathbf{g}, \rho)$ , predicted probability $\Pr(y_{1j} = 1, y_{2j} = 1)$ ; the default
<code>p10</code>	$\Phi_2(\mathbf{x}_j\mathbf{b}, -\mathbf{z}_j\mathbf{g}, -\rho)$ , predicted probability $\Pr(y_{1j} = 1, y_{2j} = 0)$
<code>p01</code>	$\Phi_2(-\mathbf{x}_j\mathbf{b}, \mathbf{z}_j\mathbf{g}, -\rho)$ , predicted probability $\Pr(y_{1j} = 0, y_{2j} = 1)$
<code>p00</code>	$\Phi_2(-\mathbf{x}_j\mathbf{b}, -\mathbf{z}_j\mathbf{g}, \rho)$ , predicted probability $\Pr(y_{1j} = 0, y_{2j} = 0)$
<code>pmarg1</code>	$\Phi(\mathbf{x}_j\mathbf{b})$ , marginal success probability for equation 1
<code>pmarg2</code>	$\Phi(\mathbf{z}_j\mathbf{g})$ , marginal success probability for equation 2
<code>pcond1</code>	$\Phi_2(\mathbf{x}_j\mathbf{b}, \mathbf{z}_j\mathbf{g}, \rho) / \Phi(\mathbf{z}_j\mathbf{g})$ , conditional probability of success for equation 1
<code>pcond2</code>	$\Phi_2(\mathbf{x}_j\mathbf{b}, \mathbf{z}_j\mathbf{g}, \rho) / \Phi(\mathbf{x}_j\mathbf{b})$ , conditional probability of success for equation 2
<code>xb1</code>	$\mathbf{x}_j\mathbf{b}$ , linear prediction for equation 1
<code>xb2</code>	$\mathbf{z}_j\mathbf{g}$ , linear prediction for equation 2
<code>stdp1</code>	not allowed with <code>margins</code>
<code>stdp2</code>	not allowed with <code>margins</code>

Statistics not allowed with `margins` are functions of stochastic quantities other than  $\mathbf{e}(\mathbf{b})$ .

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

### Also see

[R] [biprobit](#) — Bivariate probit regression

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