

## Postestimation commands

The following postestimation commands are available after `cnsreg`:

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>estat (svy)</code>	postestimation statistics for survey data
<code>estimates</code>	cataloging estimation results
<code>etable</code>	table of estimation results
* <code>forecast</code>	dynamic forecasts and simulations
* <code>hausman</code>	Hausman's specification test
<code>lincom</code>	point estimates, standard errors, testing, and inference for linear combinations of parameters
<code>linktest</code>	link test for model specification
* <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>	predictions and their SEs, residuals, etc.
<code>predictnl</code>	point estimates, standard errors, testing, and inference for generalized predictions
<code>pwcompare</code>	pairwise comparisons of parameters
<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

\*`forecast`, `hausman`, and `lrtest` are not appropriate with `svy` estimation results. `forecast` is also not appropriate with `mi` estimation results.

# predict

## Description for predict

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

## Menu for predict

Statistics > Postestimation

## Syntax for predict

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

statistic	Description
Main	
xb	linear prediction; the default
residuals	residuals
stdp	standard error of the prediction
stdf	standard error of the forecast
pr( <i>a</i> , <i>b</i> )	$\Pr(a < y_j < b)$
e( <i>a</i> , <i>b</i> )	$E(y_j   a < y_j < b)$
ystar( <i>a</i> , <i>b</i> )	$E(y_j^*), y_j^* = \max\{a, \min(y_j, b)\}$
score	equivalent to residuals

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

stdf is not allowed with svy estimation results.

where *a* and *b* may be numbers or variables; *a* missing (*a* ≥ .) means  $-\infty$ , and *b* missing (*b* ≥ .) means  $+\infty$ ; see [U] 12.2.1 Missing values.

## Options for predict

### Main

- xb, the default, calculates the linear prediction.
- residuals calculates the residuals, that is,  $y_j - \mathbf{x}_j\mathbf{b}$ .
- stdp calculates the standard error of the prediction, which can be thought of as the standard error of the predicted expected value or mean for the observation’s covariate pattern. The standard error of the prediction is also referred to as the standard error of the fitted value.
- stdf calculates the standard error of the forecast, which is the standard error of the point prediction for 1 observation. It is commonly referred to as the standard error of the future or forecast value. By construction, the standard errors produced by stdf are always larger than those produced by stdp; see [Methods and formulas in \[R\] regress postestimation](#).
- pr(*a*, *b*) calculates  $\Pr(a < \mathbf{x}_j\mathbf{b} + u_j < b)$ , the probability that  $y_j | \mathbf{x}_j$  would be observed in the interval (*a*, *b*).

$a$  and  $b$  may be specified as numbers or variable names;  $lb$  and  $ub$  are variable names;

`pr(20,30)` calculates  $\Pr(20 < \mathbf{x}_j\mathbf{b} + u_j < 30)$ ;

`pr(lb,ub)` calculates  $\Pr(lb < \mathbf{x}_j\mathbf{b} + u_j < ub)$ ; and

`pr(20,ub)` calculates  $\Pr(20 < \mathbf{x}_j\mathbf{b} + u_j < ub)$ .

$a$  missing ( $a \geq .$ ) means  $-\infty$ ; `pr(.,30)` calculates  $\Pr(-\infty < \mathbf{x}_j\mathbf{b} + u_j < 30)$ ;

`pr(lb,30)` calculates  $\Pr(-\infty < \mathbf{x}_j\mathbf{b} + u_j < 30)$  in observations for which  $lb \geq .$

and calculates  $\Pr(lb < \mathbf{x}_j\mathbf{b} + u_j < 30)$  elsewhere.

$b$  missing ( $b \geq .$ ) means  $+\infty$ ; `pr(20,.)` calculates  $\Pr(+\infty > \mathbf{x}_j\mathbf{b} + u_j > 20)$ ;

`pr(20,ub)` calculates  $\Pr(+\infty > \mathbf{x}_j\mathbf{b} + u_j > 20)$  in observations for which  $ub \geq .$

and calculates  $\Pr(20 < \mathbf{x}_j\mathbf{b} + u_j < ub)$  elsewhere.

`e(a,b)` calculates  $E(\mathbf{x}_j\mathbf{b} + u_j \mid a < \mathbf{x}_j\mathbf{b} + u_j < b)$ , the expected value of  $y_j \mid \mathbf{x}_j$  conditional on  $y_j \mid \mathbf{x}_j$  being in the interval  $(a, b)$ , meaning that  $y_j \mid \mathbf{x}_j$  is truncated.  $a$  and  $b$  are specified as they are for `pr()`.

`ystar(a,b)` calculates  $E(y_j^*)$ , where  $y_j^* = a$  if  $\mathbf{x}_j\mathbf{b} + u_j \leq a$ ,  $y_j^* = b$  if  $\mathbf{x}_j\mathbf{b} + u_j \geq b$ , and  $y_j^* = \mathbf{x}_j\mathbf{b} + u_j$  otherwise, meaning that  $y_j^*$  is censored.  $a$  and  $b$  are specified as they are for `pr()`.

`score` is equivalent to `residuals` for linear regression models.

# margins

## Description for margins

margins estimates margins of response for linear predictions, probabilities, and expected values.

## Menu for margins

Statistics > Postestimation

## Syntax for margins

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

<i>statistic</i>	Description
xb	linear prediction; the default
$\text{pr}(a,b)$	$\Pr(a < y_j < b)$
$\text{e}(a,b)$	$E(y_j   a < y_j < b)$
$\text{ystar}(a,b)$	$E(y_j^*, y_j^* = \max\{a, \min(y_j, b)\})$
stdp	not allowed with margins
stdf	not allowed with margins
<u>r</u> esiduals	not allowed with margins
<u>s</u> core	not allowed with margins

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

For the full syntax, see [R] margins.

## Also see

- [R] **cnsreg** — Constrained linear regression
- [U] **20 Estimation and postestimation commands**

