

nprogr postestimation — Postestimation tools for nprogr

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Postestimation commands

The following postestimation command is of special interest after `nprogr`:

Command	Description
<code>npgraph</code>	plot of conditional means

The following standard postestimation commands are also available:

Command	Description
<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>lincom</code>	point estimates, standard errors, testing, and inference for linear combinations of coefficients
<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>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 conditional mean of the outcome, residuals, or derivatives of the mean function.

Menu for predict

Statistics > Postestimation

Syntax for predict

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

```
predict [type] { stub* | newvarlist } [if] [in], derivatives
```

<i>statistic</i>	Description
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Main

<code>mean</code>	conditional mean of the outcome; the default
<code>residuals</code>	residuals

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

`mean`, the default, calculates the conditional mean of the outcome variable.

`residuals` calculates the residuals.

`derivatives` calculates the derivatives of the conditional mean.

margins

Description for margins

`margins` estimates margins of the conditional mean.

Menu for margins

Statistics > Postestimation

Syntax for margins

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

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

<i>statistic</i>	Description
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Main

<code>mean</code>	conditional mean of the outcome; the default
<code><u>r</u>esiduals</code>	not allowed with <code>margins</code>
<code><u>d</u>erivatives</code>	not allowed with <code>margins</code>

<i>options</i>	Description
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SE

<code>nose</code>	do not estimate standard errors; the default
<code>vce(<i>vcetype</i>)</code>	<i>vcetype</i> may be <code>nose</code> or <code>bootstrap</code>
<code><u>r</u>eps(#)</code>	equivalent to <code>vce(bootstrap, reps(#))</code>
<code>seed(#)</code>	set random-number seed to #; must also specify <code>reps(#)</code>

Reporting

<code><i>citype</i>(<i>citype</i>)</code>	method to compute bootstrap confidence intervals; default is <code><i>citype</i>(percentile)</code>
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<i>citype</i>	Description
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<code><u>p</u>ercentile</code>	percentile confidence intervals; the default
<code><u>b</u>c</code>	bias-corrected confidence intervals
<code><u>n</u>ormal</code>	normal-based confidence intervals

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

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

Options for margins

SE

`nose` suppresses calculation of the VCE and standard errors. This is the default.

`vce(vctype)` specifies the type of standard error reported, which may be either that no standard errors are reported (`nose`; the default) or that bootstrap standard errors are reported (`bootstrap`); see [R] [vce_option](#).

We recommend that you select the number of replications using `reps(#)` instead of specifying `vce(bootstrap)`, which defaults to 50 replications. Be aware that the number of replications needed to produce good estimates of the standard errors varies depending on the problem.

`reps(#)` specifies the number of bootstrap replications to be performed. Specifying this option is equivalent to specifying `vce(bootstrap, reps(#))`.

`seed(#)` sets the random-number seed. You must specify `reps(#)` with `seed(#)`.

Reporting

`ctype(citype)` specifies the type of confidence interval to be computed. By default, bootstrap percentile confidence intervals are reported as recommended by [Cattaneo and Jansson \(2017\)](#). `citype` may be one of `percentile`, `bc`, or `normal`.

npgraph

Description for npgraph

`npgraph` plots the conditional mean estimated by `npregress` overlaid on a scatterplot of the data. `npgraph` is available only after fitting models with one covariate.

Syntax for npgraph

```
npgraph [if] [in] [, options]
```

<i>options</i>	Description
Plot	
marker_options	change look of markers (color, size, etc.)
marker_label_options	add marker labels; change look or position
<code>noscatter</code>	suppress scatterplot
Smoothed line	
lineopts(cline_options)	affect rendition of the smoothed line
Add plots	
<code>addplot(plot)</code>	add other plots to the generated graph
Y axis, X axis, Titles, Legend, Overall	
twoway_options	any options other than <code>by()</code> documented in [G-3] twoway_options

Options for npregraph

Plot

marker_options affect the rendition of markers drawn at the plotted points, including their shape, size, color, and outline; see [G-3] *marker_options*.

marker_label_options specify if and how the markers are to be labeled; see [G-3] *marker_label_options*.

noscatter suppresses superimposing a scatterplot of the observed data over the smooth. This option is useful when the number of resulting points would be so large as to clutter the graph.

Smoothed line

lineopts (*cline_options*) affects the rendition of the smoothed line; see [G-3] *cline_options*.

Add plots

addplot (*plot*) provides a way to add other plots to the generated graph; see [G-3] *addplot_option*.

Y axis, X axis, Titles, Legend, Overall

twoway_options are any of the options documented in [G-3] *twoway_options*, excluding *by()*. These include options for titling the graph (see [G-3] *title_options*) and for saving the graph to disk (see [G-3] *saving_option*).

Remarks and examples

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

For examples of margins after *npregress*, see [example 4](#), [example 5](#), and [example 6](#) in [R] *npregress*.

For examples of *marginsplot*, see [example 7](#) in [R] *npregress*.

For an example of *npregraph*, see [example 2](#) in [R] *npregress*.

Methods and formulas

The formulas used by *predict* and *margins* for the conditional mean function and the mean marginal effect of a covariate are given in *Methods and formulas* of [R] *npregress*.

Reference

- Cattaneo, M. D., and M. Jansson. 2017. Kernel-based semiparametric estimators: Small bandwidth asymptotics and bootstrap consistency. Working paper. http://eml.berkeley.edu/~mjansson/Papers/CattaneoJansson_BootstrappingSemiparametrics.pdf.

Also see

- [R] [npregress](#) — Nonparametric regression
- [R] [bootstrap postestimation](#) — Postestimation tools for bootstrap
- [U] [20 Estimation and postestimation commands](#)