Title

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npregress kernel postestimation — Postestimation tools for npregress kernel

Postestimation commands

The following postestimation command is of special interest after `npregress kernel`:

Command	Description
`npgraph`	plot of conditional means

The following standard postestimation commands are also available:

Command	Description
`estat summarize`	summary statistics for the estimation sample
`estat vce`	variance–covariance matrix of the estimators (VCE)
`estimates`	cataloging estimation results
`etable`	table of estimation results
`lincom`	point estimates, standard errors, testing, and inference for linear combinations of coefficients
`margins`	marginal means, predictive margins, marginal effects, and average marginal effects
`marginsplot`	graph the results from margins (profile plots, interaction plots, etc.)
`nlcom`	point estimates, standard errors, testing, and inference for nonlinear combinations of coefficients
`predict`	conditional means and residuals
`predictnl`	point estimates, standard errors, testing, and inference for generalized predictions
`test`	Wald tests of simple and composite linear hypotheses
`testnl`	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
```

statistic	Description
Main	
`mean`	conditional mean of the outcome; the default
`residuals`	residuals

These statistics are calculated 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*]

statistic	Description
Main	
`mean`	conditional mean of the outcome; the default
`residuals`	not allowed with `margins`
`derivatives`	not allowed with `margins`

options	Description
SE	
`nose`	do not estimate standard errors; the default
`vce(bootstrap)`	estimate bootstrap standard errors
`reps(#)`	equivalent to `vce(bootstrap, reps(#))`
`seed(#)`	set random-number seed to #; must also specify `reps(#)`
Reporting	
`citype(`*citype*`)`	method to compute bootstrap confidence intervals; default is `citype(percentile)`

citype	Description
`percentile`	percentile confidence intervals; the default
`bc`	bias-corrected confidence intervals
`normal`	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(bootstrap)` specifies that bootstrap standard errors are reported; 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

`citype(`*citype*`)` specifies the type of confidence interval to be computed. By default, bootstrap percentile confidence intervals are reported as recommended by Cattaneo and Jansson (2018). *citype* may be one of `percentile`, `bc`, or `normal`.

npgraph

Description for npgraph

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

Syntax for npgraph

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

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

Options for npgraph

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

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For examples of `margins` after `npregress kernel`, see example 4, example 5, and example 6 in [R] **npregress kernel**.

For examples of `marginsplot`, see example 7 in [R] **npregress kernel**.

For an example of `npgraph`, see example 2 in [R] **npregress kernel**.

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 kernel**.

References

Cattaneo, M. D., and M. Jansson. 2018. Kernel-based semiparametric estimators: Small bandwidth asymptotics and bootstrap consistency. *Econometrica* 86: 955–995. https://doi.org/10.3982/ECTA12701.

MacDonald, K. 2018. Exploring results of nonparametric regression models. *The Stata Blog: Not Elsewhere Classified.* https://blog.stata.com/2018/06/18/exploring-results-of-nonparametric-regression-models/.

Also see

[R] **npregress kernel** — Nonparametric kernel regression

[R] **bootstrap postestimation** — Postestimation tools for bootstrap

[U] **20 Estimation and postestimation commands**