Title

qreg postestimation — Postestimation tools for qreg, iqreg, sqreg, and bsqreg

Postestimation commands

The following postestimation commands are available after qreg, iqreg, bsqreg, and sqreg:

Command	Description
contrast	contrasts and ANOVA-style joint tests of estimates
estat summarize	summary statistics for the estimation sample
estat vce	variance–covariance matrix of the estimators (VCE)
estimates	cataloging estimation results
†forecast	dynamic forecasts and simulations
*hausman	Hausman's specification test
lincom	point estimates, standard errors, testing, and inference for linear combinations of coefficients
linktest	link test for model specification
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	predictions, residuals, influence statistics, and other diagnostic measures
predictnl	point estimates, standard errors, testing, and inference for generalized predictions
pwcompare	pairwise comparisons of estimates
test	Wald tests of simple and composite linear hypotheses
testnl	Wald tests of nonlinear hypotheses

* hausman is not appropriate after bsqreg, isqreg, or sqreg.

† forecast is not appropriate with mi estimation results.

predict

Description for predict

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

Menu for predict

Statistics > Postestimation

Syntax for predict

For qreg, iqreg, and bsqreg

> `predict` [*type*] *newvar* [*if*] [*in*] [`,` [`xb`|`stdp`|`residuals`]]

For sqreg

> `predict` [*type*] *newvar* [*if*] [*in*] [`,` `equation(`*eqno*[`,`*eqno*]`)` *statistic*]

statistic	Description
Main	
`xb`	linear prediction; the default
`stdp`	standard error of the linear prediction
`stddp`	standard error of the difference in linear predictions
<u>`residuals`</u>	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

`xb`, the default, calculates the linear prediction.

`stdp` calculates the standard error of the linear prediction.

`stddp` is allowed only after you have fit a model using `sqreg`. The standard error of the difference in linear predictions $(\mathbf{x}_{1j}\mathbf{b} - \mathbf{x}_{2j}\mathbf{b})$ between equations 1 and 2 is calculated.

`residuals` calculates the residuals, that is, $y_j - \mathbf{x}_j\mathbf{b}$.

`equation(`*eqno*[`,`*eqno*]`)` specifies the equation to which you are making the calculation.

> `equation()` is filled in with one *eqno* for the `xb`, `stdp`, and `residuals` options. `equation(#1)` would mean that the calculation is to be made for the first equation, `equation(#2)` would mean the second, and so on. You could also refer to the equations by their names. `equation(income)` would refer to the equation named income and `equation(hours)` to the equation named hours.

> If you do not specify `equation()`, results are the same as if you had specified `equation(#1)`.

> To use `stddp`, you must specify two equations. You might specify `equation(#1, #2)` or `equation(q80, q20)` to indicate the 80th and 20th quantiles.

margins

Description for margins

margins estimates margins of response for linear predictions.

Menu for margins

Statistics > Postestimation

Syntax for margins

margins [*marginlist*] [, *options*]

margins [*marginlist*] , <u>predict</u>(*statistic* ...) [*options*]

statistic	Description
xb	linear prediction; the default
stdp	not allowed with margins
stddp	not allowed with margins
<u>res</u>iduals	not allowed with margins

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

For the full syntax, see [R] **margins**.

Remarks and examples   [stata.com]

▷ Example 1

In example 4 of [R] **qreg**, we fit regressions for the lower and the upper quartile of the price variable. The predict command can be used to obtain the linear prediction after each regression.

```
. use http://www.stata-press.com/data/r15/auto
(1978 Automobile Data)
. qreg price weight length foreign, quantile(.25)
  (output omitted)
. predict q25
(option xb assumed; fitted values)
. qreg price weight length foreign, quantile(.75)
  (output omitted)
. predict q75
(option xb assumed; fitted values)
```

We can use the variables generated by predict to compute the predicted interquartile range, that is,

```
. generate iqr1 = q75 - q25
```

If we directly perform the interquartile range regression with the iqreg command, we can predict the interquartile range and also the standard error for the prediction.

```
. iqreg price weight length foreign, quantile(.25 .75)
 (output omitted )
. predict iqr2
(option xb assumed; fitted values)
. predict stdp, stdp
```

We now plot the predicted interquartile range versus variable length:

```
. scatter iqr2 length
```
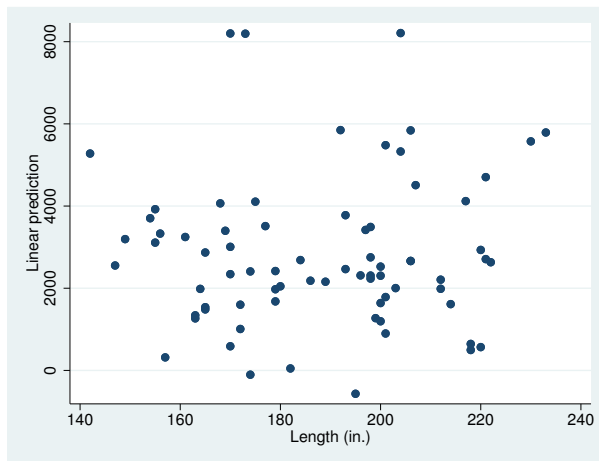

As stated in example 5 of [R] **qreg**, the negative coefficient for the `length` variable means that increases in length imply decreases in the interquartile range and therefore in price dispersion. Consequently, we could have expected a downward trend in the plot, but there is not. This is because the regression output indicates that when we hold the rest of the variables constant, an increase in `length` leads to a decrease in `iqr2`. However, there is a high correlation between `weight` and `length`, which could be masking the effect of `length` on `iqr2`. We can achieve a better visualization by using a contour plot.

```
. twoway contour iqr2 weight length, level(10)
```
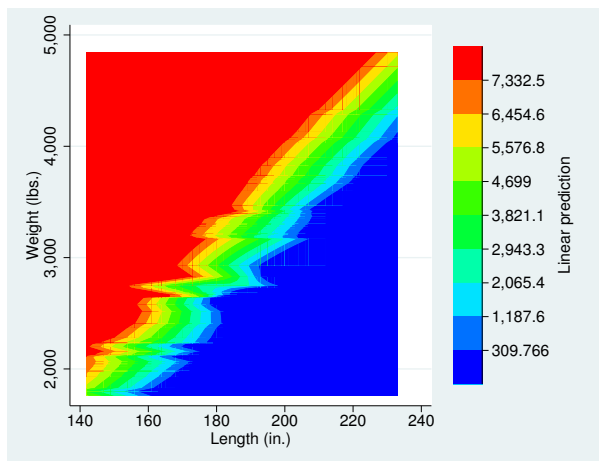

We can see the effect by setting a fixed value of `length` on the vertical axis, say, 3,000 lbs. When we move from left to right on the horizontal axis, we see that for small values of `length`, `iqr2` values are shown in red, meaning high values, and when we move toward the right, the graph indicates transition into increasingly smaller values.

◁

Also see

[R] **qreg** — Quantile regression

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