Title

> **sureg postestimation** — Postestimation tools for sureg

[Postestimation commands](#)   [predict](#)   [margins](#)   [Remarks and examples](#)
[Also see](#)

Postestimation commands

The following postestimation commands are available after `sureg`:

Command	Description
contrast	contrasts and ANOVA-style joint tests of estimates
estat ic	Akaike's and Schwarz's Bayesian information criteria (AIC and BIC)
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
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

predict

Description for predict

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

Menu for predict

Statistics > Postestimation

Syntax for predict

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

statistic	Description
Main	
xb	linear prediction; the default
stdp	standard error of the linear prediction
residuals	residuals
difference	difference between the linear predictions of two equations
stddp	standard error of the difference in linear predictions

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

equation(*eqno*[,*eqno*]) specifies to which equation(s) you are referring.

> 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(), the results are the same as if you specified equation(#1).

> difference and stddp refer to between-equation concepts. To use these options, you must specify two equations, for example, equation(#1,#2) or equation(income,hours). When two equations must be specified, equation() is required.

xb, the default, calculates the linear prediction (fitted values)—the prediction of $\mathbf{x}_j\mathbf{b}$ for the specified equation.

stdp calculates the standard error of the prediction for the specified equation. It 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.

residuals calculates the residuals.

difference calculates the difference between the linear predictions of two equations in the system. With equation(#1,#2), difference computes the prediction of equation(#1) minus the prediction of equation(#2).

stddp is allowed only only after you have previously fit a multiple-equation model. 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.

For more information on using predict after multiple-equation estimation commands, see [R] **predict**.

margins

Description for margins

margins estimates margins of response for linear predictions and differences between the linear predictions.

Menu for margins

Statistics > Postestimation

Syntax for margins

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

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

statistic	Description
default	linear predictions for each equation
xb	linear prediction for a specified equation
<u>diff</u>erence	difference between the linear predictions of two equations
stdp	not allowed with margins
<u>res</u>iduals	not allowed with margins
stddp	not allowed with margins

xb defaults to the first equation.

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

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

Remarks and examples

For an example of cross-equation testing of parameters using the test command, see example 1 in [R] **sureg**.

▷ Example 1

In example 1 of [R] **sureg**, we fit a seemingly unrelated regressions model of price and weight. Here we obtain the fitted values.

```
. use http://www.stata-press.com/data/r14/auto
(1978 Automobile Data)
. sureg (price foreign length) (weight foreign length), small dfk
 (output omitted)
. predict phat, equation(price)
(option xb assumed; fitted values)
. predict what, equation(weight)
(option xb assumed; fitted values)
. summarize price phat weight what
```

Variable	Obs	Mean	Std. Dev.	Min	Max
price	74	6165.257	2949.496	3291	15906
phat	74	6165.257	1656.407	1639.872	9398.138
weight	74	3019.459	777.1936	1760	4840
what	74	3019.459	736.9666	1481.199	4476.331

Just as in single-equation OLS regression, in a SURE model the sample mean of the fitted values for an equation equals the sample mean of the dependent variable.

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▷ Example 2

Suppose that for whatever reason we were interested in the difference between the predicted values of price and weight. predict has an option to compute this difference in one step:

```
. predict diff, equation(price, weight) difference
```

diff is the same as phat − what:

```
. generate mydiff = phat - what
. summarize diff mydiff
```

Variable	Obs	Mean	Std. Dev.	Min	Max
diff	74	3145.797	1233.26	−132.2275	5505.914
mydiff	74	3145.797	1233.26	−132.2275	5505.914

◁

Also see

[R] **sureg** — Zellner's seemingly unrelated regression

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