### Description

The following postestimation commands are available after `reg3`:

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>contrast</td>
<td>contrasts and ANOVA-style joint tests of estimates</td>
</tr>
<tr>
<td>*estat ic</td>
<td>Akaile’s and Schwarz’s Bayesian information criteria (AIC and BIC)</td>
</tr>
<tr>
<td>estat summarize</td>
<td>summary statistics for the estimation sample</td>
</tr>
<tr>
<td>estat vce</td>
<td>variance–covariance matrix of the estimators (VCE)</td>
</tr>
<tr>
<td>estimates</td>
<td>cataloging estimation results</td>
</tr>
<tr>
<td>forecast</td>
<td>dynamic forecasts and simulations</td>
</tr>
<tr>
<td>hausman</td>
<td>Hausman’s specification test</td>
</tr>
<tr>
<td>lincom</td>
<td>point estimates, standard errors, testing, and inference for linear combinations of coefficients</td>
</tr>
<tr>
<td>margins</td>
<td>marginal means, predictive margins, marginal effects, and average marginal effects</td>
</tr>
<tr>
<td>marginsplot</td>
<td>graph the results from margins (profile plots, interaction plots, etc.)</td>
</tr>
<tr>
<td>nlcom</td>
<td>point estimates, standard errors, testing, and inference for nonlinear combinations of coefficients</td>
</tr>
<tr>
<td>predict</td>
<td>predictions, residuals, influence statistics, and other diagnostic measures</td>
</tr>
<tr>
<td>predictnl</td>
<td>point estimates, standard errors, testing, and inference for generalized predictions</td>
</tr>
<tr>
<td>pwcompare</td>
<td>pairwise comparisons of estimates</td>
</tr>
<tr>
<td>test</td>
<td>Wald tests of simple and composite linear hypotheses</td>
</tr>
<tr>
<td>testnl</td>
<td>Wald tests of nonlinear hypotheses</td>
</tr>
</tbody>
</table>

*estat ic is not appropriate after `reg3, 2sls`.

### Syntax for predict

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

<table>
<thead>
<tr>
<th>statistic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>xb</td>
<td>linear prediction; the default</td>
</tr>
<tr>
<td>stdp</td>
<td>standard error of the linear prediction</td>
</tr>
<tr>
<td>residuals</td>
<td>residuals</td>
</tr>
<tr>
<td>difference</td>
<td>difference between the linear predictions of two equations</td>
</tr>
<tr>
<td>stddp</td>
<td>standard error of the difference in linear predictions</td>
</tr>
</tbody>
</table>

These statistics are available both in and out of sample; type `predict ... if e(sample) ...` if wanted only for the estimation sample.
Menu for predict
Statistics > Postestimation > Predictions, residuals, etc.

Options for predict

\texttt{equation(eqno[,eqno])} specifies to which equation you are referring.

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

If you do not specify \texttt{equation()}, results are the same as if you specified \texttt{equation(#1)}.

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

\texttt{xb}, the default, calculates the linear prediction (fitted values)—the prediction of $x_j\beta$ for the specified equation.

\texttt{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.

\texttt{residuals} calculates the residuals.

\texttt{difference} calculates the difference between the linear predictions of two equations in the system.

With \texttt{equation(#1,#2)}, \texttt{difference} computes the prediction of \texttt{equation(#1)} minus the prediction of \texttt{equation(#2)}.

\texttt{stddp} is allowed only after you have previously fit a multiple-equation model. The standard error of the difference in linear predictions ($x_{1j}\beta - x_{2j}\beta$) between equations 1 and 2 is calculated.

For more information on using \texttt{predict} after multiple-equation estimation commands, see \texttt{[R] predict}.

Remarks and examples

Example 1: Using predict

In \texttt{example 2} of \texttt{[R] reg3}, we fit a simple supply-and-demand model. Here we obtain the fitted supply and demand curves assuming that the exogenous regressors equal their sample means. We first replace each of the three exogenous regressors with their sample means, then we call predict to obtain the predictions.

\begin{verbatim}
. use http://www.stata-press.com/data/r13/supDem
. global demand "(qDemand: quantity price pcompete income)"
. global supply "(qSupply: quantity price praw)"
. reg3 $demand $supply, endog(price)
(output omitted)
. summarize pcompete, meanonly
. replace pcompete = r(mean)
(49 real changes made)
\end{verbatim}
As we would expect based on economic theory, the demand curve slopes downward while the supply curve slopes upward. With the exogenous variables at their mean levels, the equilibrium price and quantity are slightly less than 33 and 13, respectively.

Example 2: Obtaining forecasts

In example 3 of [R] reg3, we fit Klein’s (1950) model of the U.S. economy. That model includes three stochastic equations we fit using reg3 as well as four identities. Here we briefly illustrate how the forecast command can be used to obtain forecasts for all the endogenous variables in the model. For a more detailed discussion of how to forecast with this model, see [TS] forecast.

In Stata, we type

```stata
use http://www.stata-press.com/data/r13/klein2, clear
reg3 (c p L.p w) (i p L.p L.k) (wp y L.y yr), endog(w p y) exog(t wg g)
(744 obs.) (output omitted)
estimates store kleineqs
forecast create kleinmodel
Forecast model kleinmodel started.
forecast estimates kleineqs
```

```
Forecast model kleinmodel now contains 3 endogenous variables.
```
Forecast model kleinmodel now contains 4 endogenous variables.

Forecast identity \( y = c + i + g \)

Forecast model kleinmodel now contains 5 endogenous variables.

Forecast identity \( p = y - t - wp \)

Forecast model kleinmodel now contains 6 endogenous variables.

Forecast identity \( k = L.k + i \)

Forecast model kleinmodel now contains 7 endogenous variables.

Forecast identity \( w = wg + wp \)

Forecast model kleinmodel now contains 7 endogenous variables.

Computing dynamic forecasts for model kleinmodel.

Starting period: 1937
Ending period: 1941
Forecast prefix: \( f_\). 

1937: ...........................................
1938: ............................................
1939: ...........................................
1940: ...........................................
1941: .............................................

Forecast 7 variables spanning 5 periods.

Here we have obtained dynamic forecasts for our 7 endogenous variables beginning in 1937. By default, the variables containing the forecasts begin with the prefix \( f_\). Next we plot the forecast and actual values of consumption:

```
.tsline c f_c
```

For more information about producing forecasts, see [TS] forecast.

---

**Methods and formulas**

The computational formulas for the statistics produced by predict can be found in [R] predict and [R] regress postestimation.
Reference


Also see

[R] `reg3` — Three-stage estimation for systems of simultaneous equations
[U] 20 Estimation and postestimation commands