Title

> **dsgenl postestimation —** Postestimation tools for dsgenl

Postestimation commands   predict   Remarks and examples   Methods and formulas
Also see

Postestimation commands

The following postestimation commands are of special interest after `dsgenl`:

Command	Description
estat covariance	display model-implied covariance matrix of model variables
estat policy	display policy matrix of estimated model
estat stable	assess stability of the system
estat steady	display steady state of the system
estat transition	display transition matrix of estimated model
irf	create and analyze IRFs and FEVDs

The following standard postestimation commands are also available:

Command	Description
estat ic	Akaike's, consistent Akaike's, corrected Akaike's, and Schwarz's Bayesian information criteria (AIC, CAIC, AICc, and BIC)
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
forecast	dynamic forecasts and simulations
lincom	point estimates, standard errors, testing, and inference for linear combinations of coefficients
lrtest	likelihood-ratio test
nlcom	point estimates, standard errors, testing, and inference for nonlinear combinations of coefficients
predict	one-step-ahead predictions, prediction errors, and other diagnostic measures
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 new variables containing predictions such as expected values. Predictions are available as static one-step-ahead predictions or as dynamic multistep predictions, and you can control when dynamic predictions begin.

Menu for predict

Statistics > Postestimation

Syntax for predict

> predict [*type*] { *stub** | *newvarlist* } [*if*] [*in*] [, *statistic options*]

statistic	Description
Main	
xb	linear prediction for observed variables
<u>states</u>	linear prediction for latent state variables

options	Description
Options	
<u>rmse</u>(*stub** | *newvarlist*)	put estimated root mean squared errors of predicted statistics in new variables
<u>dynamic</u>(*time_constant*)	begin dynamic forecast at specified time
Advanced	
<u>smeth</u>od(*method*)	method for predicting unobserved states

method	Description
onestep	predict using past information
filter	predict using past and contemporaneous information

Options for predict

    Main

xb, the default, calculates the linear predictions of the observed variables.

states calculates the linear predictions of the latent state variables.

Options

rmse(*stub** | *newvarlist*) puts the root mean squared errors of the predicted statistics into the specified new variables. The root mean squared errors measure the variances due to the disturbances but do not account for estimation error.

dynamic(*time_constant*) specifies when predict starts producing dynamic forecasts. The specified *time_constant* must be in the scale of the time variable specified in tsset, and the *time_constant* must be inside a sample for which observations on the dependent variables are available. For example, dynamic(tq(2008q4)) causes dynamic predictions to begin in the fourth quarter of 2008, assuming that your time variable is quarterly; see [D] **Datetime**. If the model contains exogenous variables, they must be present for the whole predicted sample.

Advanced

smethod(*method*) specifies the method for predicting the unobserved states, smethod(onestep) and smethod(filter), and causes different amounts of information on the dependent variables to be used in predicting the states at each time period.

smethod(onestep), the default, causes predict to estimate the states at each time period using previous information on the dependent variables. The Kalman filter is performed on previous periods, but only the one-step predictions are made for the current period.

smethod(filter) causes predict to estimate the states at each time period using previous and contemporaneous data by the Kalman filter. The Kalman filter is performed on previous periods and the current period. smethod(filter) may be specified only with states.

Remarks and examples   stata.com

For examples of estat covariance, see [DSGE] **Intro 3e** and [DSGE] **estat covariance**.

For examples of estat policy, see [DSGE] **Intro 1**, [DSGE] **Intro 3d**, and [DSGE] **Intro 3e**.

For examples of estat transition, see [DSGE] **Intro 1**, [DSGE] **Intro 3d**, and [DSGE] **Intro 3e**.

For examples of irf after dsgenl, see [DSGE] **Intro 3d** and [DSGE] **Intro 3e**.

For examples of predict and forecast after fitting a DSGE model, see [DSGE] **Intro 1**. Examples are shown with estimation results from dsge but apply to results from dsgenl as well.

Methods and formulas

The most important thing to keep in mind is that postestimation predictions after dsgenl are made on the basis of the linearized form of the model given to dsgenl.

Estimating the unobserved states is the key to predicting the observed variables.

By default and with the smethod(onestep) option, predict estimates the state in each period by applying the Kalman filter to all previous periods and only making the one-step prediction to the current period.

With the smethod(filter) option, predict estimates the states in each period by applying the Kalman filter on all previous periods and the current period. The computational difference between smethod(onestep) and smethod(filter) is that smethod(filter) performs the update step on the current period while smethod(onestep) does not. The statistical difference between smethod(onestep) and smethod(filter) is that smethod(filter) uses contemporaneous information on the observed variables while smethod(onestep) does not.

The observed control variables are predicted by plugging in the estimated states.

Also see

[DSGE] **dsgenl** — Nonlinear dynamic stochastic general equilibrium models

[DSGE] **estat covariance** — Display estimated covariances of model variables

[DSGE] **estat policy** — Display policy matrix

[DSGE] **estat stable** — Check stability of system

[DSGE] **estat steady** — Display steady state of nonlinear DSGE model

[DSGE] **estat transition** — Display state transition matrix

[TS] **forecast** — Econometric model forecasting

[TS] **irf** — Create and analyze IRFs, dynamic-multiplier functions, and FEVDs

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