|  |
| --- |
|  |
| Functional Summary |

The statements and options used with the AUTOREG procedure are summarized in the following table.

|  |  |  |
| --- | --- | --- |
| Table 8.1 AUTOREG Functional Summary | | |
| **Description** | **Statement** | **Option** |
| **Data Set Options** | | |
| Specify the input data set | AUTOREG | DATA= |
| Write parameter estimates to an output data set | AUTOREG | OUTEST= |
| Include covariances in the OUTEST= data set | AUTOREG | COVOUT |
| Requests that the procedure produce graphics via the Output Delivery System | AUTOREG | PLOTS= |
| Write predictions, residuals, and confidence limits to an output data set | OUTPUT | OUT= |
| **Declaring the Role of Variables** | | |
| Specify BY-group processing | BY |  |
| Specify classification variables | CLASS |  |
| **Printing Control Options** | | |
| Request all printing options | MODEL | ALL |
| Print transformed coefficients | MODEL | COEF |
| Print correlation matrix of the estimates | MODEL | CORRB |
| Print covariance matrix of the estimates | MODEL | COVB |
| Print DW statistics up to order http://support.sas.com/documentation/cdl/en/etsug/63348/HTML/default/images/etsug_autoreg0043.png | MODEL | DW=http://support.sas.com/documentation/cdl/en/etsug/63348/HTML/default/images/etsug_autoreg0043.png |
| Print marginal probability of the generalized Durbin-Watson test statistics for large sample sizes | MODEL | DWPROB |
| Print the *p*-values for the Durbin-Watson test be computed using a linearized approximation of the design matrix | MODEL | LDW |
| Print inverse of Toeplitz matrix | MODEL | GINV |
| Print the Godfrey LM serial correlation test | MODEL | GODFREY= |
| Print details at each iteration step | MODEL | ITPRINT |
| Print the Durbin *t* statistic | MODEL | LAGDEP |
| Print the Durbin *h* statistic | MODEL | LAGDEP= |
| Print the log-likelihood value of the regression model | MODEL | LOGLIKL |
| Print the Jarque-Bera normality test | MODEL | NORMAL |
| Print the tests for the absence of ARCH effects | MODEL | ARCHTEST= |
| Print BDS tests for independence | MODEL | BDS= |
| Print rank version of von Neumann ratio test for independence | MODEL | VNRRANK= |
| Print runs test for independence | MODEL | RUNS= |
| Print the turning point test for independence | MODEL | TP= |
| Print the Lagrange multiplier test | HETERO | TEST=LM |
| Print the Chow test | MODEL | CHOW= |
| Print the predictive Chow test | MODEL | PCHOW= |
| Suppress printed output | MODEL | NOPRINT |
| Print partial autocorrelations | MODEL | PARTIAL |
| Print Ramsey’s RESET test | MODEL | RESET |
| Print Phillips-Perron tests for stationarity or unit roots | MODEL | STATIONARITY=(PHILLIPS=) |
| Print Augmented Dickey-Fuller tests for stationarity or unit roots | MODEL | STATIONARITY=(ADF=) |
| Print ERS tests for stationarity or unit roots | MODEL | STATIONARITY=(ERS=) |
| Print Ng-Perron tests for stationarity or unit roots | MODEL | STATIONARITY=(NP=) |
| Print KPSS tests for stationarity or unit roots | MODEL | STATIONARITY=(KPSS=) |
| Print tests of linear hypotheses | TEST |  |
| Specify the test statistics to use | TEST | TYPE= |
| Print the uncentered regression http://support.sas.com/documentation/cdl/en/etsug/63348/HTML/default/images/etsug_autoreg0044.png | MODEL | URSQ |
| **Options to Control the Optimization Process** | | |
| Specify the optimization options | NLOPTIONS | see Chapter 6, [Nonlinear Optimization Methods,](http://support.sas.com/documentation/cdl/en/etsug/63348/HTML/default/nlomet_toc.htm) |
| **Model Estimation Options** | | |
| Specify the order of autoregressive process | MODEL | NLAG= |
| Center the dependent variable | MODEL | CENTER |
| Suppress the intercept parameter | MODEL | NOINT |
| Remove nonsignificant AR parameters | MODEL | BACKSTEP |
| Specify significance level for BACKSTEP | MODEL | SLSTAY= |
| Specify the convergence criterion | MODEL | CONVERGE= |
| Specify the type of covariance matrix | MODEL | COVEST= |
| Set the initial values of parameters used by the iterative optimization algorithm | MODEL | INITIAL= |
| Specify iterative Yule-Walker method | MODEL | ITER |
| Specify maximum number of iterations | MODEL | MAXITER= |
| Specify the estimation method | MODEL | METHOD= |
| Use only first sequence of nonmissing data | MODEL | NOMISS |
| Specify the optimization technique | MODEL | OPTMETHOD= |
| Imposes restrictions on the regression estimates | RESTRICT |  |
| Estimate and test heteroscedasticity models | HETERO |  |
| **GARCH Related Options** | | |
| Specify order of GARCH process | MODEL | GARCH=(Q=,P=) |
| Specify type of GARCH model | MODEL | GARCH=(http://support.sas.com/documentation/cdl/en/etsug/63348/HTML/default/images/etsug_autoreg0045.png,TYPE=) |
| Specify various forms of the GARCH-M model | MODEL | GARCH=(http://support.sas.com/documentation/cdl/en/etsug/63348/HTML/default/images/etsug_autoreg0045.png,MEAN=) |
| Suppress GARCH intercept parameter | MODEL | GARCH=(http://support.sas.com/documentation/cdl/en/etsug/63348/HTML/default/images/etsug_autoreg0045.png,NOINT) |
| Specify the trust region method | MODEL | GARCH=(http://support.sas.com/documentation/cdl/en/etsug/63348/HTML/default/images/etsug_autoreg0045.png,TR) |
| Estimate the GARCH model for the conditional *t* distribution | MODEL | GARCH=(http://support.sas.com/documentation/cdl/en/etsug/63348/HTML/default/images/etsug_autoreg0045.png) DIST= |
| Estimate the start-up values for the conditional variance equation | MODEL | GARCH=(http://support.sas.com/documentation/cdl/en/etsug/63348/HTML/default/images/etsug_autoreg0045.png,STARTUP=) |
| Specify the functional form of the heteroscedasticity model | HETERO | LINK= |
| Specify that the heteroscedasticity model does not include the unit term | HETERO | NOCONST |
| Impose constraints on the estimated parameters in the heteroscedasticity model | HETERO | COEF= |
| Impose constraints on the estimated standard deviation of the heteroscedasticity model | HETERO | STD= |
| Output conditional error variance | OUTPUT | CEV= |
| Output conditional prediction error variance | OUTPUT | CPEV= |
| Specify the flexible conditional variance form of the GARCH model | HETERO |  |
| **Output Control Options** | | |
| Specify confidence limit size | OUTPUT | ALPHACLI= |
| Specify confidence limit size for structural predicted values | OUTPUT | ALPHACLM= |
| Specify the significance level for the upper and lower bounds of the CUSUM and CUSUMSQ statistics | OUTPUT | ALPHACSM= |
| Specify the name of a variable to contain the values of the Theil’s BLUS residuals | OUTPUT | BLUS= |
| Output the value of the error variance http://support.sas.com/documentation/cdl/en/etsug/63348/HTML/default/images/etsug_autoreg0046.png | OUTPUT | CEV= |
| Output transformed intercept variable | OUTPUT | CONSTANT= |
| Specify the name of a variable to contain the CUSUM statistics | OUTPUT | CUSUM= |
| Specify the name of a variable to contain the CUSUMSQ statistics | OUTPUT | CUSUMSQ= |
| Specify the name of a variable to contain the upper confidence bound for the CUSUM statistic | OUTPUT | CUSUMUB= |
| Specify the name of a variable to contain the lower confidence bound for the CUSUM statistic | OUTPUT | CUSUMLB= |
| Specify the name of a variable to contain the upper confidence bound for the CUSUMSQ statistic | OUTPUT | CUSUMSQUB= |
| Specify the name of a variable to contain the lower confidence bound for the CUSUMSQ statistic | OUTPUT | CUSUMSQLB= |
| Output lower confidence limit | OUTPUT | LCL= |
| Output lower confidence limit for structural predicted values | OUTPUT | LCLM= |
| Output predicted values | OUTPUT | P= |
| Output predicted values of structural part | OUTPUT | PM= |
| Output residuals | OUTPUT | R= |
| Output residuals from structural predictions | OUTPUT | RM= |
| Specify the name of a variable to contain the part of the predictive error variance (http://support.sas.com/documentation/cdl/en/etsug/63348/HTML/default/images/etsug_autoreg0047.png) | OUTPUT | RECPEV= |
| Specify the name of a variable to contain recursive residuals | OUTPUT | RECRES= |
| Output transformed variables | OUTPUT | TRANSFORM= |
| Output upper confidence limit | OUTPUT | UCL= |
| Output upper confidence limit for structural predicted values | OUTPUT | UCLM= |
| http://support.sas.com/documentation/cdl/en/common/63294/HTML/default/images/spacer.gif | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |