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| Functional Summary  |

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

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| 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 |

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