Latest Release: SAS® Econometrics 8.4

SAS®Cloud Analytic Services: Econometrics and Time Series

Overview

SAS Econometrics procedures, which run on SAS® Viya®, provide a new, resilient, distributed, and scriptable method of conducting advanced econometric modeling and time series analysis. They also provide a programming entry point for econometricians in government, academics, and industry (especially banking, insurance, and other financial services). SAS Econometrics leverages the speed, scalability, and elasticity of the SAS in-memory environment. Key features include:

- compound distribution models
- economic capital models
- spatial regression models
- hidden Markov models
- time series models
- count and limited dependant variable models
- panel data models
- severity models
- copula model fitting and simulations

The CCDM Procedure

The CCDM procedure estimates a compound distribution model, which represents the distribution of an aggregate loss that you expect to see during a specific period of time. The aggregate loss depends on the number (frequency) of loss events that occur and the severity (magnitude) of each loss event. PROC CCDM combines the frequency and severity models to estimate the distribution of the aggregate loss, whose probability distribution model is referred to as the compound distribution model. PROC CCDM works closely with two other procedures to estimate the compound distribution model:

- The frequency model is estimated through PROC CNTSELECT.
- The severity model is estimated through PROC SEVSELECT.

The ECM Procedure

The ECM procedure helps to develop an economic capital model by analyzing losses from multiple dependent lines of business or risk categories. It estimates the distribution of the enterprise-wide losses by combining the simulation

data from a copula dependency model with the empirical samples of the marginal distributions of losses in individual lines of business or risk categories. Key features of the ECM procedure enable it to:

- convert a joint loss probability sample (PROC CCOPULA output) to a total loss sample by inverting marginal probabilities
- compute percentiles by using large samples of marginals (PROC CCDM output), allowing for easy handling of perturbed samples
- use a novel parallel algorithm for fast computation of large numbers of percentiles
- prepare various diagnostic and summary output, including a table of value at risk (VaR) and tail value at risk (TVaR)

The HMM Procedure

The HMM procedure estimates hidden Markov models, which have been widely applied in economics, finance, science, and engineering. This model has many well-known aliases, such as the general state space model, regime-switching model, Markov-switching model, and Markov regime-switching model. PROC HMM estimates the Gaussian hidden Markov model and includes these features:

- support for cross-sectional time series
- estimation by the maximum likelihood method and the maximum a posteriori method
- various nonlinear optimization algorithms
- specification of initial parameter values and prior hyperparameter values
- multiple starting points for optimization
- statements for obtaining filtering, smoothing, decoding, and forecasting results

For More Information

For more information, ask your organization's SAS representative to contact SAS at 1.800.727.0025.