



## SAS/ETS® Software

*Forecasting, modeling and analyzing complex systems and relationships*

Estimates and educated guesses are not enough to carry organizations ahead in today's market. To achieve success, you must be able to obtain an accurate picture of the future and to reliably measure the impact of a wide variety of business and economic factors.

Whether you want to understand past trends, forecast the future or better understand how your business functions, SAS provides analytic intelligence that ensures success.

SAS/ETS software provides integrated capabilities for time series analysis and forecasting, econometrics and systems modeling, financial analysis and reporting, and access to financial databases.

With SAS/ETS software you can:

- Forecast demand for products and services.
- Determine optimal pricing strategies.
- Understand and predict consumer choices.
- Predict staffing and resource needs.
- Analyze the Dow Jones stock index and other investment options.
- Plan the timing of capital investments.
- Model complex, dynamic systems for strategic information.

SAS/ETS uniquely addresses the forecasting and analysis needs for all levels of decision making, from tactical to strategic, from the short-term to the long run. No other vendor offers such a complete forum for solving problems that involve data collected over time.

### **The time series forecasting system**

SAS/ETS includes a user interface – the Time Series Forecasting System – for exploring and modeling time series data. Use interactive graphical tools to select, fit and evaluate forecasting models or automatically select the best forecasting model for each time series.

### **Take advantage of the full range of forecasting methods**

SAS/ETS provides tools for forecasting future values of time series, ranging from the very simple to the very advanced. Use simple forecasting methods such as regression, trend extrapolation, exponential smoothing, and Winters method, as well as more sophisticated methods such as ARIMA and dynamic regression or transfer function models. For automated forecasting of multivariate time series, SAS provides VARMAX and general state space models. For seasonal decomposition of time series, use Classical, X11-ARIMA, or X12-ARIMA.

### **Model economic relationships**

With an extensive range of econometric tools, you can fit, analyze and simulate simultaneous systems of both linear and nonlinear regression models. Multinomial discrete choice modeling capabilities enable you to analyze models where the choice set consists of multiple alternatives. Such models arise often in a wide variety of areas, including economics, finance, marketing, political science, psychology and sociology.



## Model complex dynamic systems

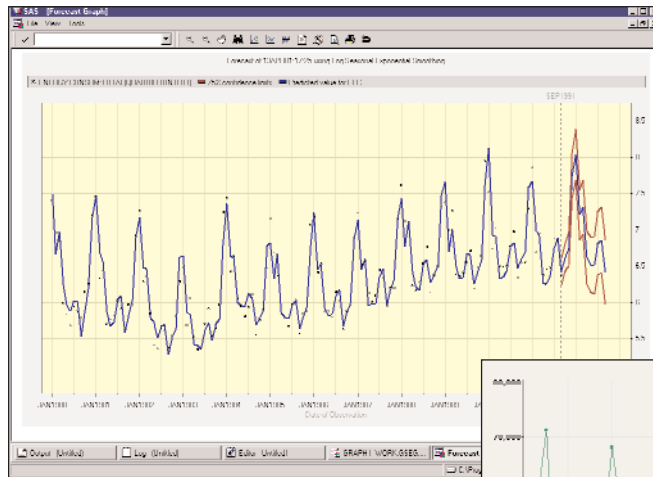
You can specify, estimate and simulate complex nonlinear models with SAS/ETS. The equations can be simultaneous and can contain dynamic or lagged relationships. You can create econometric models of entire economies or of individual market segments. Develop physical, biological and ecological models to represent systems in nature. The applications are endless.

## Perform time series data management

Suppose you have monthly production data but want to forecast on a weekly basis. SAS/ETS enables you to convert time series from one sampling frequency to another. You can interpolate data from a lower frequency to a higher frequency (such as monthly to weekly) or aggregate data from a higher frequency to a lower frequency (such as monthly to quarterly). SAS/ETS enables you to interpolate missing values in time series so that you can include the interpolation as part of the conversion process.

## Perform financial analysis

SAS/ETS provides the interactive Investment Analysis System for time value-of-money analysis for loans, savings, depreciation, bonds and generic cash flow representation of other investments. You can analyze the value of investment alternatives: time value, periodic equivalent, internal rate of return, benefit-cost ratio, and break-even analysis. The Investment Analysis System can be beneficial for cost justification of any capital



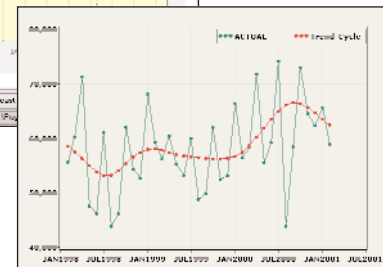
Accurately forecast seasonal demand for products and services, at left.

Report and analyze trends for short- and long-range planning, below.

investment project, buy-versus-rent decisions, replacement analysis, economic comparison of alternative designs, funding services in government/non-profit organizations, investment analysis and portfolio management for fixed-income securities.

## Gain easy access to virtually any database

You can access commercially available economic and financial time series data with SAS/ETS. Use it to view or extract time series data supplied by commercial data vendors, U.S. government agencies, international agencies, and organizations such as the Center for Research in Security Prices (CRSP). In fact, with SAS you can access data from any source in any format, including most major databases and spreadsheets. And you can dynamically query information, generate reports, and perform analysis from a Web-based application.



## The SAS Intelligence Advantage

SAS provides software and services that enable customers to transform data from all areas of their business into intelligence for making better, more informed decisions. Solutions from SAS, the world's largest privately held software company, are used at more than 37,000 business, government and university sites around the world. Customers include 98 of the top 100 companies on the Fortune 500, and 90% of the Fortune 500 overall. For 25 years, SAS has been giving our customers *The Power to Know*<sup>®</sup>. For more information, about SAS forecasting capabilities, visit [www.sas.com/technologies/analytical\\_intelligence](http://www.sas.com/technologies/analytical_intelligence)



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