Anvendt tidsserianalyse med SAS Econometrics

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Data Scientist within the Nordic AI & Analytics Team

Experience ranging from:

- Visualization
- Machine Learning
- Forecasting
- Text Analytics
- Ect.

Background in Biostatistics and Data Science

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Paper 3596-2019

Modeling Teenage Smoking Behavior with SAS Econometrics® Software

Gunce E. Walton, SAS Institute Inc.

ABSTRACT

Cigarette smoking is harmful to health and is estimated to have a yearly social cost of billions of dollars. Smoking behavior is often established during the teenage years, so understanding why teens start smoking is in
prevention policies. One issue in modeling s
choice to smoke are often correlated with un
circumstances. If appropriate statistical tech

Paper SAS2114-2018

Economic Capital Modeling with SAS® Econometrics

Mahesh V. Joshi, SAS Institute Inc.

ABSTRACT

A statistical approach to developing an economic capital model requires estimation of the probability distribution model of the aggregate loss that an organization expects to see in a particular time period. A well-developed economic capital model not only helps your enterprise comply with industry regulations but also helps it assess and manage risks. A loss distribution approach decomposes the aggregate loss of each line of business into frequency and severity of individual loss events, builds separate distribution models for frequency and severity, and then combines the two distribution models to estimate the distribution of the aggregate loss for each business line. The final step estimates a copula-based model of dependencies among the business lines and combines simulations from the dependency model with the aggregate loss models of individual business lines. This process yields an empirical estimate of the enterprise-wide loss distribution, which helps you develop an economic capital model. The process is characterized by both big data and big computation problems. This paper describes how SAS® Econometrics software can help you take advantage of the distributed computing environment of SAS® Viya® to implement each step of the process efficiently.

SAS2141-2018

Location Matters: Evidence from Spatial Econometric Analysis of Opioid Prescribing Rates

llo-Monge, Guohui Wu, and Jonathan McCopp, SAS Institute Inc.

Medicare patients are at risk of opioid abuse. A Centers for Medicare and
S) analysis identified approximately 225,000 beneficiaries who received potentially
mong the beneficiaries with the highest number of opioid prescriptions filled in
tions were filled at an average cost of $3500 per beneficiary. A key to
ry data effectively is to identify high-risk geographic clusters by applying location
rical data, demographic data, and health trends. Location analytics blends health
c data with geographic data to reveal the location of opioid abuse among the
ecifically, location analytics that includes spatial econometric modeling (like the
e) combined with SAS® Visual Analytics on SAS® Viya® is a powerful and easy-
y high-risk spatial clusters. It can better equip government agencies to effectively
e they are needed most to protect beneficiaries as well as boost the integrity of
ns intended to help them. This paper shows how to apply location analytics to find
nade by Medicare. It uses SAS® data management, data exploration, modeling,
s to identify patterns and relationships in data that address risks in Medicare and
ly and adequate response.

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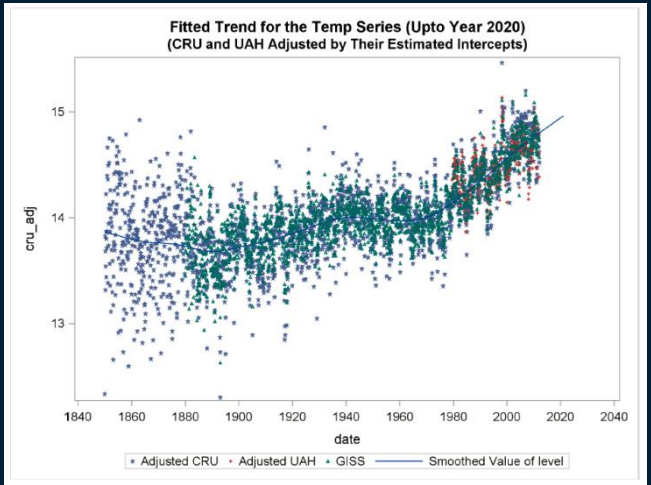
SAS Econometrics

- What is SAS Econometrics?
  - Collection of Econometric and Time Series procedures and tools
- Types of tools in SAS Econometrics
  - Time series analysis
  - Cross-sectional econometrics
  - Panel data econometrics
  - Spatial Econometrics
  - Seasonal adjustment and spectral analysis
  - Time series data transformations
  - Access to financial and economic databases



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SAS Econometrics vs. SAS/ETS

SAS Econometrics contains SAS/ETS. SAS/ETS is available in Viya SPRE

SAS Econometrics procedures and action sets are on Viya platform, so it can take advantage of all benefits of Viya platform, like distributed computing, open access for Python, R, and other languages.

SAS Econometrics has many new procedures and more coming

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Uses of SAS Econometrics

- Media (Marketing) mix modeling
- Price elasticity modeling
  - Capacity constrained events
  - Supply and demand systems
- Customer lifetime value
  - Churn models
- Policy and Environmental Impact
- Loss distribution models
- Credit risk modeling
- Consumer choice modeling
  - Attribution modeling
- Spatial Dependence
- Forecasting
  - Sophisticated univariate extrapolation
  - Multiple regression modeling with time series
  - Multivariate forecasting
- Time series data management

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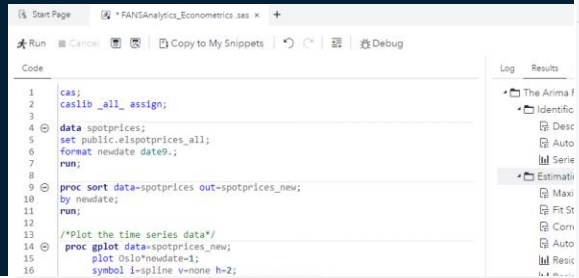
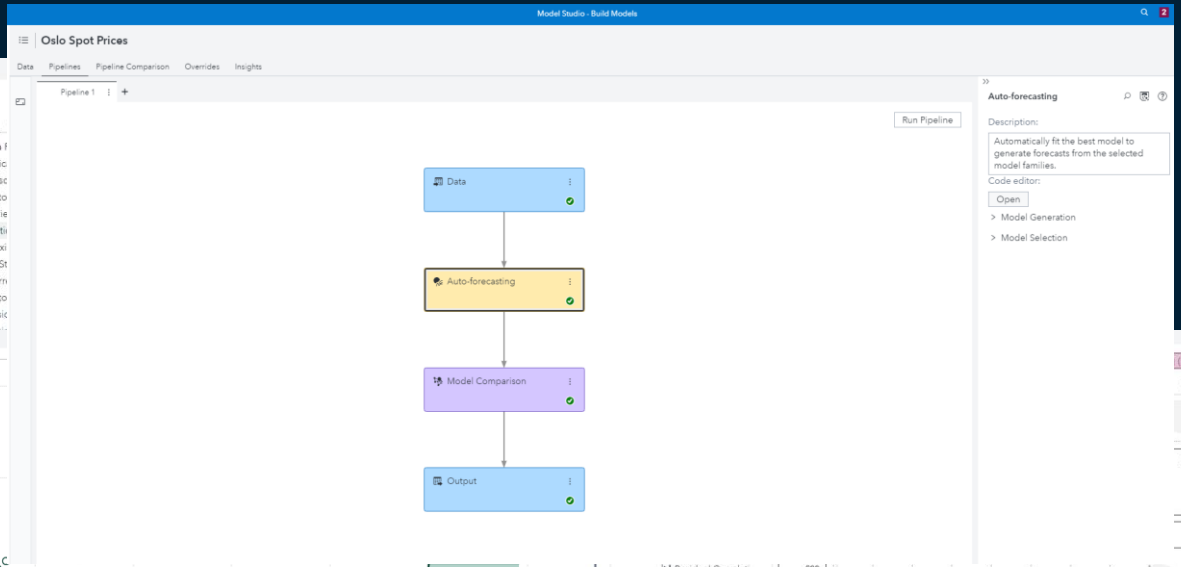
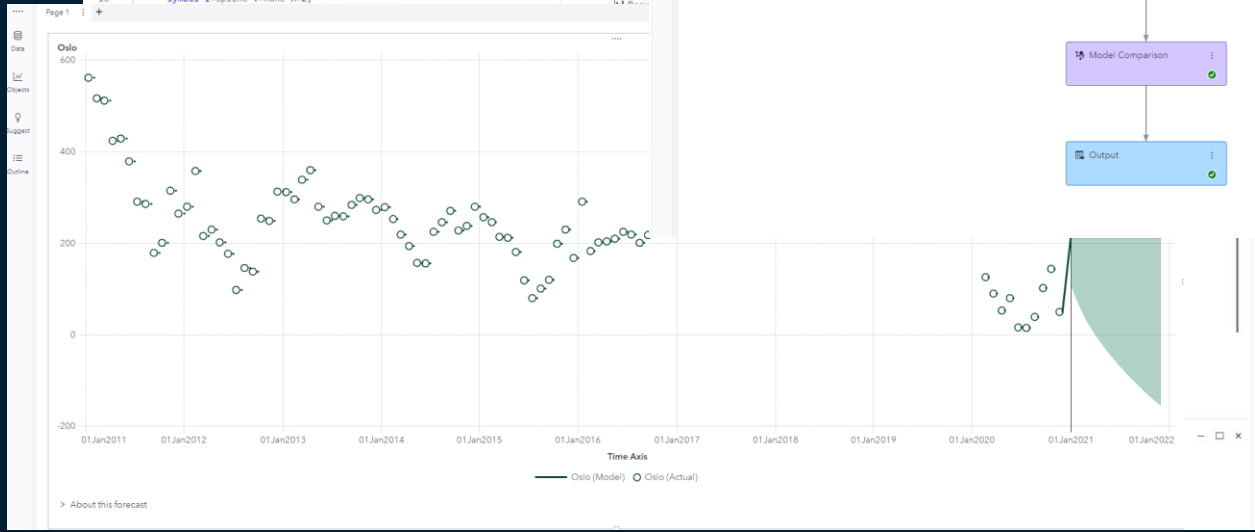
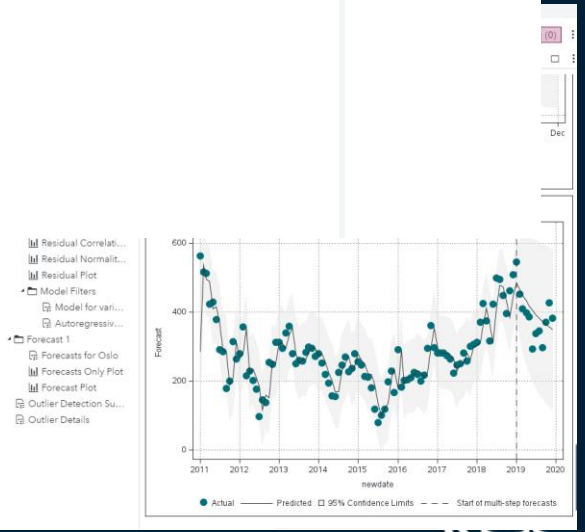
Ways to Forecast with SAS Viya









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Case Study

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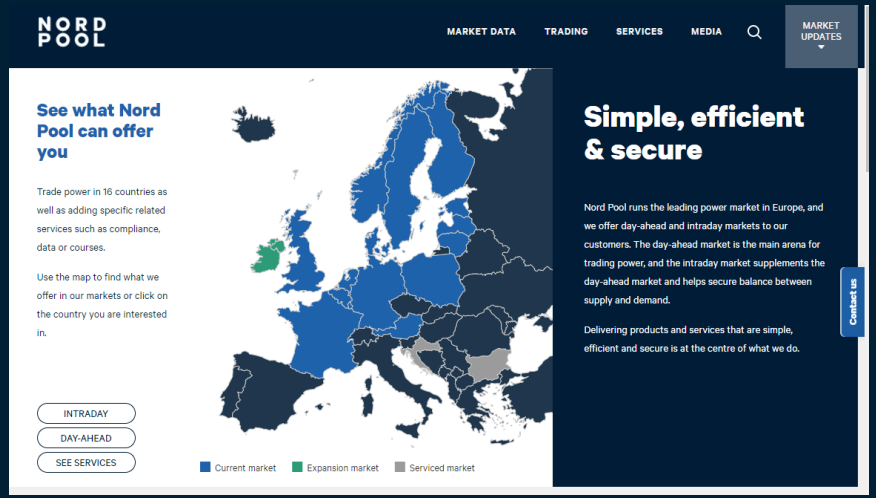
Electricity Spot Prices in Oslo



We have Monthly Spot Prices for Multiple Regions in Norway from 2011-2020.

Our goals are to:

- Forecast the Monthly Spot Prices for the Year ahead for one region (Oslo)

Data obtained from:

- https://www.nordpoolgroup.com/historical-market-data/

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Further Reading

Documentation:

- https://go.documentation.sas.com/?cdcId=pgmsascdc&cdcVersion=9.4_3.4&docsetId=casecon&docsetTarget=casecon_intro_sect001.htm&locale=en
- https://go.documentation.sas.com/?cdcId=pgmsascdc&cdcVersion=v_009&docsetId=etsug&docsetTarget=titlepage.htm&locale=en

Applications of SAS Econometrics:

- https://www.sas.com/content/dam/SAS/support/en/sas-global-forum-proceedings/2019/3596-2019.pdf
- https://www.sas.com/content/dam/SAS/support/en/sas-global-forum-proceedings/2018/2141-2018.pdf
- https://www.sas.com/content/dam/SAS/support/en/sas-global-forum-proceedings/2018/2114-2018.pdf

Relevant Blogs:

- https://blogs.sas.com/content/subconsciousmusings/2021/01/14/the-road-to-modern-econometrics/

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Thanks!

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