Forecasting Models of the M4 Competition

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Advanced Financial Econometrics: Forecasting

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The M4 Forecasting Competition

- The 4th M competition held in 2018
  - The others 1982, 1993, 2000
- 100,000 time series
  - Many fields: Industry, Micro- and Macroeconomics, Finance, Demographics
  - Multiple frequencies: Hourly, Daily, Weekly, Monthly, Quarterly, Yearly
  - 48,000 Monthly Series
- Conclusions
  - Single methods perform poorly
  - Combination is key
  - Best methods combine some ML with reasonable traditional statistical models

Goals

- Models
  - ▶ Extend understanding of ARMA models to SARIMA
  - ▶ Additive exponential smoothing models
  - ▶ The Theta forecasting method
  - ▶ The CARD forecasting method
- Focus will be on choices needed to implement these models
- The assignment will apply these methods to a small subset of the M4 data

Structure

- Online presentation of background material
- Interactive presentation of model application
- Per-group tutorial session
  - ▶ TBD at a mutually convenient time