Forecast uncertainty, its representation and evaluation

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0 Introduction
Overview of the issues to be addressed in a simple example – Wold representation of a purely non-deterministic stationary stochastic process

1 Measuring and reporting forecast uncertainty
Sources of error in econometric model-based forecasts
Calculation of measures of forecast uncertainty (expected forecast dispersion):
• model-based: variance formulae, simulation methods, model uncertainty
• empirical: forecast MSE, MAE, choice between them, adjustment for breaks
Reporting forecast uncertainty:
• interval forecasts (±MSE, ±MAE), probability statements, central intervals, shortest intervals, distributional assumptions
• density forecasts (histograms, fan charts)
• event probability forecasts
• forecast scenarios, the role of judgement
Decision theory considerations
Survey forecasts, disagreement and uncertainty

2 Evaluating interval and density forecasts
Economic value, statistical performance
Goodness-of-fit tests: likelihood ratio tests, Pearson’s chi-squared test, probability integral transformation, inverse normal transformation, Kolmogorov-Smirnov test, moment-based tests
3 Applications (referred to recurrently)


References


Note: this list consists mostly of research articles, and does not include background material in statistics, econometrics, and associated mathematical methods.