Parametric Stochastic Programming Models for Call-Center Workforce Scheduling

We develop and test an integrated forecasting and stochastic programming approach to workforce management in call centers. We first demonstrate that parametric forecasts can be used to drive stochastic programs whose results are stable with relatively small numbers of scenarios. We then extend our approach to include forecast updates and two-stage stochastic programs with recourse. We use experiments with two large sets of call-center data to explore the importance of the use of scenarios and the use of recourse actions.