ON THE SOLUTION QUALITY ASSESSMENT IN MULTI-STAGE STOCHASTIC OPTIMIZATION UNDER DIFFERENT MODEL REPRESENTATIONS

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Abstract

Within the stochastic programming literature, sampling-based decomposition algorithms (SBDDAs) have been successfully employed to approximately solve multi-stage stochastic optimization models [1], [2], [3]. In such contexts, SBDDAs are generally applied to a sample average approximation (SAA) created from the original problem. When SBDDAs are applied to SAAs it is important to assess the solution quality that can be obtained from the resulting policy applied to out-of-sample forward paths and scenario trees [4], [5]. In this work, we model a power generation scheduling problem using different aggregated system representations and solve them via a SBDA implementation [6]. We apply variance-reducing sampling methods to investigate solution quality as the model time horizon grows combined with different instance sizes and initial assumptions.

References


