

Schultz, Rüdiger**Stochastic programming with integer variables.** (English) Zbl 1035.90053

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Summary: Including integer variables into traditional stochastic linear programs has considerable implications for structural analysis and algorithm design. Starting from mean-risk approaches with different risk measures we identify corresponding two- and multi-stage stochastic integer programs that are large-scale block-structured mixed-integer linear programs if the underlying probability distributions are discrete. We highlight the role of mixed-integer value functions for structure and stability of stochastic integer programs. When applied to the block structures in stochastic integer programming, well known algorithmic principles such as branch-and-bound, Lagrangian relaxation, or cutting plane methods open up new directions of research. We review existing results in the field and indicate departure points for their extension.

MSC:**90C15** Stochastic programming**90C11** Mixed integer programming**90C06** Large-scale problems in mathematical programming**90C57** Polyhedral combinatorics, branch-and-bound, branch-and-cutCited in **70** Documents**Full Text:** [DOI](#)