EXPONENTIAL CONVERGENCE OF SAMPLE AVERAGE APPROXIMATION METHODS FOR A CLASS OF STOCHASTIC MATHEMATICAL PROGRAMS WITH OMPLEMENTARITY CONSTRAINTS

摘要
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Abstract In this paper, we propose a Sample Average Approximation (SAA) method for a class of Stochastic Mathematical Programs with Complementarity Constraints (SMPCC) recently considered by Birbil, G\"{u}rkan and Listes \cite{gur-2}.We study the statistical properties of obtained SAA estimators. In particular we show that under moderate conditions a sequence of weak stationary points of SAA programs converge to a weak stationary point of the true problem with probability approaching one at exponential rate as the sample size tends to infinity. To implement the SAA method more efficiently, we incorporate the method with some techniques such as Scholtes' regularization method and the well known smoothing NCP method. Some preliminary numerical results are reported.

Key words   Stochastic mathematical programs with complementarity constraints   Sample average approximation   Weak stationary points   Exponential convergence.

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