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Pricing American Options by Simulation: Bias Reduction on Modified Least-Squares Monte Carlo

Existing Monte Carlo algorithms for pricing American options generate estimators that are consistent but biased. Whitehead, Davison and Reesor (2007) introduce a general bias reduction technique for pricing American options by Monte Carlo methods based on large sample theory that corrects the estimators from the stochastic tree and mesh techniques. We apply this technique to a modified version of least-squares Monte Carlo method of Longstaff and Schwartz (2001) using well-known results about the large sample properties of least-squares estimators. We derive an expression for bias-corrected estimators. Numerical results show the effectiveness of this technique.

This is joint work with Mark Reesor (Western Ontario).