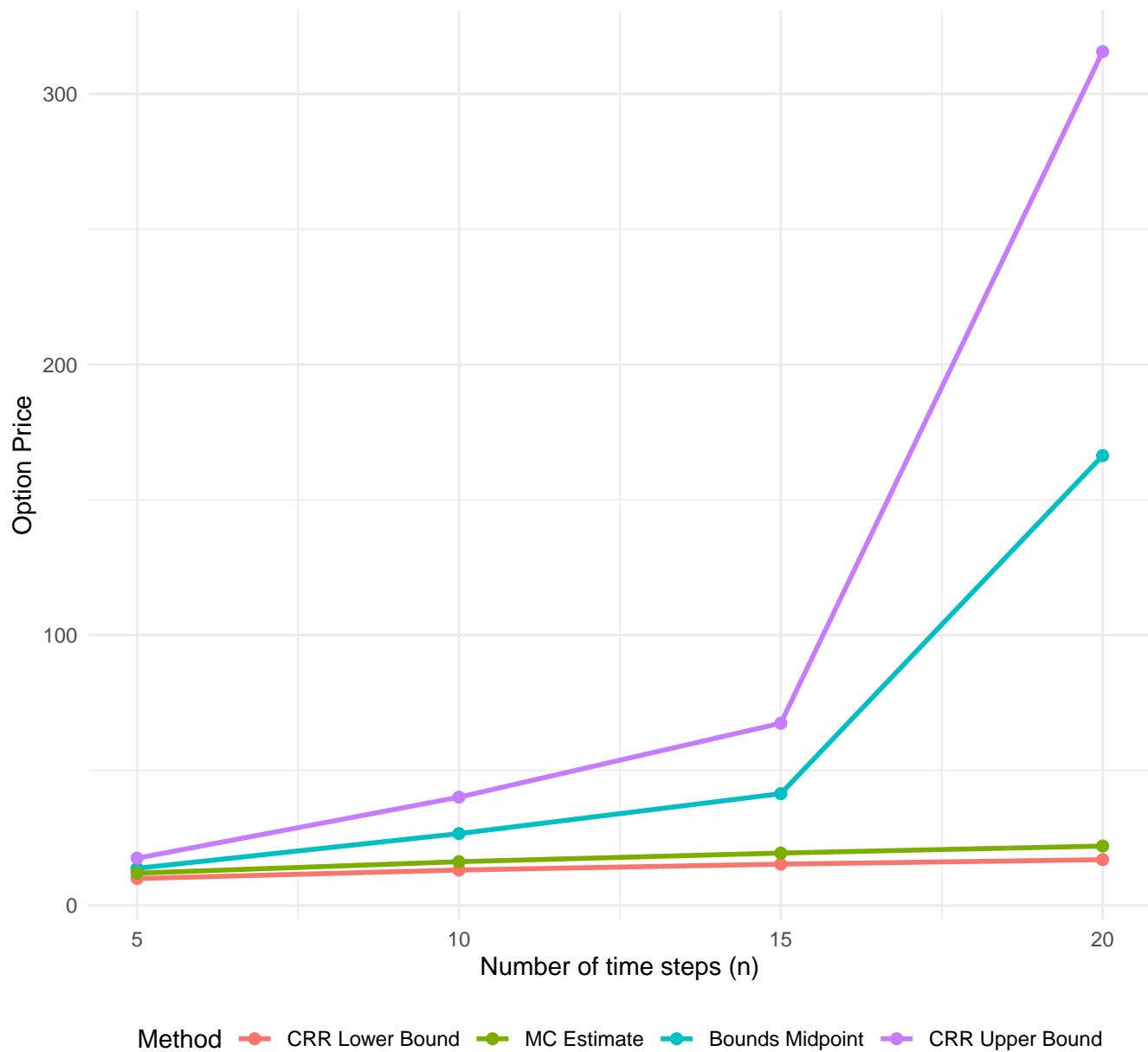


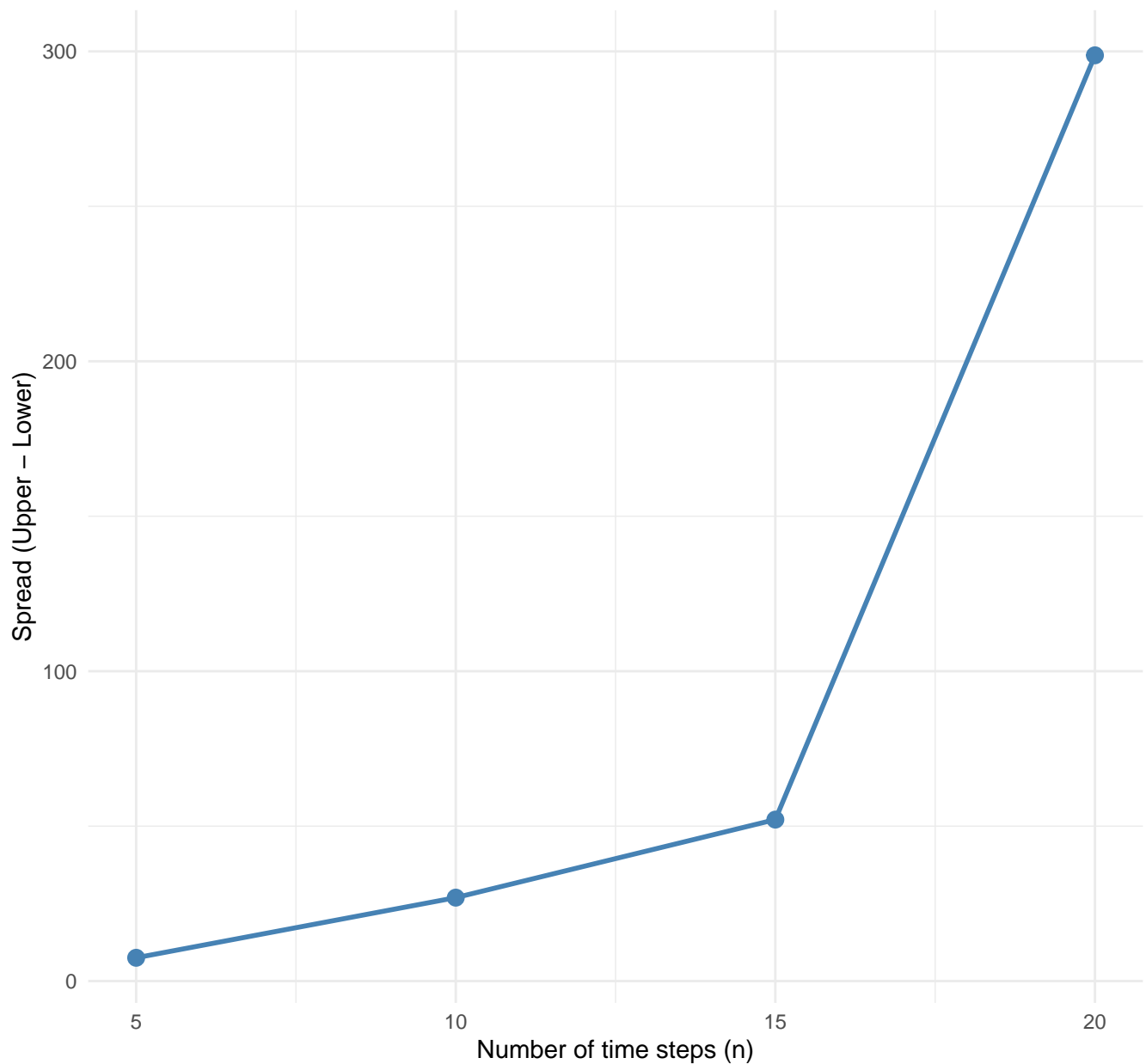
Arithmetic Asian Option: CRR Path-Specific Bounds vs Monte Carlo

$S_0=100$, $K=100$, $r=1.05$, $u=1.2$, $d=0.8$, $\sigma=0$, $M=50000$ (path-specific upper bound)



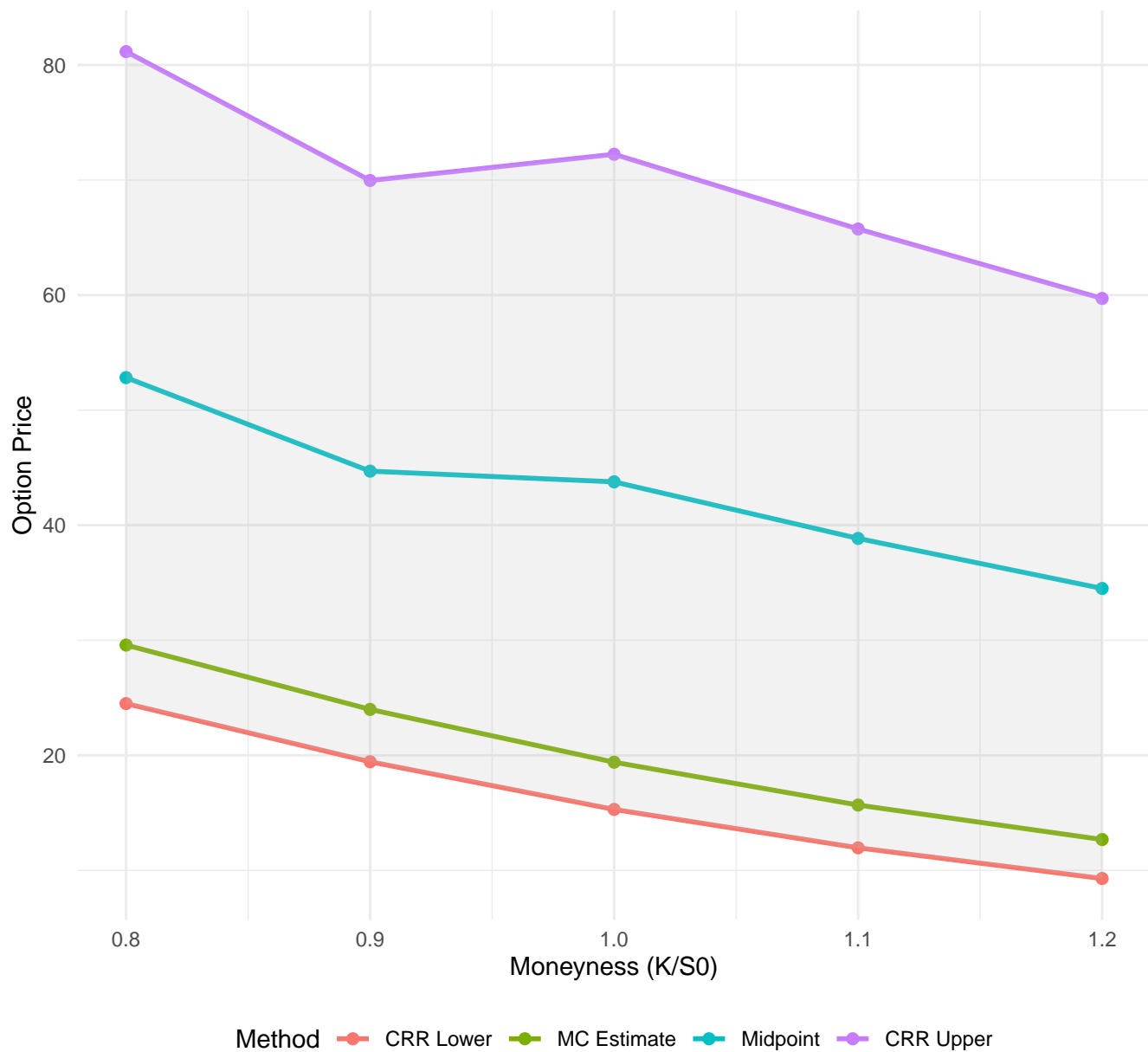
Bounds Spread Convergence

Upper bound – Lower bound (decreases as $n \rightarrow \infty$.)



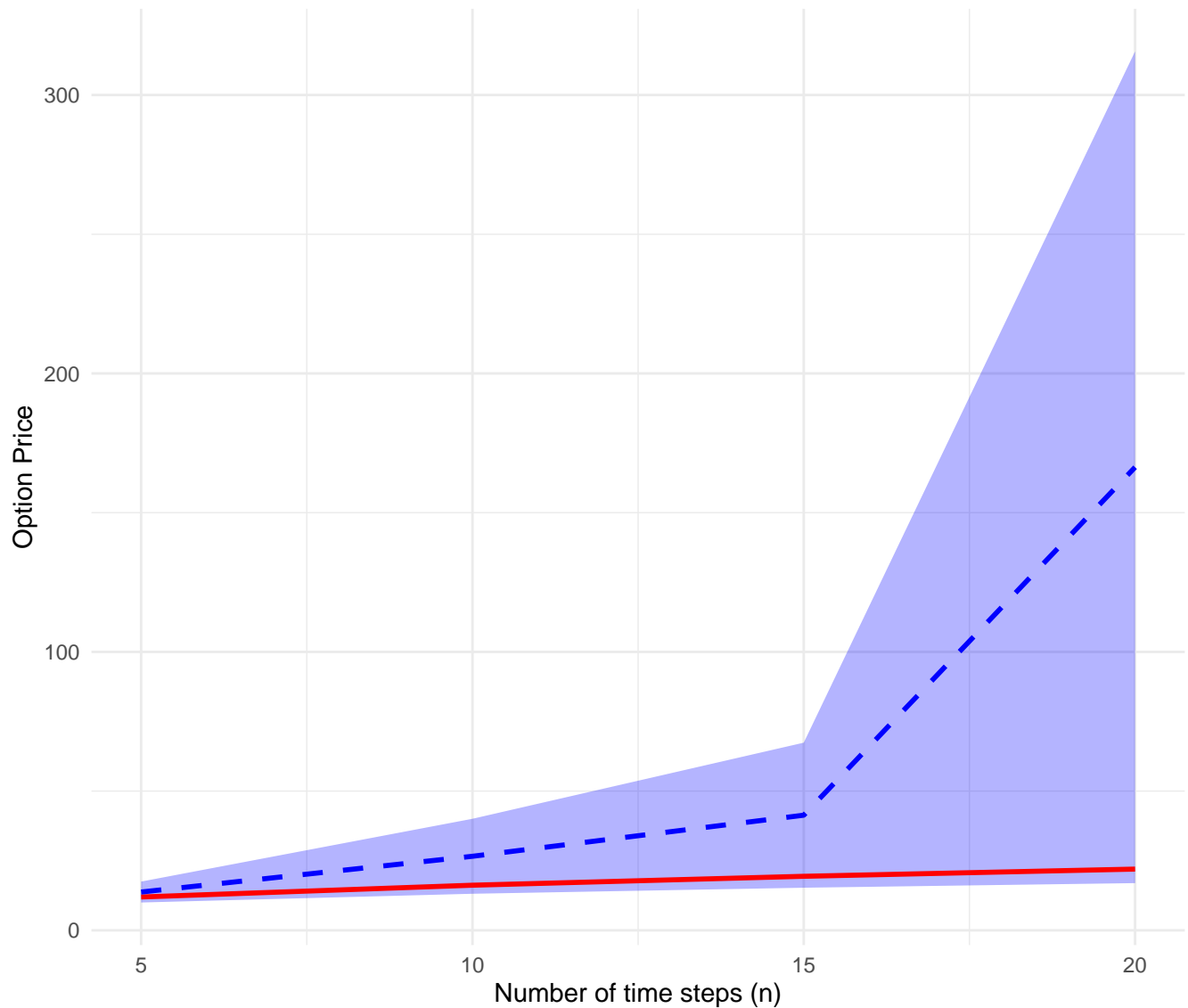
Arithmetic Asian Option: Bounds Across Moneyness

$n=15$, $S_0=100$, shaded region = feasible range



CRR Bounds vs Monte Carlo Confidence Intervals

M=50000 simulations with control variate



Range



CRR Bounds



MC 95% CI

Estimate



Bounds Midpoint



MC Estimate