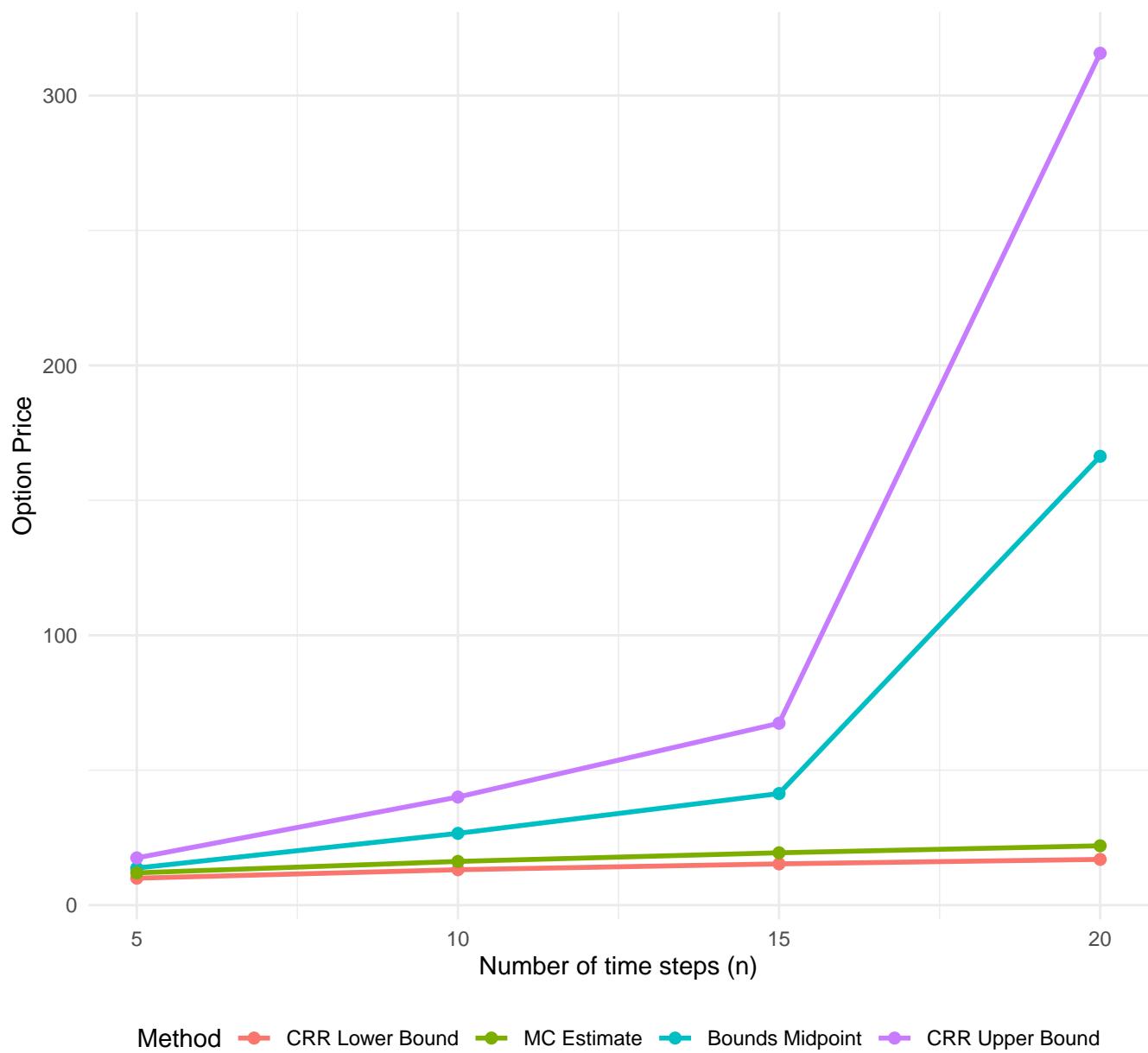


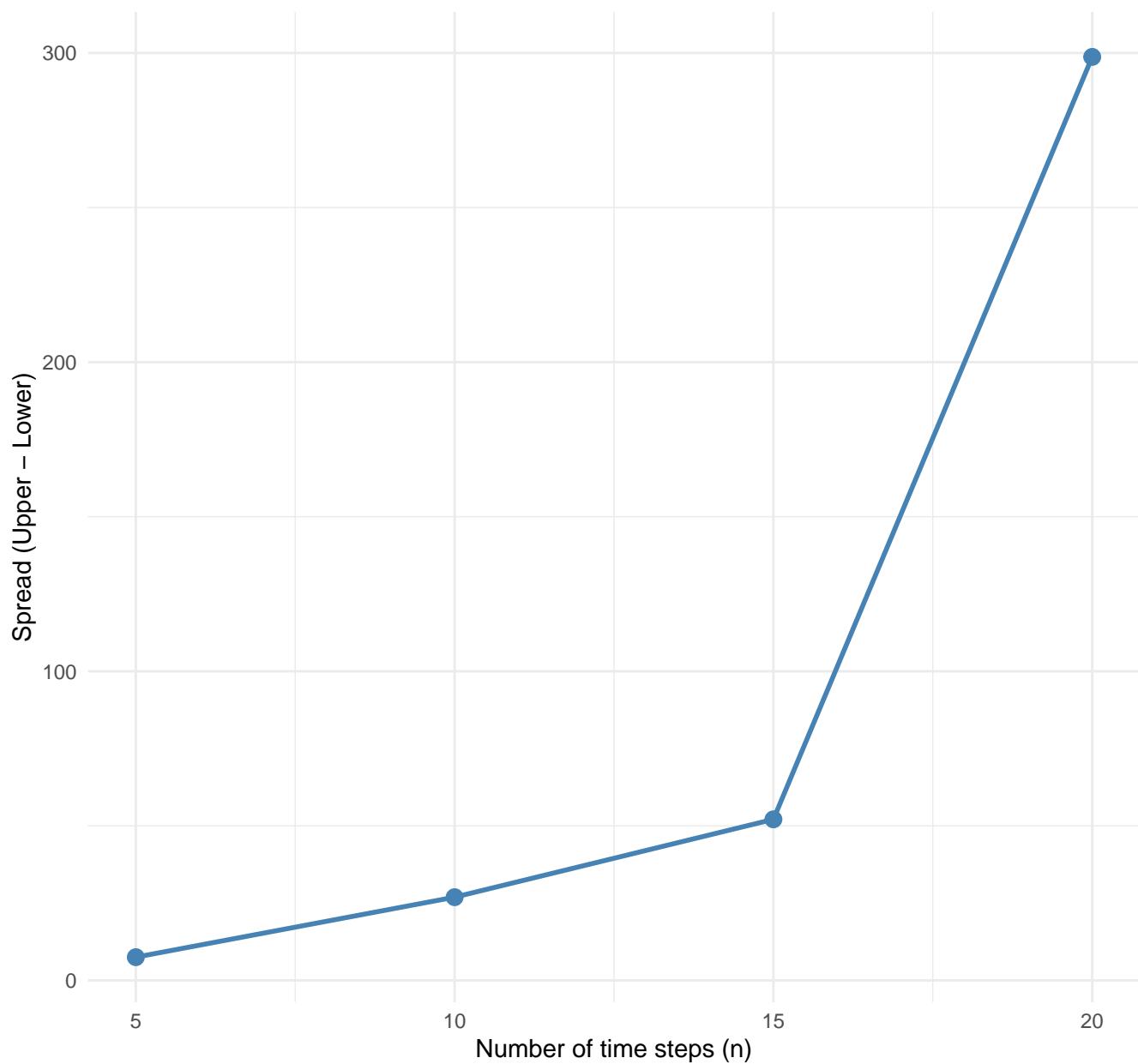
# Arithmetic Asian Option: CRR Path-Specific Bounds vs Monte Carlo

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



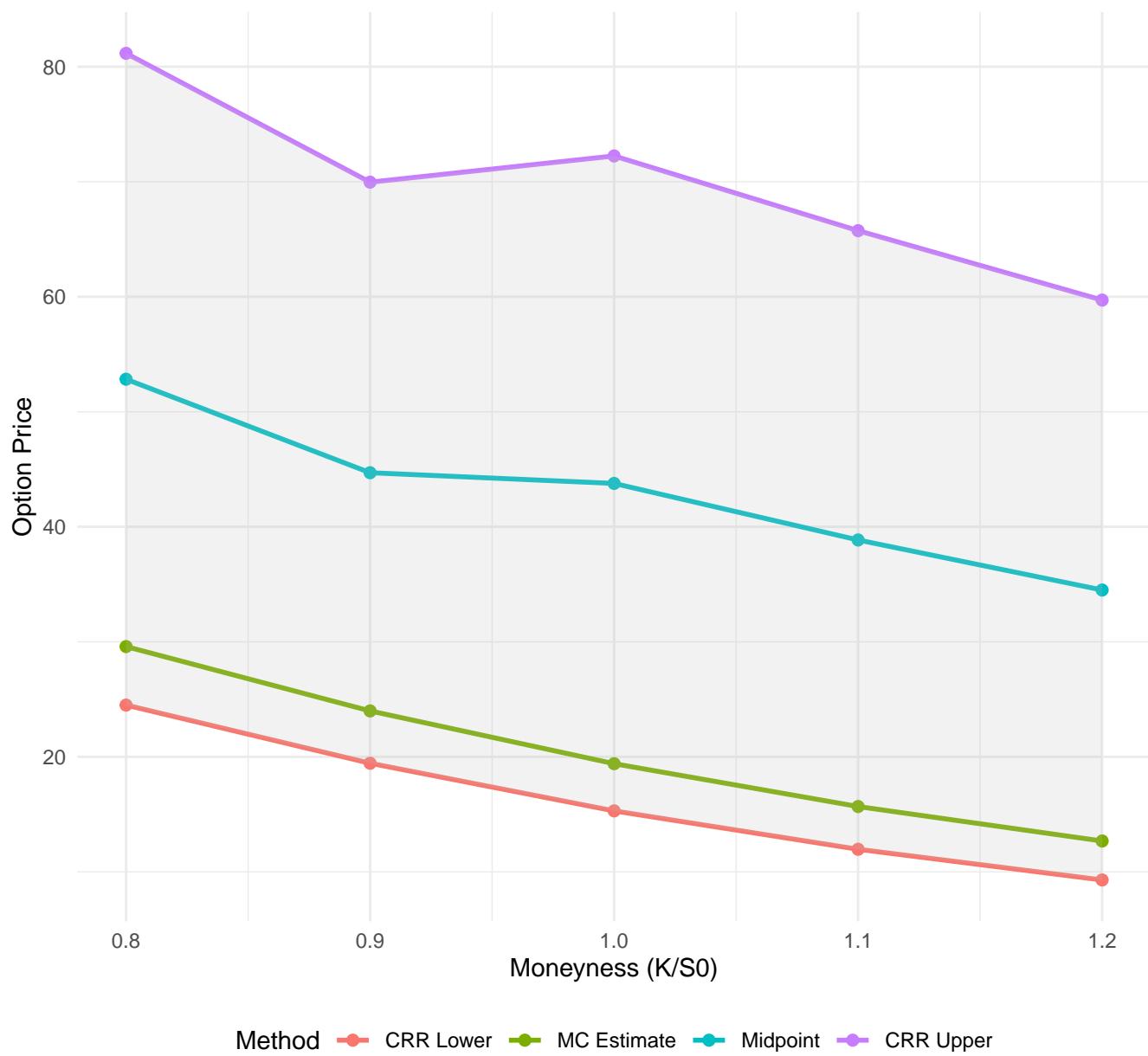
## Bounds Spread Convergence

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



# 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

