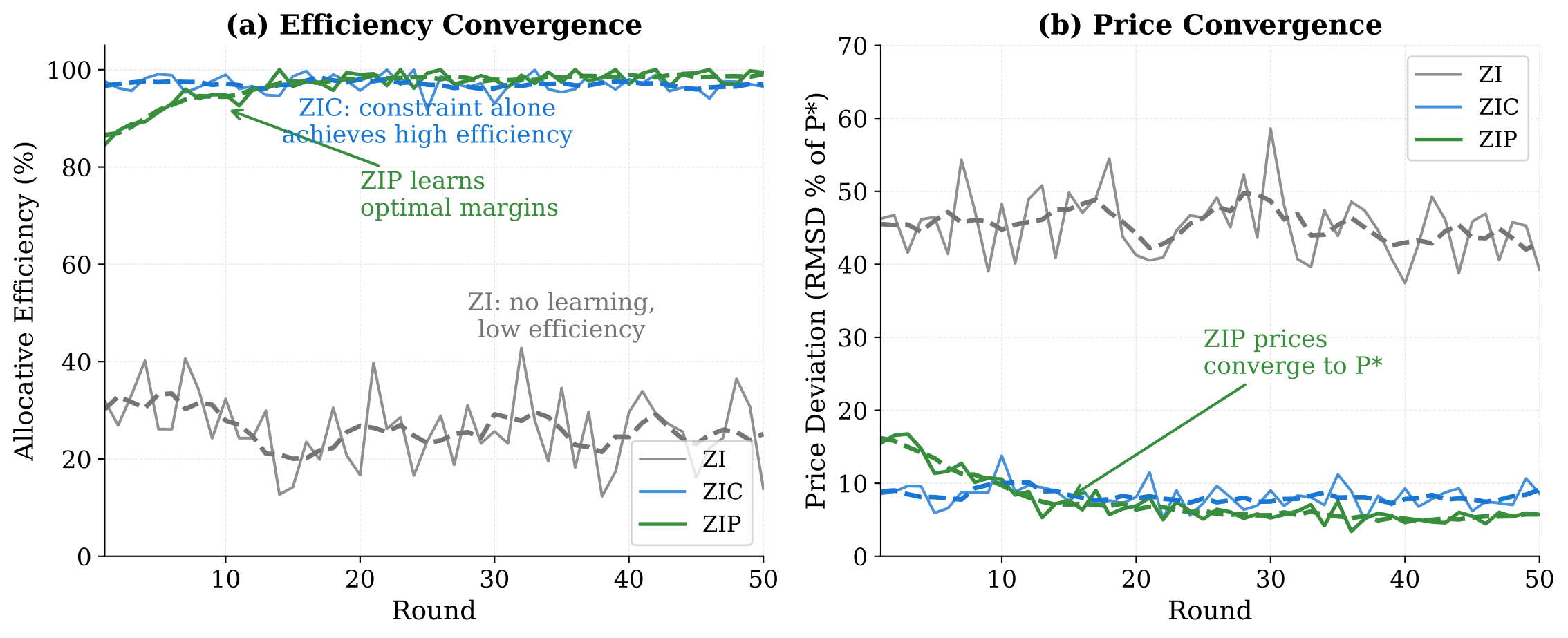
(a) Efficiency Convergence
Allocative Efficiency (%)
Round
ZIC: constraint alone
achieves high efficiency
ZIP learns
optimal margins
ZI: no learning,
low efficiency
ZI
ZIC
ZIP
(b) Price Convergence
Price Deviation (RMSD % of P*)
Round
ZIP prices
converge to P*
ZI
ZIC
ZIP