Complementary cumulative distributions AdamOptimizer **ONGOptimizer** β_1 =0.9, β_2 =0.99, ε =10⁻⁸ approx='block-diag', λ =0.5 1.0 $\eta = 0.01$ $\eta = 0.2$ $\eta = 0.01$ n = 0.45 $\eta = 0.225$ $\eta = 0.025$ $\eta = 0.5$ $\eta = 0.025$ Probability of occurrence n = 0.550.8 $\eta = 0.05$ $-\eta = 0.25$ $\eta = 0.05$ $\eta = 0.075$ $\eta = 0.275$ $\eta = 0.1$ $\eta = 0.6$ $\eta = 0.1$ $-\eta = 0.3$ $\eta = 0.15$ $\eta = 0.65$ $\eta = 0.125$ --- $\eta = 0.4$ $\eta = 0.2$ --- n=0.70.6 --- η =0.5 $\eta = 0.15$ $\eta = 0.25$ --- $\eta = 0.75$ $\eta = 0.175$ --- $\eta = 0.6$ $\eta = 0.3$ $---- \eta = 0.8$ $\eta = 0.35$ --- $\eta = 0.85$ ---- η=0.9 $\eta = 0.4$ 0.2 (b) 0.0 MomentumQNGOptimizer MomentumOptimizer ρ =0.9, approx='block-diag', λ =0.5 $\rho = 0.9$ 1.0 -n=0.012 $\eta = 0.01$ $\eta = 0.25$ $\eta = 0.001$ $\eta = 0.275$ --- n=0.013 $\eta = 0.025$ $\eta = 0.002$ Probability of occurrence $\eta = 0.05$ --- n=0.3 $\eta = 0.003$ -n=0.0140.8 $\eta = 0.075$ $-\eta = 0.325$ n = 0.004 $-\eta = 0.015$ --- η =0.016 n = 0.1 $-\eta = 0.35$ n = 0.005---- η =0.375 $\eta = 0.125$ $\eta = 0.006$ --- $\eta = 0.017$ 0.6 $\eta = 0.15$ --- $\eta = 0.4$ $\eta = 0.007$ --- $\eta = 0.018$ $\eta = 0.175$ --- $\eta = 0.425$ $\eta = 0.008$ --- $\eta = 0.019$ $\eta = 0.2$ --- $\eta = 0.45$ $\eta = 0.009$ --- $\eta = 0.02$ 0.4 $\eta = 0.225$ $\eta = 0.01$ --- $\eta = 0.021$ $\eta = 0.011$ 0.2 (d)0.0 0.3 0.1 0.2 0.4 0.0 0.1 0.2 0.3 0.4 0.0 quality ratio quality ratio