Figure 1: *Double bootstrap* Simulation with $B = 500$, $p = 13$, $\mu_\alpha = 10$, $X_{i,t} \overset{iid}{\sim} \Gamma(1, 10)$, $\delta_i \sim \mathcal{N}(2\mathbf{1}_p, \sigma_\delta^2 \mathbf{I}_p)$, $\gamma_i \sim \mathcal{N}(2\mathbf{1}_p, \sigma_\gamma^2 \mathbf{I}_p)$ with $\sigma_\delta = \sigma_\gamma = 1$ and $\sigma = 1$

		Bias		Consistency					
				Guess			Proposition		
n	σ_α	$\lvert\hat{\alpha}^\dagger_{\text{adj}} - \text{E}(\hat{\alpha}_{\text{adj}})\rvert$	$\lvert\hat{\alpha}^\dagger_{\text{wadj}} - \text{E}(\alpha_1)\rvert$	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$
	1	28.742 (2.911)	87.932 (8.292)	1 (0)	1 (0)	1 (0)	0.98 (0.02)	1 (0)	0.98 (0.02)
	5	28.74 (2.9)	87.346 (8.312)	1 (0)	1 (0)	1 (0)	0.98 (0.02)	1 (0)	0.98 (0.02)
5	10	28.742 (2.913)	86.615 (8.357)	1 (0)	1 (0)	1 (0)	0.98 (0.02)	1 (0)	0.98 (0.02)
	25	29.323 (3.024)	84.986 (8.495)	1 (0)	1 (0)	1 (0)	0.98 (0.02)	1 (0)	0.98 (0.02)
	100	43.439 (4.457)	87.463 (9.793)	1 (0)	1 (0)	1 (0)	0.98 (0.02)	0.98 (0.02)	0.98 (0.02)
	1	18.541 (2.258)	77.577 (8.909)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
	5	18.456 (2.265)	77.457 (8.969)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
10	10	18.463 (2.277)	77.504 (9.026)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
	25	19.307 (2.306)	77.706 (9.29)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
	100	31.557 (3.223)	88.11 (11.057)	1 (0)	1 (0)	1 (0)	0.96 (0.028)	0.98 (0.02)	0.96 (0.028)
	1	15.152 (1.58)	86.296 (9.39)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
	5	15.411 (1.608)	86.145 (9.396)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
15	10	15.734 (1.66)	85.957 (9.417)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
	25	17.168 (1.833)	85.911 (9.467)	1 (0)	1 (0)	1 (0)	1 (0)	0.98 (0.02)	1 (0)
	100	29.884 (2.977)	95.744 (9.65)	1 (0)	1 (0)	1 (0)	0.9 (0.043)	0.9 (0.043)	0.9 (0.043)
	1	11.834 (1.157)	66.679 (8.566)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
	5	11.708 (1.182)	66.752 (8.542)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
25	10	11.758 (1.189)	66.863 (8.517)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
	25	12.425 (1.221)	67.218 (8.496)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
	100	20.426 (2.156)	75.549 (8.53)	1 (0)	1 (0)	1 (0)	0.94 (0.034)	0.98 (0.02)	0.94 (0.034)

Figure 2: Monte Carlo simulation for $\mathcal{B}_c$ with $B = 100$, $k = 10$, $p = 13$, $\mu_\alpha = 2$, $X_{i,t} \overset{iid}{\sim} \Gamma(1, 2)$, $\delta_i \sim \mathcal{N}(2\mathbf{1}_p, \sigma_\delta^2 \mathbf{I}_p)$, $\gamma_i \sim \mathcal{N}(\mathbf{1}_p, \sigma_\gamma^2 \mathbf{I}_p)$ with $\sigma_\delta = \sigma_\gamma = 0.5$ and $\sigma = 10$

		Guess			Consistency				k-fold cross validation consistency			
n	σ_α	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$	Best	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$	Best
	5	1 (0)	1 (0)	1 (0)	0.97 (0.017)	0.97 (0.017)	0.96 (0.02)	0.21 (0.041)	0.93 (0.01)	0.936 (0.009)	0.926 (0.01)	0.338 (0.023
	10	0.99 (0.01)	1 (0)	0.99 (0.01)	0.93 (0.026)	0.94 (0.024)	0.92 (0.027)	0.27 (0.045)	0.902 (0.012)	0.918 (0.011)	0.906 (0.012)	0.35 (0.024)
5	25	0.94 (0.024)	1 (0)	0.95 (0.022)	0.8 (0.04)	0.85 (0.036)	0.79 (0.041)	0.38 (0.049)	0.79 (0.016)	0.832 (0.014)	0.788 (0.017)	0.334 (0.024
	50	0.88 (0.033)	0.99 (0.01)	0.88 (0.033)	0.67 (0.047)	0.69 (0.046)	0.67 (0.047)	0.5 (0.05)	0.58 (0.025)	0.644 (0.024)	0.582 (0.025)	0.376 (0.026
	100	0.75 (0.044)	0.97 (0.017)	0.77 (0.042)	0.51 (0.05)	0.52 (0.05)	0.5 (0.05)	0.52 (0.05)	0.47 (0.025)	0.484 (0.027)	0.466 (0.026)	0.364 (0.026
	5	0.99 (0.01)	1 (0)	0.99 (0.01)	0.91 (0.029)	0.92 (0.027)	0.91 (0.029)	0.22 (0.042)	0.927 (0.007)	0.938 (0.007)	0.927 (0.007)	0.3 (0.016)
	10	0.99 (0.01)	1 (0)	0.99 (0.01)	0.87 (0.034)	0.91 (0.029)	0.88 (0.033)	0.26 (0.044)	0.897 (0.009)	0.903 (0.008)	0.898 (0.009)	0.319 (0.018
10	25	0.96 (0.02)	0.99 (0.01)	0.96 (0.02)	0.76 (0.043)	0.8 (0.04)	0.78 (0.042)	0.3 (0.046)	0.755 (0.012)	0.78 (0.011)	0.758 (0.012)	0.382 (0.02)
	50	0.81 (0.039)	0.97 (0.017)	0.82 (0.039)	0.61 (0.049)	0.66 (0.048)	0.62 (0.049)	0.32 (0.047)	0.619 (0.018)	0.663 (0.015)	0.616 (0.017)	0.418 (0.02)
	100	0.75 (0.044)	0.94 (0.024)	0.74 (0.044)	0.52 (0.05)	0.52 (0.05)	0.54 (0.05)	0.39 (0.049)	0.543 (0.019)	0.524 (0.018)	0.547 (0.019)	0.438 (0.019
	5	1 (0)	1 (0)	1 (0)	0.94 (0.024)	0.95 (0.022)	0.94 (0.024)	0.37 (0.049)	0.906 (0.011)	0.928 (0.01)	0.907 (0.011)	0.325 (0.019
	10	1 (0)	1 (0)	1 (0)	0.9 (0.03)	0.93 (0.026)	0.91 (0.029)	0.37 (0.049)	0.879 (0.012)	0.904 (0.011)	0.883 (0.012)	0.317 (0.022
15	25	0.98 (0.014)	1 (0)	0.98 (0.014)	0.8 (0.04)	0.79 (0.041)	0.8 (0.04)	0.42 (0.05)	0.763 (0.018)	0.788 (0.016)	0.766 (0.018)	0.365 (0.019
	50	0.89 (0.031)	0.99 (0.01)	0.89 (0.031)	0.61 (0.049)	0.67 (0.047)	0.61 (0.049)	0.41 (0.049)	0.614 (0.02)	0.635 (0.019)	0.613 (0.02)	0.391 (0.018
	100	0.74 (0.044)	0.95 (0.022)	0.75 (0.044)	0.5 (0.05)	0.5 (0.05)	0.5 (0.05)	0.42 (0.05)	0.514 (0.02)	0.472 (0.018)	0.515 (0.02)	0.421 (0.019
	5	1 (0)	1 (0)	1 (0)	0.94 (0.024)	0.97 (0.017)	0.95 (0.022)	0.35 (0.048)	0.92 (0.01)	0.925 (0.01)	0.92 (0.01)	0.323 (0.017
	10	1 (0)	1 (0)	1 (0)	0.94 (0.024)	0.94 (0.024)	0.94 (0.024)	0.33 (0.047)	0.9 (0.011)	0.915 (0.011)	0.901 (0.011)	0.334 (0.017
25	25	0.97 (0.017)	1 (0)	0.97 (0.017)	0.82 (0.039)	0.84 (0.037)	0.82 (0.039)	0.38 (0.049)	0.788 (0.015)	0.827 (0.013)	0.787 (0.015)	0.356 (0.018
	50	0.89 (0.031)	0.99 (0.01)	0.89 (0.031)	0.65 (0.048)	0.73 (0.045)	0.65 (0.048)	0.4 (0.049)	0.673 (0.019)	0.698 (0.017)	0.671 (0.019)	0.404 (0.02)
	100	0.74 (0.044)	0.96 (0.02)	0.74 (0.044)	0.52 (0.05)	0.55 (0.05)	0.52 (0.05)	0.43 (0.05)	0.565 (0.021)	0.567 (0.019)	0.57 (0.021)	0.419 (0.021

Figure 3: Simulation with $B = 200$, $p = 13$, $\mu_\alpha = 2$, $X_{i,t} \overset{iid}{\sim} \Gamma(1, 2)$, $\delta_i \sim \mathcal{N}(\mathbf{1}_p, \sigma_\delta^2 \mathbf{I}_p)$, $\gamma_i \sim \mathcal{N}(\mathbf{1}_p, \sigma_\gamma^2 \mathbf{I}_p)$ with $\sigma_\delta = \sigma_\gamma = 0.5$ and $\sigma = 10$

		Distance to α_1			Distance to y_{1,T_1^*+1}			
n	σ_α	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$	Original	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$
	5	11.725 (0.759)	11.697 (0.77)	11.729 (0.765)	55.665 (1.901)	16.015 (1.355)	16.785 (1.41)	16.14 (1.352)
	10	12.868 (0.926)	13.684 (1.011)	13.066 (0.926)	56.708 (1.971)	17.237 (1.443)	18.393 (1.573)	17.336 (1.453)
5	25	21.31 (1.64)	23.992 (1.9)	21.809 (1.627)	59.965 (2.691)	23.874 (2.086)	27.642 (2.245)	24.215 (2.083)
	50	39.875 (3.05)	44.796 (3.512)	40.643 (3.013)	69.245 (4.068)	41.799 (3.318)	47.423 (3.717)	42.346 (3.297)
	100	79.354 (6.01)	88.317 (6.814)	80.151 (5.98)	99.526 (6.566)	80.279 (6.232)	89.234 (7.065)	81.05 (6.192)
	5	12.171 (0.986)	12.072 (1.056)	12.148 (0.986)	54.956 (1.938)	16.464 (1.263)	17.151 (1.32)	16.414 (1.28)
	10	13.293 (1.129)	14.209 (1.154)	13.16 (1.138)	54.657 (2.099)	17.508 (1.381)	18.897 (1.402)	17.374 (1.405)
10	25	22.934 (1.754)	25.814 (1.858)	22.948 (1.759)	54.068 (3.048)	25.704 (1.974)	28.494 (2.101)	25.753 (1.985)
	50	43.573 (3.153)	50.779 (3.219)	43.994 (3.149)	59.051 (4.647)	44.973 (3.356)	51.829 (3.476)	45.452 (3.352)
	100	87.16 (6.186)	101.743 (6.331)	87.816 (6.249)	88.642 (7.381)	88.014 (6.334)	102.414 (6.501)	88.669 (6.401)
	5	10.085 (0.839)	10.848 (0.804)	10.114 (0.834)	54.124 (2.011)	17.094 (1.557)	18.529 (1.566)	17.228 (1.551)
	10	12.656 (0.992)	13.691 (1.032)	12.702 (0.992)	54.56 (2.208)	18.831 (1.672)	20.791 (1.719)	19.003 (1.67)
15	25	23.758 (1.762)	26.584 (1.831)	23.885 (1.769)	56.719 (3.114)	28.487 (2.183)	31.651 (2.359)	28.717 (2.197)
	50	44.848 (3.285)	49.543 (3.482)	45.018 (3.313)	66.12 (4.598)	49.316 (3.368)	53.818 (3.773)	49.558 (3.412)
	100	87.861 (6.529)	96.61 (6.888)	88.434 (6.557)	100.28 (7.164)	92.031 (6.414)	99.966 (7.08)	92.603 (6.469)
	5	11.969 (0.833)	11.934 (0.887)	11.95 (0.839)	60.475 (2.649)	17.709 (2.08)	18.296 (2.081)	17.778 (2.091)
	10	14.268 (0.996)	14.382 (0.991)	14.279 (0.994)	60.614 (2.767)	19.266 (2.149)	19.877 (2.117)	19.365 (2.156)
25	25	23.987 (1.783)	24.782 (1.67)	23.94 (1.78)	61.974 (3.376)	27.789 (2.532)	28.095 (2.484)	27.86 (2.532)
	50	42.392 (3.388)	45.205 (3.081)	42.444 (3.362)	67.704 (4.792)	45.163 (3.752)	47.252 (3.51)	45.109 (3.754)
	100	81.173 (6.679)	87.99 (6.042)	81.223 (6.638)	94.144 (7.449)	83.225 (6.777)	89.548 (6.134)	83.268 (6.747)

Figure 4: Simulation with $B = 100$, $k = 5$, $p = 13$, $\mu_\alpha = 2$, $X_{i,t} \overset{iid}{\sim} \Gamma(1, 2)$, $\delta_i \sim \mathcal{N}(\mathbf{1}_p, \sigma_\delta^2 \mathbf{I}_p)$, $\gamma_i \sim \mathcal{N}(\mathbf{1}_p, \sigma_\gamma^2 \mathbf{I}_p)$ with $\sigma_\delta = \sigma_\gamma = 0.5$

		Guess			Leave-one-out cross validation ($k = 5$)			
σ	σ_α	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$	Best
	5	1 (0)	1 (0)	1 (0)	0.966 (0.009)	0.978 (0.007)	0.97 (0.009)	0.414 (0.027)
	10	1 (0)	1 (0)	1 (0)	0.946 (0.012)	0.95 (0.011)	0.946 (0.012)	0.41 (0.025)
5	25	0.96 (0.02)	1 (0)	0.96 (0.02)	0.796 (0.02)	0.814 (0.018)	0.794 (0.02)	0.406 (0.027)
	50	0.9 (0.03)	0.98 (0.014)	0.92 (0.027)	0.622 (0.026)	0.662 (0.024)	0.616 (0.025)	0.398 (0.028)
	100	0.78 (0.042)	0.96 (0.02)	0.77 (0.042)	0.516 (0.028)	0.48 (0.026)	0.518 (0.028)	0.414 (0.029)
	5	1 (0)	1 (0)	1 (0)	0.914 (0.015)	0.932 (0.013)	0.918 (0.015)	0.328 (0.027)
	10	0.99 (0.01)	1 (0)	0.99 (0.01)	0.898 (0.015)	0.914 (0.014)	0.898 (0.015)	0.334 (0.026)
10	25	0.96 (0.02)	1 (0)	0.96 (0.02)	0.778 (0.02)	0.79 (0.021)	0.774 (0.02)	0.384 (0.027)
	50	0.9 (0.03)	0.98 (0.014)	0.91 (0.029)	0.608 (0.026)	0.648 (0.024)	0.596 (0.026)	0.404 (0.029)
	100	0.78 (0.042)	0.95 (0.022)	0.77 (0.042)	0.496 (0.028)	0.486 (0.028)	0.512 (0.029)	0.402 (0.028)
	5	0.97 (0.017)	0.99 (0.01)	0.97 (0.017)	0.762 (0.023)	0.78 (0.02)	0.764 (0.023)	0.272 (0.025)
	10	0.98 (0.014)	0.99 (0.01)	0.98 (0.014)	0.754 (0.022)	0.76 (0.021)	0.75 (0.022)	0.28 (0.028)
25	25	0.96 (0.02)	0.97 (0.017)	0.96 (0.02)	0.702 (0.023)	0.714 (0.022)	0.688 (0.023)	0.314 (0.026)
	50	0.88 (0.033)	0.96 (0.02)	0.89 (0.031)	0.58 (0.027)	0.602 (0.024)	0.586 (0.027)	0.346 (0.026)
	100	0.76 (0.043)	0.93 (0.026)	0.77 (0.042)	0.494 (0.028)	0.482 (0.027)	0.5 (0.029)	0.374 (0.026)
	5	0.78 (0.042)	0.81 (0.039)	0.8 (0.04)	0.602 (0.028)	0.584 (0.028)	0.612 (0.028)	0.204 (0.021)
	10	0.8 (0.04)	0.8 (0.04)	0.81 (0.039)	0.598 (0.027)	0.59 (0.026)	0.608 (0.028)	0.22 (0.022)
50	25	0.8 (0.04)	0.82 (0.039)	0.8 (0.04)	0.58 (0.026)	0.574 (0.027)	0.584 (0.026)	0.268 (0.024)
	50	0.78 (0.042)	0.86 (0.035)	0.8 (0.04)	0.546 (0.028)	0.526 (0.029)	0.552 (0.027)	0.298 (0.026)
	100	0.73 (0.045)	0.79 (0.041)	0.71 (0.046)	0.504 (0.029)	0.484 (0.029)	0.516 (0.029)	0.328 (0.026)
	5	0.59 (0.049)	0.52 (0.05)	0.58 (0.05)	0.488 (0.025)	0.466 (0.028)	0.502 (0.026)	0.2 (0.021)
	10	0.57 (0.05)	0.52 (0.05)	0.57 (0.05)	0.502 (0.026)	0.48 (0.027)	0.492 (0.025)	0.2 (0.023)
100	25	0.57 (0.05)	0.53 (0.05)	0.58 (0.05)	0.496 (0.026)	0.488 (0.029)	0.51 (0.027)	0.208 (0.022)
	50	0.54 (0.05)	0.49 (0.05)	0.53 (0.05)	0.524 (0.027)	0.472 (0.027)	0.508 (0.028)	0.258 (0.024)
	100	0.52 (0.05)	0.55 (0.05)	0.52 (0.05)	0.51 (0.031)	0.502 (0.027)	0.512 (0.03)	0.286 (0.024)

Figure 5: Simulation with $B = 200$, $p = 13$, $\mu_\alpha = 2$, $X_{i,t} \overset{iid}{\sim} \Gamma(1,2)$, $\delta_i \sim \mathcal{N}(\mathbf{1}_p, \sigma_\delta^2 \mathbf{I}_p)$, $\gamma_i \sim \mathcal{N}(\mathbf{1}_p, \sigma_\gamma^2 \mathbf{I}_p)$ with $\sigma_\delta = \sigma_\gamma = 0.5$

		Distance to α_1			Distance to y_{1,T_1^*+1}			
σ	σ_α	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$	Original	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$
	5	10.713 (0.844)	11.021 (0.828)	10.665 (0.838)	53.511 (1.27)	10.916 (0.825)	11.762 (0.803)	10.883 (0.826)
	10	12.443 (0.98)	13.237 (1)	12.433 (0.979)	52.93 (1.483)	12.714 (0.96)	14.068 (0.973)	12.753 (0.958)
5	25	21.696 (1.703)	23.543 (1.843)	21.732 (1.717)	51.443 (2.557)	21.4 (1.763)	24.184 (1.844)	21.554 (1.762)
	50	40.632 (3.181)	43.698 (3.503)	40.797 (3.198)	54.765 (4.146)	40.072 (3.276)	43.957 (3.547)	40.114 (3.306)
	100	80.292 (6.296)	85.719 (6.94)	80.575 (6.33)	80.077 (6.869)	79.395 (6.435)	85.683 (7.016)	79.707 (6.462)
	5	10.958 (0.877)	12.144 (0.955)	10.823 (0.873)	54.821 (1.602)	13.585 (0.997)	15.353 (1.04)	13.498 (1.012)
	10	12.63 (1.006)	14.325 (1.092)	12.551 (1.007)	54.241 (1.785)	15.261 (1.085)	17.422 (1.165)	15.225 (1.098)
10	25	21.845 (1.705)	24.436 (1.867)	21.881 (1.718)	52.862 (2.738)	23.303 (1.798)	26.504 (1.966)	23.439 (1.802)
	50	40.735 (3.171)	44.359 (3.499)	40.899 (3.192)	56.405 (4.231)	40.39 (3.388)	45.632 (3.607)	40.647 (3.393)
	100	80.41 (6.277)	86.246 (6.92)	80.7 (6.315)	81.975 (6.841)	79.128 (6.549)	86.741 (7.065)	79.225 (6.604)
	5	12.463 (1.038)	17.378 (1.46)	12.151 (1.017)	59.351 (3.132)	26.276 (2.138)	29.723 (2.309)	26.318 (2.147)
	10	14.178 (1.107)	18.803 (1.584)	13.923 (1.097)	58.766 (3.248)	27.602 (2.136)	31.274 (2.36)	27.618 (2.15)
25	25	22.578 (1.765)	28.09 (2.11)	22.492 (1.778)	58.774 (3.68)	33.337 (2.519)	38.113 (2.828)	33.509 (2.518)
	50	41.151 (3.177)	47.236 (3.554)	41.18 (3.212)	63.675 (4.7)	47.644 (3.753)	54.335 (4.13)	47.981 (3.744)
	100	80.757 (6.239)	88.466 (6.877)	81.013 (6.286)	88.763 (6.978)	82.067 (6.899)	92.688 (7.361)	82.526 (6.903)
	5	17.406 (1.319)	27.836 (2.508)	16.924 (1.247)	74.695 (5.392)	50.899 (4.574)	57.203 (4.792)	51.103 (4.58)
	10	18.49 (1.382)	28.95 (2.571)	18.049 (1.324)	74.605 (5.417)	51.697 (4.569)	58.479 (4.801)	51.926 (4.571)
50	25	25.131 (1.961)	36.601 (2.839)	24.649 (1.972)	75.993 (5.525)	56.205 (4.634)	63.934 (4.971)	56.567 (4.618)
	50	42.394 (3.28)	53.474 (3.968)	42.197 (3.318)	80.977 (6.141)	66.294 (5.363)	76.169 (5.792)	66.957 (5.312)
	100	81.388 (6.253)	93.553 (6.924)	81.645 (6.292)	102.92 (7.947)	94.513 (7.886)	109.041 (8.367)	95.721 (7.788)
	5	28.901 (2.136)	51.9 (4.569)	28.009 (1.982)	119.273 (9.926)	102.577 (9.658)	113.875 (10.016)	103.264 (9.648)
	10	29.328 (2.188)	52.334 (4.636)	28.582 (2.03)	119.26 (9.943)	103.06 (9.653)	114.754 (10.032)	103.924 (9.621)
100	25	34.061 (2.521)	56.764 (4.847)	33.127 (2.458)	120.012 (10.042)	105.519 (9.688)	119.472 (10.011)	106.586 (9.627)
	50	47.583 (3.667)	70.598 (5.416)	46.75 (3.692)	124.048 (10.337)	113.134 (9.868)	128.767 (10.342)	114.027 (9.817)
	100	83.829 (6.444)	105.773 (7.718)	83.286 (6.54)	140.309 (11.461)	133.272 (11.298)	153.396 (11.937)	134.575 (11.194)

Figure 6: Monte Carlo simulation for $\mathcal{B}_u$ with $B = 200$, $k = 5$, $p = 13$, $\mu_\alpha = 2$, $X_{i,t} \overset{iid}{\sim} \Gamma(1, 2)$, $\delta_i \sim \mathcal{N}(2\mathbf{1}_p, \sigma_\delta^2 \mathbf{I}_p)$, $\gamma_i \sim \mathcal{N}(\mathbf{1}_p, \sigma_\gamma^2 \mathbf{I}_p)$ with $\sigma_\delta = \sigma_\gamma = 0.5$ and $\sigma = 10$

		Guess			LOOCV with k random draws			
n	σ_α	$\hat{\alpha}_{\mathrm{adj}}$	$\hat{\alpha}_{\mathrm{wadj}}$	$\hat{\alpha}_{\mathrm{IVW}}$	$\bar{\mathcal{C}}^{(k)}(\hat{\alpha}_{\mathrm{adj}})$	$\bar{\mathcal{C}}^{(k)}(\hat{\alpha}_{\mathrm{wadj}})$	$\bar{\mathcal{C}}^{(k)}(\hat{\alpha}_{\mathrm{IVW}})$	$\bar{\mathcal{C}}^{(k)}(\mathcal{A})$
	5	1 (0)	1 (0)	1 (0)	0.92 (0.021)	0.96 (0.015)	0.92 (0.021)	0.36 (0.046)
	10	1 (0)	1 (0)	1 (0)	0.9 (0.021)	0.92 (0.018)	0.9 (0.021)	0.4 (0.041)
5	25	0.967 (0.033)	1 (0)	0.967 (0.033)	0.8 (0.023)	0.813 (0.023)	0.8 (0.025)	0.427 (0.044)
	50	0.833 (0.069)	0.867 (0.063)	0.867 (0.063)	0.553 (0.05)	0.573 (0.045)	0.547 (0.052)	0.38 (0.049)
	100	0.467 (0.093)	0.733 (0.082)	0.467 (0.093)	0.48 (0.045)	0.48 (0.042)	0.46 (0.044)	0.373 (0.048)
	5	1 (0)	1 (0)	1 (0)	0.953 (0.016)	0.953 (0.018)	0.953 (0.016)	0.327 (0.041)
	10	1 (0)	1 (0)	1 (0)	0.92 (0.025)	0.913 (0.027)	0.92 (0.025)	0.333 (0.041)
10	25	0.9 (0.056)	0.967 (0.033)	0.933 (0.046)	0.767 (0.041)	0.787 (0.039)	0.753 (0.045)	0.313 (0.04)
	50	0.767 (0.079)	0.8 (0.074)	0.767 (0.079)	0.553 (0.044)	0.64 (0.043)	0.547 (0.045)	0.307 (0.036)
	100	0.633 (0.089)	0.7 (0.085)	0.633 (0.089)	0.527 (0.041)	0.533 (0.046)	0.507 (0.043)	0.333 (0.04)
	5	1 (0)	1 (0)	1 (0)	0.92 (0.021)	0.927 (0.02)	0.92 (0.021)	0.313 (0.046)
	10	1 (0)	1 (0)	1 (0)	0.92 (0.021)	0.907 (0.023)	0.92 (0.021)	0.3 (0.034)
15	25	1 (0)	1 (0)	1 (0)	0.827 (0.03)	0.833 (0.029)	0.833 (0.03)	0.353 (0.038)
	50	0.9 (0.056)	0.933 (0.046)	0.9 (0.056)	0.707 (0.033)	0.667 (0.038)	0.687 (0.035)	0.333 (0.039)
	100	0.7 (0.085)	0.733 (0.082)	0.7 (0.085)	0.54 (0.046)	0.607 (0.039)	0.54 (0.046)	0.313 (0.045)
	5	1 (0)	1 (0)	1 (0)	0.9 (0.027)	0.907 (0.025)	0.9 (0.027)	0.273 (0.035)
	10	1 (0)	1 (0)	1 (0)	0.873 (0.028)	0.893 (0.025)	0.873 (0.028)	0.3 (0.033)
25	25	1 (0)	1 (0)	1 (0)	0.733 (0.034)	0.74 (0.042)	0.733 (0.034)	0.293 (0.031)
	50	0.833 (0.069)	0.867 (0.063)	0.833 (0.069)	0.553 (0.047)	0.56 (0.047)	0.553 (0.047)	0.293 (0.036)
	100	0.767 (0.079)	0.733 (0.082)	0.767 (0.079)	0.48 (0.048)	0.493 (0.039)	0.487 (0.049)	0.307 (0.047)