Figure 1: 30 Monte Carlo simulations for \mathcal{B}_c with $B=200,\ k=5,\ p=13,\ \mu_{\alpha}=2,\ X_{i,t}\overset{iid}{\sim}\Gamma(1,2),\ \delta_i\sim\mathcal{N}(\mathbf{1}_p,\sigma_{\delta}^2\mathbf{I}_p),\ \gamma_i\sim\mathcal{N}(\mathbf{1}_p,\sigma_{\gamma}^2\mathbf{I}_p)$ with $\sigma_{\delta}=\sigma_{\gamma}=0.5$

n	σ_{lpha}	$\hat{lpha}_{ m adj}$	$\hat{lpha}_{\mathrm{wadj}}$	$\hat{lpha}_{ m IVW}$	$ar{\mathcal{C}}^{(k)}(\delta_{\hat{lpha}_{\mathrm{adj}}})$	$ar{\mathcal{C}}^{(k)}(\delta_{\hat{lpha}_{\mathrm{wadj}}})$	$ar{\mathcal{C}}^{(k)}(\delta_{\hat{lpha}_{ ext{IVW}}})$	$ar{\mathcal{C}}^{(k)}(\mathcal{A})$
	5	1 (0)	1 (0)	1 (0)	$0.893 \ (0.025)$	0.9(0.023)	$0.893 \ (0.025)$	$0.353 \ (0.038)$
	10	1 (0)	1 (0)	1 (0)	$0.887 \ (0.025)$	0.887 (0.025)	0.887 (0.025)	$0.373 \ (0.05)$
5	25	1 (0)	1 (0)	1 (0)	$0.78 \; (0.028)$	$0.827 \ (0.025)$	0.787 (0.027)	$0.44 \ (0.049)$
	50	$0.9 \ (0.056)$	$0.967 \ (0.033)$	$0.933 \ (0.046)$	$0.66 \ (0.037)$	0.647 (0.04)	$0.653 \ (0.038)$	$0.447 \ (0.056)$
	100	0.767 (0.079)	$0.967 \ (0.033)$	$0.8 \; (0.074)$	$0.567 \ (0.043)$	0.527 (0.044)	$0.573 \ (0.043)$	$0.493 \ (0.051)$
	5	1 (0)	1 (0)	1 (0)	0.913 (0.021)	0.92 (0.023)	0.913 (0.021)	0.247 (0.033)
		` '		1 (0)	` /	` /	,	` /
10	10	1 (0)	1 (0)	1 (0)	0.893 (0.023)	$0.893 \ (0.025)$	0.893 (0.023)	0.293 (0.03)
10	25	1 (0)	1 (0)	1 (0)	0.747 (0.034)	$0.78 \; (0.031)$	$0.767 \ (0.035)$	0.3 (0.043)
	50	$0.833 \ (0.069)$	1 (0)	$0.8 \; (0.074)$	$0.587 \ (0.041)$	$0.633 \ (0.042)$	0.593 (0.04)	$0.373 \ (0.049)$
	100	$0.8 \; (0.074)$	$0.933 \ (0.046)$	$0.8 \; (0.074)$	$0.473 \ (0.038)$	0.507 (0.042)	$0.46 \ (0.042)$	$0.413 \ (0.047)$
	5	1 (0)	1 (0)	1 (0)	0.913 (0.021)	0.927 (0.022)	0.913 (0.021)	0.313 (0.049)
		` '		` '	` /	` ,	\ /	` ,
	10	1 (0)	1 (0)	1 (0)	0.873 (0.024)	$0.887 \ (0.025)$	$0.873 \ (0.024)$	0.313 (0.04)
15	25	1 (0)	1 (0)	1 (0)	$0.753 \ (0.031)$	$0.78 \; (0.028)$	$0.76 \ (0.029)$	$0.367 \ (0.035)$
	50	$0.933 \ (0.046)$	1 (0)	$0.9 \ (0.056)$	$0.607 \ (0.043)$	$0.693 \ (0.034)$	$0.64 \ (0.041)$	$0.407 \ (0.036)$
	100	$0.667 \ (0.088)$	1 (0)	$0.633 \ (0.089)$	$0.553 \ (0.043)$	0.507 (0.04)	0.553 (0.04)	0.473 (0.041)
	_	1 (0)	1 (0)	1 (0)	0.050 (0.016)	0.04 (0.00)	0.050 (0.010)	0.000 (0.000)
	5	1 (0)	1 (0)	1 (0)	$0.953 \ (0.016)$	0.94 (0.02)	$0.953 \ (0.016)$	0.293 (0.038)
	10	1 (0)	1 (0)	1 (0)	0.927 (0.02)	$0.913 \ (0.023)$	0.927 (0.02)	$0.3 \ (0.036)$
25	25	1 (0)	1 (0)	1 (0)	$0.78 \; (0.035)$	$0.787 \; (0.036)$	$0.773 \ (0.036)$	$0.313 \ (0.038)$
	50	0.9(0.056)	1(0)	0.9(0.056)	0.573 (0.039)	0.6(0.043)	0.58(0.04)	0.34 (0.036)
	100	$0.833\ (0.069)$	1 (0)	0.8(0.074)	$0.493\ (0.042)$	$0.48\ (0.039)$	$0.5 \ (0.039)$	0.393(0.034)

Figure 2: 30 Monte Carlo simulation with $B=200,\,p=13,\,\mu_{\alpha}=2,\,X_{i,t}\stackrel{iid}{\sim}\Gamma(1,2),\,\delta_{i}\sim\mathcal{N}(\mathbf{1}_{p},\sigma_{\delta}^{2}\mathbf{I}_{p}),\,\gamma_{i}\sim\mathcal{N}(\mathbf{1}_{p},\sigma_{\gamma}^{2}\mathbf{I}_{p})$ with $\sigma_{\delta}=\sigma_{\gamma}=0.5$ and $\sigma=10$

			Distance to α_1			Distance	to y_{1,T_1^*+1}	
n	σ_{lpha}	$\hat{lpha}_{ m adj}$	$\hat{lpha}_{\mathrm{wadj}}$	$\hat{lpha}_{ ext{IVW}}$	Original	$\hat{lpha}_{ m adj}$	$\hat{lpha}_{\mathrm{wadj}}$	$\hat{lpha}_{ m IVW}$
	5	12.765 (1.637)	13.231 (1.881)	12.601 (1.636)	51.916 (4.035)	19.229 (2.552)	20.637 (2.762)	19.363 (2.517)
	10	15.403 (1.741)	16.235 (2.043)	15.247 (1.687)	52.582 (4.351)	21.565 (2.58)	23.38(2.861)	21.716(2.5)
5	25	26.509(2.702)	28.16(3.168)	26.294(2.569)	55.015 (5.841)	30.297(3.594)	31.985 (4.356)	30.203(3.498)
	50	48.402 (4.82)	50.384 (5.792)	47.957 (4.684)	64.423 (8.114)	49.999 (5.784)	52.556 (6.919)	49.553 (5.702)
	100	92.917 (9.805)	95.821 (11.622)	91.916 (9.74)	91.506 (13.198)	94.265 (10.406)	97.256 (12.565)	93.606 (10.267)
	5	11.588 (1.668)	12.577 (1.701)	11.292 (1.693)	52.339 (4.004)	17.228 (2.956)	18.545 (2.835)	17.392 (2.951)
	10	13.572(2.002)	15.634(2)	13.308 (2.038)	52.587 (4.045)	19.02(3.238)	20.952 (3.135)	19.232(3.243)
10	25	24.4(3.298)	28.426(3.39)	24.522(3.287)	54.073 (4.967)	27.655(4.554)	31.789(4.472)	27.845 (4.605)
	50	45.878 (5.881)	51.615 (6.431)	45.944 (5.936)	60.317 (7.527)	47.699 (7.043)	52.972(7.542)	47.776 (7.167)
	100	89.047 (11.745)	100.732 (12.454)	88.822 (11.959)	85.601 (12.994)	89.855 (12.815)	100.736 (13.614)	90.4 (12.907)
	5	11.299 (2.119)	11.316 (1.655)	11.313 (2.118)	49.855 (4.014)	18.071 (2.883)	18.375 (2.711)	18.038 (2.882)
	10	12.971 (2.13)	$12.613\ (1.735)$	12.927(2.15)	48.728 (4.298)	$19.451\ (2.965)$	$19.352\ (2.856)$	$19.323 \ (2.995)$
15	25	20.943 (2.342)	20.059(2.43)	21.097(2.347)	47.06 (5.131)	26.161 (3.312)	26.81 (3.126)	26.234(3.33)
	50	35.106 (3.875)	35.521(4.39)	35.505 (3.859)	48.75 (6.862)	40.268(4.434)	42.092(4.488)	40.77(4.38)
	100	$63.736 \ (8.09)$	68.358 (8.848)	$64.566 \ (8.034)$	64.294 (11.108)	68.846 (8.266)	74.075 (8.719)	$69.907 \ (8.138)$
	5	12.342 (1.558)	9.979 (1.423)	12.441 (1.56)	57.603 (6.938)	21.583 (5.896)	20.004 (5.861)	21.577 (5.901)
	10	14.011 (1.847)	$11.716 \ (1.735)$	14.087 (1.851)	56.795 (7.008)	22.198 (5.968)	20.469 (5.887)	22.217(5.97)
25	25	23.552 (3.405)	22.058 (3.074)	23.763(3.37)	56.583 (7.489)	28.96 (6.488)	27.064 (6.194)	29.028 (6.484)
	50	42.906 (6.704)	$41.323 \ (6.073)$	43.289 (6.639)	$64.333 \ (8.753)$	47.157 (8.276)	46.299 (7.257)	$47.351 \ (8.255)$
	100	86.175 (13.071)	82.99 (11.945)	86.658 (12.997)	95.612 (13.023)	90.1 (13.293)	86.813 (11.747)	90.553 (13.229)

Figure 3: 30 Monte Carlo simulations for \mathcal{B}_c with B=200, k=5, p=13, $\mu_{\alpha}=2$, $X_{i,t}\stackrel{iid}{\sim}\Gamma(1,2)$, $\delta_i\sim\mathcal{N}(\mathbf{1}_p,\sigma_{\delta}^2\mathbf{I}_p)$, $\gamma_i\sim\mathcal{N}(\mathbf{1}_p,\sigma_{\gamma}^2\mathbf{I}_p)$ with $\sigma_{\delta}=\sigma_{\gamma}=0.5$

		(1)	$\widehat{3}$	(1) (2) (3) (4) (5) (6) (7) (8) (9) (9) (9) (9) (9) (9) (9) (9) (9) (9	(2)	33 33 33
γ - p)	$ar{\mathcal{C}}^{(k)}(\mathcal{A})$	0.4 (0.038) 0.46 (0.041) 0.427 (0.044) 0.38 (0.04) 0.513 (0.047)	0.267 (0.032) 0.367 (0.042) 0.293 (0.038) 0.32 (0.04) 0.427 (0.053)	0.22 (0.031) 0.213 (0.034) 0.247 (0.04) 0.353 (0.037) 0.393 (0.048)	0.193 (0.032) 0.233 (0.03) 0.213 (0.033) 0.293 (0.049) 0.307 (0.045)	0.193 (0.034) 0.227 (0.034) 0.213 (0.041) 0.187 (0.033) 0.173 (0.03)
$(d-\lambda) \circ (d-\lambda)$	$ar{\mathcal{C}}^{(l)}$	0.4 0.46 0.427 0.38 0.513	0.267 0.367 0.293 0.32 0.427	0.22 0.213 0.247 0.353 0.393	0.193 0.233 0.213 0.293 0.307	0.193 0.227 0.213 0.187 0.173
	(MA	.009) 025) 03) .038)	.018) .026) .033) 039)	.029) .028) .03) .044)	.037) .043) .045) .041)	(0.042) (0.039) (0.04) (0.046) (0.039)
· · (-b) · · · · · · · · · · · · · · · · · · ·	$\bar{\mathcal{C}}^{(k)}(\delta_{\hat{\alpha}_{\mathrm{IVW}}})$	0.987 (0.009 0.92 (0.025) 0.833 (0.03) 0.673 (0.038 0.513 (0.046)	0.933 (0.018 0.873 (0.026 0.787 (0.033 0.66 (0.039) 0.553 (0.045	0.787 (0.029 0.807 (0.028 0.713 (0.03) 0.52 (0.044) 0.56 (0.041)	0.553 (0.037) 0.527 (0.043) 0.573 (0.045) 0.6 (0.041) 0.513 (0.054)	0.467 (0.042 0.507 (0.039 0.487 (0.04) 0.493 (0.046 0.453 (0.039
(-b)	$\bar{\mathcal{C}}$	0.6	0.8	0.7	0 0 0 0	0.4
	$\hat{\chi}_{\mathrm{wadj}}$	0.009) 0.018) 0.025) (0.03) 0.039)	(0.02) (0.027) (0.032) (0.038) (0.042)	0.027) 0.032) 0.027) 0.044)	(0.04) (0.048) (0.044) (0.041) (0.054)	(0.039) (0.041) (0.036) (0.048) (0.039)
- (-, -), or	$\bar{\mathcal{C}}^{(k)}\big(\delta_{\hat{\alpha}_{\mathrm{wadj}}}\big)$	0.987 (0.009 0.953 (0.018 0.893 (0.025 0.693 (0.03) 0.507 (0.039	0.933 (0.02) 0.893 (0.027) 0.82 (0.032) 0.667 (0.038) 0.54 (0.042)	0.773 (0.027 0.793 (0.032 0.767 (0.027 0.567 (0.044 0.54 (0.04)	0.573 (0.04) 0.553 (0.048) 0.58 (0.044) 0.533 (0.041) 0.48 (0.054)	0.467 (0.039 0.487 (0.041 0.533 (0.036 0.487 (0.048 0.413 (0.039
7,7-	$\bar{\mathcal{C}}^{(k)}\big(\delta_{\hat{\alpha}_{\mathrm{adj}}}\big)$	0.52 (0.044)	0.927 (0.018) 0.86 (0.029) 0.78 (0.034) 0.66 (0.039) 0.54 (0.05)	0.78 (0.029) 0.807 (0.031) 0.72 (0.03) 0.547 (0.036)	0.54 (0.039) 0.533 (0.041) 0.58 (0.042) 0.587 (0.044) 0.507 (0.054)	0.473 (0.044) 0.513 (0.037) 0.507 (0.045) 0.473 (0.04)
-c, Fa -,,,	$ar{\mathcal{C}}^{(k)}$	0.987 (0.009 0.913 (0.025 0.833 (0.03) 0.673 (0.038 0.52 (0.044)	0.927 (0.018) 0.86 (0.029) 0.78 (0.034) 0.66 (0.039) 0.54 (0.05)	0.78 (0.029) 0.807 (0.031) 0.72 (0.03) 0.547 (0.039) 0.54 (0.036)	0.54 (0.039) 0.533 (0.041) 0.58 (0.042) 0.587 (0.044) 0.507 (0.054)	0.473 (0.044 0.513 (0.037 0.507 (0.045 0.473 (0.042 0.427 (0.04)
5		33)	33		41) 72) 73) 73)	33 33 33 33 33 33
$^{\circ}$	$\hat{lpha}_{ m IVW}$	1 (0) 1 (0) 0.967 (0.033) 0.867 (0.063) 0.767 (0.079)	1 (0) 1 (0) 0.967 (0.033) 0.9 (0.056) 0.7 (0.085)	1 (0) 1 (0) 1 (0) 0.867 (0.063) 0.867 (0.063)	0.8 (0.074) 0.767 (0.079) 0.733 (0.082) 0.8 (0.074) 0.533 (0.093)	0.433 (0.092) 0.667 (0.088) 0.567 (0.092) 0.5 (0.093) 0.633 (0.089)
2	Ú	1 1 0.967 0.867 0.767	0.967 0.9 0.9	0.867	0.8 0.767 0.73 0.8 0.53	0.435 0.667 0.567 0.5
		046)	033)	033)	082) 74) 74) 069) 082)	089) 91) 91) 092) 089)
1	$\hat{lpha}_{ m wadj}$	1 (0) 1 (0) 1 (0) 1 (0) 0.933 (0.046)	1 (0) 1 (0) 1 (0) 1 (0) 0.967 (0.033)	1 (0) 1 (0) 1 (0) 0.967 (0.033) 1 (0)	0.733 (0.082) 0.8 (0.074) 0.8 (0.074) 0.833 (0.069) 0.733 (0.082)	0.367 (0.089) 0.6 (0.091) 0.6 (0.091) 0.433 (0.092) 0.633 (0.089)
: :		0.93	0.9	0.9		0.3 0.0 0.4 0.45
		0) 0) 0.033) 0.063) .085)	0) 0) 0.033) 0.046)	0.033) 0) 0) 0.063) .056)	069) 079) 082) 082) 74)	0.092) 0.089) 0.092) 0.093) 0.089)
	$\hat{lpha}_{ m adj}$	1 (0) 1 (0) 0.967 (0.033) 0.867 (0.063) 0.7 (0.085)	1 (0 1 (0 0.967 (0 0.933 (0 0.767 (0	0.967 (0.033) 1 (0) 1 (0) 0.867 (0.063) 0.9 (0.056)	0.833 (0.069) 0.767 (0.079) 0.733 (0.082) 0.8 (0.074) 0.5 (0.093)	0.433 (0.633 (0.567 (0.553 (0.533 (0.533 (0.533 (0.633 (0.
	σ_{lpha}	5 10 25 50 100	5 10 25 50 100	5 10 25 50 100	5 10 25 50 100	5 10 25 50 100
	ρ	ಬ	10	25	50	100
!						

Figure 4: 30 Monte Carlo simulations with $B=200,\,p=13,\,\mu_{\alpha}=2,\,X_{i,t}\stackrel{iid}{\sim}\Gamma(1,2),\,\delta_{i}\sim\mathcal{N}(\mathbf{1}_{p},\sigma_{\delta}^{2}\mathbf{I}_{p}),\,\gamma_{i}\sim\mathcal{N}(\mathbf{1}_{p},\sigma_{\gamma}^{2}\mathbf{I}_{p})$ with $\sigma_{\delta}=\sigma_{\gamma}=0.5$

$\hat{lpha}_{ m IVW}$	10.805 (1.693)	18.087 (2.631)	25.944 (4.024)	63.321 (8.397)	196.582 (67.514)
	18.248 (2.167)	18.953 (2.527)	24.859 (4.383)	48.084 (8.362)	114.018 (15.737)
	15.874 (2.38)	28.76 (4.068)	43.894 (6.634)	54.205 (9.616)	96.234 (14.708)
	52.597 (6.907)	46.859 (4.786)	46.544 (8.266)	68.802 (9.284)	135.256 (25.391)
	86.723 (12.353)	84.302 (11.928)	78.57 (12.746)	101.533 (16.522)	105.792 (14.325)
Distance to $y_{1,T_{1}^{*}+1}$	11.772 (1.548)	16.588 (2.389)	30.487 (4.611)	64.245 (8.876)	197.51 (68.449)
	17.258 (2.168)	19.673 (2.66)	26.736 (3.64)	50.585 (8.63)	119.186 (15.753)
	19.83 (3.054)	31.824 (4.272)	43.406 (6.945)	54.757 (10.243)	100.042 (16.936)
	53.827 (7.265)	41.435 (4.392)	44.828 (9.307)	68.284 (10.479)	150.625 (27.619)
	88.876 (12.627)	84.5 (12.391)	83.987 (12.004)	110.154 (15.869)	103.307 (16.269)
Distance $\hat{lpha}_{ m adj}$	10.906 (1.702)	18.168 (2.608)	25.543 (4.059)	63.508 (8.302)	195.463 (67.654)
	18.057 (2.176)	19.05 (2.487)	25.038 (4.382)	48.513 (8.317)	114.786 (15.511)
	16.089 (2.397)	28.552 (4.067)	44.166 (6.656)	54.729 (9.473)	95.017 (14.884)
	51.793 (6.871)	47.33 (4.893)	46.185 (8.039)	68.882 (9.203)	136.115 (25.728)
	88.311 (12.165)	82.913 (11.772)	78.472 (12.454)	102.473 (16.681)	103.008 (14.12)
Original	53.272 (2.587)	58.17 (4.175)	56.35 (6.1)	75.294 (10.753)	214.072 (67.401)
	50.857 (3.832)	52.808 (4.073)	49.803 (5.239)	57.591 (5.998)	120.85 (15.395)
	60.52 (3.97)	61.531 (5.693)	54.208 (6.515)	77.206 (12.032)	97.844 (13.747)
	54.646 (6.95)	56.306 (8.027)	66.514 (7.857)	90.476 (10.213)	141.223 (24.512)
	104.729 (12.998)	84.376 (11.621)	109.212 (13.286)	111.088 (17.54)	95.531 (12.8)
$\hat{lpha}_{ m IVW}$	10.559 (1.368)	10.503 (1.677)	13.477 (1.999)	16.25 (2.469)	38.824 (4.638)
	14.812 (2.043)	16.367 (2.141)	13.549 (2.127)	17.085 (2.506)	30.976 (4.423)
	16.401 (2.794)	25.68 (3.326)	27.191 (3.898)	33.804 (4.853)	37.086 (5.06)
	53.603 (6.621)	42.966 (4.79)	46.114 (6.762)	49.799 (7.782)	52.989 (8.062)
	85.94 (12.462)	83.704 (11.299)	73.488 (12.207)	85.382 (12.875)	68.163 (10.239)
Distance to α_1 $\hat{\alpha}_{\mathrm{wadj}}$	11.108 (1.331)	10.821 (1.49)	19.166 (2.159)	22.049 (2.612)	51.556 (6.109)
	14.699 (2.019)	17.833 (2.344)	13.921 (1.886)	25.045 (3.159)	43.222 (6.306)
	21.425 (3.383)	28.583 (3.801)	28.934 (3.965)	35.565 (4.744)	50.728 (7.764)
	55.199 (7.006)	37.896 (4.107)	42.377 (7.682)	48.104 (7.852)	80.316 (11.128)
	87.412 (12.747)	85.027 (11.761)	72.662 (12.233)	96.391 (12.83)	84.198 (11.756)
$\hat{lpha}_{ m adj}$	10.562 (1.38)	10.577 (1.643)	13.319 (2.007)	15.881 (2.607)	39.778 (4.596)
	14.658 (2.087)	16.368 (2.155)	14.05 (2.112)	17.42 (2.326)	30.879 (4.252)
	16.227 (2.878)	25.496 (3.354)	27.79 (3.925)	33.787 (4.949)	39.438 (5.145)
	52.799 (6.586)	43.453 (4.948)	45.468 (6.601)	49.968 (7.756)	51.762 (8.222)
	87.267 (12.344)	82.216 (11.201)	73.253 (11.936)	86.505 (12.87)	66.318 (9.896)
σ σ_{lpha}	5 10 5 25 5 100	5 10 10 25 50 100	5 10 25 25 50 100	5 10 50 25 50 100	5 10 100 25 50 100
	1				

 $\stackrel{iid}{\sim} \Gamma(1,2), \ \delta_i \sim \mathcal{N}(2\mathbf{1}_p, \sigma_\delta^2\mathbf{I}_p), \ \gamma_i \sim \mathcal{N}(\mathbf{1}_p, \sigma_\gamma^2\mathbf{I}_p) \ \text{with} \ \sigma_\delta = \sigma_\gamma = 0.5 \ \text{and} \ \sigma = 10$ $= 2. X_{z}$ = 13 Figure 5: 30 Monte Carlo simulations for \mathcal{B}_u with $B=200,\,k=5,\,p$

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$ar{\mathcal{C}}^{(k)}(\mathcal{A})$	0.36 (0.046)	0.327 (0.041)	0.313 (0.046)	0.273 (0.035)
	0.4 (0.041)	0.333 (0.041)	0.3 (0.034)	0.3 (0.033)
	0.427 (0.044)	0.313 (0.04)	0.353 (0.038)	0.293 (0.031)
	0.38 (0.049)	0.307 (0.036)	0.333 (0.039)	0.293 (0.036)
	0.373 (0.048)	0.333 (0.04)	0.313 (0.045)	0.307 (0.047)
$(\mathbf{L}_p), \gamma_i \sim \mathcal{N}(\mathbf{L}_p)$ random draws $\bar{\mathcal{C}}^{(k)}(\delta_{\hat{\alpha}_{\mathrm{IVW}}})$	0.92 (0.021) 0.9 (0.021) 0.8 (0.025) 0.547 (0.052) 0.46 (0.044)	0.953 (0.016) 0.92 (0.025) 0.753 (0.045) 0.547 (0.045) 0.507 (0.043)	0.92 (0.021) 0.92 (0.021) 0.833 (0.03) 0.687 (0.035) 0.54 (0.046)	0.9 (0.027) 0.873 (0.028) 0.733 (0.034) 0.553 (0.047) 0.487 (0.049)
$\begin{array}{ll} , o_i \sim \mathcal{N} (\mathtt{ZLp}, o_\delta \mathtt{Lp}), \gamma_i \sim \mathcal{N} (\mathtt{Lp}) \\ \mathrm{LOOCV} \mathrm{with} k \mathrm{random} \mathrm{draws} \\ \bar{\mathcal{C}}^{(k)} (\delta_{\hat{\alpha}_{\mathrm{wadj}}}) \qquad \bar{\mathcal{C}}^{(k)} (\delta_{\hat{\alpha}_{\mathrm{IVW}}}) \end{array}$	0.96 (0.015)	0.953 (0.018)	0.927 (0.02)	0.907 (0.025)
	0.92 (0.018)	0.913 (0.027)	0.907 (0.023)	0.893 (0.025)
	0.813 (0.023)	0.787 (0.039)	0.833 (0.029)	0.74 (0.042)
	0.573 (0.045)	0.64 (0.043)	0.667 (0.038)	0.56 (0.047)
	0.48 (0.042)	0.533 (0.046)	0.607 (0.039)	0.493 (0.039)
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	0.92 (0.021)	0.953 (0.016)	0.92 (0.021)	0.9 (0.027)
	0.9 (0.021)	0.92 (0.025)	0.92 (0.021)	0.873 (0.028)
	0.8 (0.023)	0.767 (0.041)	0.827 (0.03)	0.733 (0.034)
	0.553 (0.05)	0.553 (0.044)	0.707 (0.033)	0.553 (0.047)
	0.48 (0.045)	0.527 (0.041)	0.54 (0.046)	0.48 (0.048)
$\hat{a}_{1}, \hat{b} = 13, \hat{\mu}_{lpha} = 1$ \hat{a}_{1} \hat{a}_{2} \hat{a}_{3}	1 (0) 1 (0) 0.967 (0.033) 0.867 (0.063) 0.467 (0.093)	1 (0) 1 (0) 0.933 (0.046) 0.767 (0.079) 0.633 (0.089)	1 (0) 1 (0) 1 (0) 0.9 (0.056) 0.7 (0.085)	$ \begin{array}{c} 1 & (0) \\ 1 & (0) \\ 1 & (0) \\ 0.833 & (0.069) \\ 0.767 & (0.079) \end{array} $
$D = 200, \kappa = 9$ $Guess$ $\hat{\alpha}_{wadj}$	1 (0) 1 (0) 1 (0) 0.867 (0.063) 0.733 (0.082)	1 (0) 1 (0) 0.967 (0.033) 0.8 (0.074) 0.7 (0.085)	$ \begin{array}{c} 1 (0) \\ 1 (0) \\ 1 (0) \\ 0.933 (0.046) \\ 0.733 (0.082) \end{array} $	1 (0) 1 (0) 1 (0) 0.867 (0.063) 0.733 (0.082)
CallO Similarity for D_u with n σ_lpha $\hat{lpha}_{ m adj}$	1 (0)	1 (0)	1 (0)	1 (0)
	1 (0)	1 (0)	1 (0)	1 (0)
	0.967 (0.033)	0.9 (0.056)	1 (0)	1 (0)
	0.833 (0.069)	0.767 (0.079)	0.9 (0.056)	0.833 (0.069)
	0.467 (0.093)	0.633 (0.089)	0.7 (0.085)	0.767 (0.079)
σ_{lpha}	5	5	5	5
	10	10	10	10
	25	25	25	25
	50	50	50	50
	100	100	100	100
	ಸರ	10	15	25

Figure 6: 30 Monte Carlo simulations for \mathcal{B}_u with $B=200, k=5, p=13, \mu_{\alpha}=2, X_{i,t} \stackrel{iid}{\sim} \Gamma(1,2), \delta_i \sim \mathcal{N}(2\mathbf{1}_p, \sigma_{\delta}^2\mathbf{I}_p), \gamma_i \sim \mathcal{N}(\mathbf{1}_p, \sigma_{\gamma}^2\mathbf{I}_p)$ with $\sigma_{\delta}=\sigma_{\gamma}=0.5$ and $\sigma=10$

random draws $\vec{\mathcal{C}}^{(k)}(\delta_{\hat{\alpha}_{\mathrm{IVW}}})$ $\vec{\mathcal{C}}^{(k)}(\mathcal{A})$	0.987 (0.009) 0.393 (0.047) 0.967 (0.014) 0.34 (0.041) 0.807 (0.042) 0.293 (0.04) 0.573 (0.049) 0.34 (0.039) 0.5 (0.04) 0.353 (0.046)	0.953 (0.016) 0.327 (0.041) 0.92 (0.025) 0.333 (0.041) 0.753 (0.045) 0.313 (0.04) 0.547 (0.045) 0.307 (0.036) 0.507 (0.043) 0.333 (0.04)	0.773 (0.042) 0.193 (0.036) 0.733 (0.045) 0.2 (0.035) 0.66 (0.047) 0.3 (0.045) 0.553 (0.049) 0.34 (0.047) 0.473 (0.039) 0.313 (0.037)	0.58 (0.047) 0.24 (0.039) 0.553 (0.048) 0.233 (0.033) 0.473 (0.052) 0.24 (0.035) 0.467 (0.05) 0.253 (0.041) 0.447 (0.05) 0.327 (0.049)	0.48 (0.046) 0.233 (0.038) 0.46 (0.049) 0.24 (0.035) 0.467 (0.046) 0.213 (0.037) 0.467 (0.046) 0.227 (0.034)
LOOCV with k random draws $\bar{\mathcal{C}}^{(k)}(\delta_{\hat{\alpha}_{\mathrm{wadj}}})$ $\bar{\mathcal{C}}^{(k)}(\delta_{\hat{\alpha}_{\mathrm{IVW}}})$	0.987 (0.009) 0.973 (0.013) 0.82 (0.038) 0.667 (0.044) 0.533 (0.049)	0.953 (0.018) 0.913 (0.027) 0.787 (0.039) 0.64 (0.043) 0.533 (0.046)	0.78 (0.039) 0.753 (0.035) 0.693 (0.047) 0.64 (0.045) 0.52 (0.042)	0.567 (0.049) 0.547 (0.046) 0.507 (0.049) 0.527 (0.043) 0.493 (0.034)	0.52 (0.044) 0.527 (0.042) 0.54 (0.042) 0.54 (0.035)
$ar{\mathcal{C}}^{(k)}(\delta_{\hat{lpha}_{\mathrm{adj}}})$	0.987 (0.009) 0.967 (0.014) 0.807 (0.042) 0.567 (0.047) 0.513 (0.044)	0.953 (0.016) 0.92 (0.025) 0.767 (0.041) 0.553 (0.044)	0.787 (0.044) 0.747 (0.044) 0.66 (0.047) 0.547 (0.048) 0.48 (0.037)	0.573 (0.049) 0.553 (0.046) 0.48 (0.05) 0.46 (0.049) 0.46 (0.046)	0.46 (0.051) 0.46 (0.047) 0.453 (0.048) 0.487 (0.04)
$\hat{lpha}_{ m IVW}$	1 (0) 1 (0) 0.933 (0.046) 0.767 (0.079) 0.633 (0.089)	1 (0) 1 (0) 0.933 (0.046) 0.767 (0.079) 0.633 (0.089)	1 (0) 0.967 (0.033) 0.9 (0.056) 0.8 (0.074) 0.633 (0.089)	0.767 (0.079) 0.733 (0.082) 0.733 (0.082) 0.733 (0.082) 0.567 (0.092)	0.633 (0.089) 0.633 (0.089) 0.633 (0.089) 0.567 (0.092)
$\text{Guess} \\ \hat{\alpha}_{\text{wadj}}$	1 (0) 1 (0) 0.967 (0.033) 0.8 (0.074) 0.7 (0.085)	1 (0) 1 (0) 0.967 (0.033) 0.8 (0.074) 0.7 (0.085)	1 (0) 0.967 (0.033) 0.933 (0.046) 0.8 (0.074) 0.7 (0.085)	0.733 (0.082) 0.733 (0.082) 0.7 (0.085) 0.733 (0.082) 0.7 (0.085)	0.6 (0.091) 0.6 (0.091) 0.567 (0.092) 0.533 (0.093)
$\hat{lpha}_{ m adj}$	1 (0) 1 (0) 0.933 (0.046) 0.767 (0.079) 0.633 (0.089)	1 (0) 1 (0) 0.9 (0.056) 0.767 (0.079) 0.633 (0.089)	1 (0) 0.967 (0.033) 0.9 (0.056) 0.767 (0.079) 0.6 (0.091)	0.733 (0.082) 0.733 (0.082) 0.767 (0.079) 0.767 (0.079) 0.567 (0.092)	0.633 (0.089) 0.6 (0.091) 0.633 (0.089) 0.567 (0.092)
σ_{α}	5 10 25 50 100	5 10 25 50 100	5 10 25 50 100	5 10 25 50 100	5 10 25 50
ρ	ಗು	10	25	50	100