Figure 1: Simulation with $B = 1000$, $p = 2$, $\mu_\alpha = 10$, $X_{i,t} \overset{iid}{\sim} \Gamma(1, 10)$, $\delta_i \sim \mathcal{N}(2\mathbf{1}_p, \sigma_\delta^2 \mathbf{I}_p)$, $\gamma_i \sim \mathcal{N}(2\mathbf{1}_p, \sigma_\gamma^2 \mathbf{I}_p)$
Parametric Bootstrap

		Bias		Distance to α_1			Consistency			Risk (RMSE)		
$\sigma_\alpha = \sigma_\delta = \sigma_\gamma$	n	$\lvert\hat{\alpha}^\dagger_{\text{adj}} - \text{E}(\hat{\alpha}_{\text{adj}})\rvert$	$\lvert\hat{\alpha}^\dagger_{\text{wadj}} - \text{E}(\hat{\alpha}_{\text{wadj}})\rvert$	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$
0.01	5	0.427	31.551	18.782	31.543	20.433	1	1	1	15.990	28.751	17.641
	10	0.345	0.229	9.050	0.231	10.958	1	1	1	9.152	0.128	11.061
	15	0.366	0.484	26.292	0.483	26.787	1	1	1	27.020	1.210	27.514
	25	0.051	0.354	15.215	0.350	16.792	1	1	1	16.671	1.106	18.248
0.1	5	0.411	8.599	20.659	8.683	16.075	1	1	1	19.527	9.815	14.943
	10	0.004	1.130	31.834	1.121	31.999	1	1	1	32.712	0.243	32.878
	15	0.252	0.866	38.477	0.842	36.201	1	1	1	35.230	2.406	32.954
	25	0.017	4.273	54.846	4.297	56.049	1	1	1	54.996	4.447	56.198
1	5	0.559	163.417	170.584	165.212	169.204	1	1	1	169.681	164.310	168.301
	10	0.732	19.168	1.209	17.658	1.682	1	1	1	3.467	19.915	3.940
	15	0.191	29.582	64.219	29.695	64.982	0	0	0	66.393	31.870	67.157
	25	0.098	11.948	10.795	10.349	13.788	1	1	1	6.907	6.461	9.900
10	5	2.643	70.552	35.244	75.090	32.894	1	0	1	35.600	74.734	33.251
	10	2.169	402.211	492.828	396.902	477.584	0	0	0	494.029	398.102	478.784
	15	1.652	233.576	122.126	226.641	51.038	0	0	0	120.853	225.368	49.766
	25	1.361	32.038	141.835	38.483	144.553	1	1	1	140.890	39.428	143.608

Figure 2: Simulation with $B = 1000$, $p = 2$, $\mu_\alpha = 10$, $X_{i,t} \overset{iid}{\sim} \Gamma(1, 10)$, $\delta_i \sim \mathcal{N}(2\mathbf{1}_p, \sigma_\delta^2 \mathbf{I}_p)$, $\gamma_i \sim \mathcal{N}(2\mathbf{1}_p, \sigma_\gamma^2 \mathbf{I}_p)$
Non-Parametric Bootstrap on Disparate Time-series and Parametric Bootstrap on AR(1)

		Bias		Distance to α_1			Consistency			Risk (RMSE)		
$\sigma_\alpha = \sigma_\delta = \sigma_\gamma$	n	$\lvert\hat{\alpha}^\dagger_{\text{adj}} - \text{E}(\hat{\alpha}_{\text{adj}})\rvert$	$\lvert\hat{\alpha}^\dagger_{\text{wadj}} - \text{E}(\hat{\alpha}_{\text{wadj}})\rvert$	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$
0.01	5	0.878	28.114	18.782	31.543	20.433	1	1	1	15.990	28.751	17.641
	10	0.188	38.905	53.551	33.746	50.732	1	1	1	52.770	32.966	49.951
	15	0.444	11.330	55.929	1.315	56.176	0	1	0	55.106	0.493	55.353
	25	0.152	3.808	28.886	0.001	27.829	1	1	1	28.941	0.056	27.884
0.1	5	0.043	15.456	26.529	16.324	26.033	1	1	1	26.927	16.722	26.431
	10	0.909	16.352	49.877	13.378	49.589	0	1	0	50.708	14.209	50.420
	15	0.071	6.139	18.978	1.843	18.979	1	1	1	19.025	1.890	19.026
	25	0.494	4.348	35.455	1.936	35.103	1	1	1	34.736	1.217	34.384
1	5	0.693	49.543	70.448	40.387	74.051	0	1	0	70.334	40.273	73.937
	10	1.503	114.715	75.710	137.942	77.281	0	0	0	75.918	138.150	77.489
	15	0.527	58.683	54.621	61.984	59.130	0	0	0	55.290	62.653	59.799
	25	0.102	25.270	18.639	19.991	16.631	1	1	1	18.664	20.015	16.655
10	5	6.774	125.588	162.639	118.031	131.336	0	0	0	164.165	119.557	132.862
	10	0.136	0.123	17.116	77.778	17.950	1	0	1	16.400	78.493	17.235
	15	0.863	248.954	148.942	346.958	147.408	0	1	0	149.775	347.791	148.242
	25	1.411	75.169	211.568	55.516	217.682	1	1	0	211.948	55.895	218.061

Figure 3: Simulation with $B = 1000$, $p = 2$, $\mu_\alpha = 10$, $X_{i,t} \overset{iid}{\sim} \Gamma(1, 10)$, $\delta_i \sim \mathcal{N}(2\mathbf{1}_p, \sigma_\delta^2 \mathbf{I}_p)$, $\gamma_i \sim \mathcal{N}(2\mathbf{1}_p, \sigma_\gamma^2 \mathbf{I}_p)$, $n = 10$

		Bias		Distance to α_1			Consistency		
$\sigma_\alpha = \sigma_\delta = \sigma_\gamma$	σ	$\lvert\hat{\alpha}^\dagger_{\text{adj}} - \text{E}(\hat{\alpha}_{\text{adj}})\rvert$	$\lvert\hat{\alpha}^\dagger_{\text{wadj}} - \text{E}(\hat{\alpha}_{\text{wadj}})\rvert$	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$	$\hat{\alpha}_{\text{adj}}$	$\hat{\alpha}_{\text{wadj}}$	$\hat{\alpha}_{\text{IVW}}$
0.01	0.01	0.005	26.505	68.635	26.523	70.356	1	1	1
	0.1	0.008	32.825	66.651	32.833	66.038	1	1	1
	1	0.209	55.052	77.779	55.048	78.677	1	1	1
	10	0.659	8.906	18.182	8.942	16.392	1	1	1
0.1	0.01	0.041	4.850	48.389	4.856	48.773	1	1	1
	0.1	0.022	9.665	28.105	9.704	32.457	1	1	1
	1	0.284	7.249	34.603	7.087	33.139	1	1	1
	10	4.720	1.418	23.743	1.188	18.955	1	1	1
1	0.01	0.249	126.966	144.470	126.197	145.266	1	1	1
	0.1	0.344	1.140	37.688	0.809	36.918	1	1	1
	1	0.744	39.141	44.573	38.778	45.929	0	0	0
	10	0.557	5.551	5.608	6.090	0.695	1	1	1
10	0.01	2.555	195.978	198.593	195.032	194.004	0	0	0
	0.1	3.715	356.227	381.530	362.799	385.934	1	1	1
	1	0.820	532.508	463.159	536.718	477.354	0	0	0
	10	5.600	297.116	89.179	276.026	86.527	0	0	0