Simulation results, until 01/15/2014, Ming Yang

(beta1, beta2, delat1, delta2, gamma1, gamma2) = (1,1,1,1,1,1) for all settings

1. When fix alpha2 as constant in simulation

(alpha1, alpha2) = (1,1), # datasets = 100, sample size = 250, quantile = 0.25

$mean

alpha1	beta[1]	beta[2]	c	delta[1]	delta[2]	deviance	gamma[1]
1.046	0.990	0.997	0.968	0.983	1.001	13100.472	1.019

gamma[2]	sigma	w11	w21	w22
1.028	1.006	0.369	-0.100	0.316

$sd

alpha1	beta[1]	beta[2]	c	delta[1]	delta[2]	deviance	gamma[1]
0.111	0.101	0.094	0.088	0.086	0.096	45.289	0.087

gamma[2]	sigma	w11	w21	w22
0.088	0.036	0.132	0.214	0.116

(alpha1, alpha2) = (0,1), # datasets = 100, sample size = 250, quantile = 0.25

$mean

alpha1	beta[1]	beta[2]	c	delta[1]	delta[2]	deviance	gamma[1]
0.005	1.010	1.005	0.988	0.988	0.998	13238.439	1.005

gamma[2]	sigma	w11	w21	w22
1.001	1.008	0.372	-0.117	0.318

$sd

alpha1	beta[1]	beta[2]	c	delta[1]	delta[2]	deviance	gamma[1]
0.057	0.097	0.094	0.083	0.094	0.124	45.673	0.085

gamma[2]	sigma	w11	w21	w22
0.085	0.036	0.132	0.211	0.115

2. When alpha2 is treated as a parameter in the model (increased sample sizes)

(alpha1, alpha2) = (0,1), # datasets = 30, sample size = 500, quantile = 0.25
$mean

alpha1	alpha2	beta[1]	beta[2]	c	delta[1]	delta[2]	deviance
-0.010	0.928	1.017	0.997	1.000	0.989	0.984	26430.445

gamma[1]	gamma[2]	sigma	w11	w21	w22
1.006	0.997	1.001	0.306	-0.026	0.367

$sd

alpha1	alpha2	beta[1]	beta[2]	c	delta[1]	delta[2]	deviance
0.040	0.368	0.068	0.066	0.058	0.066	0.091	64.222

gamma[1]	gamma[2]	sigma	w11	w21	w22
0.059	0.058	0.026	0.111	0.212	0.124

(alpha1, alpha2) = (0,1), # datasets = 30, sample size = 500, quantile = 0.5
$mean

alpha1	alpha2	beta[1]	beta[2]	c	delta[1]	delta[2]	deviance
-0.010	1.036	0.990	0.997	0.985	0.983	0.997	26017.437

gamma[1]	gamma[2]	sigma	w11	w21	w22
1.020	1.002	1.004	0.319	-0.024	0.293

$sd

alpha1	alpha2	beta[1]	beta[2]	c	delta[1]	delta[2]	deviance
0.037	0.396	0.058	0.058	0.057	0.056	0.072	57.445

gamma[1]	gamma[2]	sigma	w11	w21	w22
0.059	0.059	0.026	0.103	0.168	0.102

(alpha1, alpha2) = (0,1), # datasets = 30, sample size = 500, quantile = 0.75
$mean

alpha1	alpha2	beta[1]	beta[2]	c	delta[1]	delta[2]	deviance
-0.010	0.834	0.997	1.002	0.998	1.004	0.998	26444.913

gamma[1]	gamma[2]	sigma	w11	w21	w22
1.005	0.997	1.000	0.312	-0.052	0.361

$sd

alpha1	alpha2	beta[1]	beta[2]	c	delta[1]	delta[2]	deviance
0.039	0.343	0.067	0.066	0.058	0.067	0.091	64.765

gamma[1]	gamma[2]	sigma	w11	w21	w22
0.059	0.059	0.026	0.116	0.227	0.133

(alpha1, alpha2) = (1,1), # datasets = 50, sample size = 500, quantile = 0.25
$mean

alpha1	alpha2	beta[1]	beta[2]	c	delta[1]	delta[2]	deviance
1.025	0.925	0.994	1.001	0.989	0.996	0.986	26209.664

gamma[1]	gamma[2]	sigma	w11	w21	w22
0.999	1.000	1.000	0.322	-0.061	0.312

$sd

alpha1	alpha2	beta[1]	beta[2]	c	delta[1]	delta[2]	deviance
0.077	0.430	0.071	0.066	0.062	0.060	0.068	64.110

gamma[1]	gamma[2]	sigma	w11	w21	w22
0.060	0.060	0.026	0.115	0.187	0.112

(alpha1, alpha2) = (1,1), # datasets = 50, sample size = 500, quantile = 0.5
$mean

alpha1	alpha2	beta[1]	beta[2]	c	delta[1]	delta[2]	deviance
1.011	0.908	1.014	1.001	0.986	1.002	0.998	25742.474

gamma[1]	gamma[2]	sigma	w11	w21	w22
1.000	1.016	1.001	0.326	-0.023	0.303

$sd

alpha1	alpha2	beta[1]	beta[2]	c	delta[1]	delta[2]	deviance
0.071	0.411	0.061	0.058	0.061	0.054	0.062	55.838

gamma[1]	gamma[2]	sigma	w11	w21	w22
0.061	0.060	0.026	0.105	0.170	0.110

(alpha1, alpha2) = (1,1), # datasets = 50, sample size = 500, quantile = 0.75

$mean

alpha1	alpha2	beta[1]	beta[2]	c	delta[1]	delta[2]	deviance
1.012	0.823	0.983	1.008	0.980	0.994	1.005	26231.989

gamma[1]	gamma[2]	sigma	w11	w21	w22
1.014	1.014	1.000	0.327	-0.029	0.302

$sd

alpha1	alpha2	beta[1]	beta[2]	c	delta[1]	delta[2]	deviance
0.076	0.464	0.070	0.066	0.061	0.060	0.068	64.852

gamma[1]	gamma[2]	sigma	w11	w21	w22
0.061	0.060	0.026	0.114	0.194	0.118

- Those in red have large bias.
- SD for alpha2 is always higher
- Except alpha2, all other parameters have small bias and SD

- Trying to increase # of dataset to 100 for those settings have larger bias, still running on TACC