

Logistic\_Fan\_2011

```

beta : 2 1.5 1 0 0 0 0
intercept : 0
sample size : 200
simulation time : 100
loss_rate: 0.625
error_independent: FALSE
missing_method: y_single
missing_location: 1
lambda_location_for_cv(SCAD): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
lambda_location_for_cv(MCP): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
file_name: ./data/beta_2_1.5_1_n_200_lambda_location_l1_30_error_independent_FALSE_logistic_method_Fan_2011.Rdata
table_original

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	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO	0	0	1.815	0.030	4.148	0.063	2.443	0.019	0.00	2.02	0.000	1.645
FSCAD	0	0	1.801	0.030	4.124	0.086	2.425	0.017	0.05	1.94	0.219	1.601
FMCP	0	0	1.801	0.032	4.103	0.076	2.426	0.018	0.17	1.05	0.378	1.403
CLASSO	0	0	1.859	0.037	4.252	0.068	2.504	0.030	0.08	2.00	0.273	1.511
CSCAD	0	0	1.843	0.043	4.224	0.087	2.484	0.030	0.22	1.87	0.416	1.515
CMCP	0	0	1.844	0.042	4.229	0.094	2.485	0.030	0.30	1.64	0.461	1.624
PLASSO	0	0	0.898	0.530	2.441	1.431	1.250	0.647	0.04	2.35	0.197	1.540
PSCAD1	0	0	1.249	0.822	2.685	2.019	1.599	1.036	0.31	0.66	0.506	0.977
PSCAD2	0	0	1.275	0.798	2.717	1.818	1.630	0.988	0.32	0.60	0.510	0.899
PSCAD3	0	0	1.283	0.800	2.750	1.818	1.645	0.987	0.31	0.62	0.506	0.908
PMCP1	0	0	1.246	0.830	2.680	2.034	1.594	1.043	0.29	0.69	0.478	1.002
PMCP2	0	0	1.262	0.778	2.661	1.727	1.606	0.950	0.31	0.59	0.506	0.900
PMCP3	0	0	1.295	0.807	2.789	1.893	1.659	1.004	0.31	0.65	0.506	0.968

relative\_ratio\_0.05

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.05	0.05	NA	1.815	0.030	4.114	0.051	2.442	0.019	0.00	0.41	0.000	0.726

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FSCAD 0.05	0.05	NA	1.801	0.030	4.097	0.073	2.425	0.017	0.05	0.55	0.219	0.892
FMCP 0.05	0.05	NA	1.801	0.032	4.087	0.066	2.426	0.018	0.17	0.37	0.378	0.787
CLASSO 0.05	0.05	NA	1.859	0.037	4.220	0.060	2.503	0.030	0.08	0.46	0.273	0.822
CSCAD 0.05	0.05	NA	1.843	0.043	4.194	0.077	2.484	0.031	0.22	0.51	0.416	0.893
CMCP 0.05	0.05	NA	1.844	0.042	4.207	0.078	2.485	0.030	0.30	0.67	0.461	0.985
PLASSO 0.05	0.05	NA	0.898	0.530	2.435	1.431	1.250	0.647	0.04	2.09	0.197	1.634
PSCAD1 0.05	0.05	NA	1.249	0.822	2.685	2.019	1.599	1.036	0.31	0.65	0.506	0.947
PSCAD2 0.05	0.05	NA	1.275	0.798	2.717	1.818	1.630	0.988	0.32	0.60	0.510	0.899
PSCAD3 0.05	0.05	NA	1.283	0.800	2.750	1.818	1.645	0.987	0.31	0.62	0.506	0.908
PMCP1 0.05	0.05	NA	1.246	0.830	2.679	2.033	1.594	1.043	0.29	0.67	0.478	0.975
PMCP2 0.05	0.05	NA	1.262	0.778	2.661	1.727	1.606	0.950	0.31	0.59	0.506	0.900
PMCP3 0.05	0.05	NA	1.295	0.807	2.789	1.893	1.659	1.004	0.31	0.65	0.506	0.968

relative\_ratio\_0.1

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.1*rho	0.093	0.002	1.815	0.030	4.091	0.037	2.442	0.019	0.00	0.07	0.000	0.256
FSCAD 0.1*rho	0.093	0.003	1.801	0.030	4.066	0.045	2.425	0.017	0.05	0.11	0.219	0.345
FMCP 0.1*rho	0.093	0.003	1.801	0.032	4.067	0.046	2.426	0.018	0.17	0.09	0.378	0.321
CLASSO 0.1*rho	0.096	0.002	1.859	0.037	4.193	0.053	2.503	0.030	0.08	0.06	0.273	0.239
CSCAD 0.1*rho	0.096	0.003	1.843	0.043	4.169	0.060	2.484	0.031	0.22	0.14	0.416	0.377
CMCP 0.1*rho	0.096	0.003	1.844	0.042	4.171	0.062	2.485	0.031	0.30	0.13	0.461	0.367
PLASSO 0.1*rho	0.060	0.036	0.898	0.530	2.433	1.432	1.250	0.647	0.04	2.05	0.197	1.641
PSCAD1 0.1*rho	0.083	0.053	1.249	0.822	2.684	2.014	1.599	1.036	0.31	0.64	0.506	0.916
PSCAD2 0.1*rho	0.082	0.051	1.275	0.798	2.717	1.818	1.630	0.988	0.32	0.60	0.510	0.899
PSCAD3 0.1*rho	0.082	0.052	1.283	0.800	2.750	1.818	1.645	0.987	0.31	0.62	0.506	0.908
PMCP1 0.1*rho	0.082	0.053	1.246	0.830	2.678	2.029	1.594	1.043	0.29	0.66	0.478	0.945
PMCP2 0.1*rho	0.083	0.051	1.262	0.778	2.661	1.727	1.606	0.950	0.31	0.59	0.506	0.900
PMCP3 0.1*rho	0.082	0.052	1.295	0.807	2.789	1.893	1.659	1.004	0.31	0.65	0.506	0.968

relative\_ratio\_0.3

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.3*rho	0.279	0.005	1.815	0.030	4.084	0.031	2.442	0.019	0.00	0.00	0.000	0.000
FSCAD 0.3*rho	0.279	0.009	1.801	0.030	4.054	0.029	2.424	0.017	0.05	0.00	0.219	0.000

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FMCP 0.3*rho	0.280	0.010	1.801	0.032	4.057	0.031	2.426	0.018	0.17	0.00	0.378	0.000
CLASSO 0.3*rho	0.287	0.007	1.859	0.037	4.186	0.052	2.503	0.030	0.08	0.00	0.273	0.000
CSCAD 0.3*rho	0.288	0.009	1.843	0.043	4.153	0.053	2.483	0.031	0.22	0.00	0.416	0.000
CMCP 0.3*rho	0.288	0.009	1.844	0.042	4.156	0.053	2.484	0.031	0.30	0.00	0.461	0.000
PLASSO 0.3*rho	0.179	0.107	0.898	0.530	2.383	1.410	1.247	0.647	0.04	1.65	0.197	1.546
PSCAD1 0.3*rho	0.248	0.158	1.249	0.822	2.670	1.996	1.598	1.035	0.31	0.59	0.506	0.900
PSCAD2 0.3*rho	0.246	0.154	1.275	0.798	2.708	1.802	1.629	0.986	0.32	0.58	0.510	0.867
PSCAD3 0.3*rho	0.246	0.156	1.283	0.800	2.743	1.801	1.644	0.986	0.31	0.61	0.506	0.886
PMCP1 0.3*rho	0.245	0.159	1.246	0.830	2.668	2.014	1.593	1.041	0.29	0.63	0.478	0.928
PMCP2 0.3*rho	0.249	0.152	1.262	0.778	2.654	1.710	1.606	0.949	0.31	0.58	0.506	0.878
PMCP3 0.3*rho	0.246	0.157	1.295	0.807	2.782	1.878	1.658	1.003	0.31	0.64	0.506	0.948

relative\_ratio\_0.5

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.5*rho	0.466	0.008	1.815	0.030	4.084	0.031	2.442	0.019	0.00	0.00	0.000	0.000
FSCAD 0.5*rho	0.465	0.015	1.801	0.030	4.054	0.029	2.424	0.017	0.05	0.00	0.219	0.000
FMCP 0.5*rho	0.467	0.017	1.801	0.032	4.057	0.031	2.426	0.018	0.17	0.00	0.378	0.000
CLASSO 0.5*rho	0.479	0.012	1.859	0.037	4.186	0.052	2.503	0.030	0.08	0.00	0.273	0.000
CSCAD 0.5*rho	0.479	0.016	1.843	0.043	4.153	0.053	2.483	0.031	0.22	0.00	0.416	0.000
CMCP 0.5*rho	0.480	0.015	1.844	0.042	4.156	0.053	2.484	0.031	0.30	0.00	0.461	0.000
PLASSO 0.5*rho	0.298	0.178	0.898	0.530	2.231	1.163	1.229	0.609	0.04	1.16	0.197	1.261
PSCAD1 0.5*rho	0.414	0.263	1.249	0.822	2.630	1.936	1.593	1.028	0.31	0.53	0.506	0.834
PSCAD2 0.5*rho	0.410	0.257	1.275	0.798	2.669	1.747	1.624	0.980	0.32	0.52	0.510	0.822
PSCAD3 0.5*rho	0.411	0.259	1.283	0.800	2.704	1.747	1.639	0.979	0.31	0.55	0.506	0.845
PMCP1 0.5*rho	0.408	0.265	1.246	0.830	2.625	1.955	1.588	1.034	0.29	0.56	0.478	0.845
PMCP2 0.5*rho	0.414	0.254	1.262	0.778	2.615	1.650	1.600	0.941	0.31	0.52	0.506	0.835
PMCP3 0.5*rho	0.411	0.262	1.295	0.807	2.737	1.809	1.653	0.996	0.31	0.57	0.506	0.879

Mean difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.498	-1.815	-1.351	-0.919	0.002	0.002	0.002	-0.005	0.002
FSCAD	0.497	-1.801	-1.340	-0.913	0.000	0.000	0.001	-0.003	0.001
FMCP	0.498	-1.801	-1.340	-0.916	-0.002	0.003	0.000	-0.003	-0.002
CLASSO	0.689	-1.859	-1.385	-0.942	0.002	0.003	0.003	-0.001	0.002
CSCAD	0.678	-1.843	-1.373	-0.937	-0.001	0.001	0.004	0.000	0.002
CMCP	0.681	-1.844	-1.373	-0.939	0.001	0.003	0.002	-0.005	0.002
PLASSO	0.000	-0.289	-0.108	-0.270	0.037	0.045	0.017	-0.065	0.015
PSCAD1	0.000	0.336	0.431	-0.043	0.028	0.027	0.014	-0.026	0.010
PSCAD2	0.000	0.358	0.479	-0.046	0.029	0.025	0.015	-0.034	-0.028
PSCAD3	0.000	0.393	0.494	-0.009	0.021	0.018	0.009	-0.034	-0.027
PMCP1	0.000	0.327	0.410	-0.053	0.026	0.031	0.012	-0.010	-0.003
PMCP2	0.000	0.378	0.468	-0.029	0.014	0.018	0.009	-0.020	-0.006
PMCP3	0.000	0.398	0.506	-0.002	0.023	0.010	0.015	0.014	-0.027
FULL	0.497	-1.801	-1.344	-0.904	-0.001	0.001	0.002	-0.003	0.003
COMPLETE	0.676	-1.842	-1.375	-0.925	-0.002	0.005	0.000	-0.002	0.002
LOGISTIC	0.000	0.849	0.772	0.345	-0.076	0.094	0.002	-0.098	0.026

sd difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.033	0.030	0.031	0.029	0.020	0.020	0.020	0.039	0.025
FSCAD	0.035	0.030	0.037	0.041	0.025	0.025	0.022	0.043	0.029
FMCP	0.032	0.032	0.044	0.045	0.020	0.019	0.019	0.037	0.026
CLASSO	0.049	0.037	0.037	0.036	0.021	0.019	0.020	0.038	0.031
CSCAD	0.049	0.043	0.052	0.045	0.024	0.023	0.022	0.043	0.033
CMCP	0.050	0.042	0.052	0.045	0.026	0.024	0.024	0.042	0.037
PLASSO	0.000	0.659	0.757	0.460	0.304	0.275	0.263	0.410	0.442
PSCAD1	0.000	0.950	0.991	0.751	0.314	0.287	0.379	0.487	0.582
PSCAD2	0.000	0.907	0.986	0.752	0.309	0.281	0.388	0.414	0.659
PSCAD3	0.000	0.887	0.994	0.759	0.331	0.282	0.395	0.414	0.659
PMCP1	0.000	0.954	0.980	0.745	0.326	0.281	0.390	0.511	0.589
PMCP2	0.000	0.857	0.981	0.764	0.310	0.281	0.393	0.378	0.624
PMCP3	0.000	0.909	0.971	0.763	0.352	0.315	0.398	0.449	0.659
FULL	0.043	0.030	0.031	0.030	0.033	0.033	0.032	0.058	0.048
COMPLETE	0.057	0.037	0.038	0.037	0.037	0.037	0.034	0.062	0.053
LOGISTIC	0.000	1.392	1.280	0.910	0.749	0.701	0.696	1.099	1.163

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beta : 2 1.5 1 0 0 0 0
intercept : 0
sample size : 200
simulation time : 100
loss_rate: 0.625
error_independent: TRUE
missing_method: y_single
missing_location: 1
lambda_location_for_cv(SCAD): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
lambda_location_for_cv(MCP): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
file_name: ./data/beta_2_1.5_1_n_200_lambda_location_l1_30_error_independent_TRUE_logistic_method_Fan_2011.Rdata
table_original

```

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO	0	0	1.769	0.027	4.050	0.064	2.385	0.025	0.00	2.50	0.000	1.487
FSCAD	0	0	1.753	0.025	3.974	0.079	2.359	0.023	0.00	1.17	0.000	1.288
FMCP	0	0	1.753	0.025	3.970	0.078	2.360	0.023	0.01	0.71	0.100	1.200
CLASSO	0	0	1.835	0.036	4.216	0.091	2.475	0.042	0.07	2.49	0.355	1.560
CSCAD	0	0	1.813	0.036	4.151	0.120	2.446	0.043	0.07	1.67	0.355	1.518
CMCP	0	0	1.815	0.037	4.152	0.116	2.448	0.046	0.13	1.31	0.442	1.594
PLASSO	0	0	0.817	0.451	2.186	1.233	1.124	0.584	0.02	2.63	0.141	1.397
PSCAD1	0	0	0.989	0.589	2.156	1.373	1.259	0.729	0.17	0.82	0.378	1.140
PSCAD2	0	0	1.021	0.617	2.220	1.447	1.298	0.776	0.19	0.75	0.394	1.058
PSCAD3	0	0	1.021	0.632	2.212	1.468	1.298	0.797	0.19	0.72	0.394	1.055
PMCP1	0	0	0.961	0.557	2.134	1.301	1.235	0.691	0.17	0.86	0.378	1.181
PMCP2	0	0	1.010	0.616	2.201	1.432	1.283	0.774	0.19	0.73	0.394	1.053
PMCP3	0	0	1.000	0.620	2.178	1.429	1.275	0.781	0.18	0.68	0.386	0.994

relative\_ratio\_0.05

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.05	0.05	NA	1.769	0.027	4.011	0.056	2.385	0.026	0.00	0.34	0.000	0.572

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FSCAD 0.05	0.05	NA	1.753	0.025	3.959	0.068	2.359	0.023	0.00	0.19	0.000	0.581
FMCP 0.05	0.05	NA	1.753	0.025	3.960	0.068	2.360	0.023	0.01	0.21	0.100	0.608
CLASSO 0.05	0.05	NA	1.835	0.036	4.176	0.087	2.475	0.043	0.07	0.47	0.355	0.703
CSCAD 0.05	0.05	NA	1.813	0.036	4.127	0.109	2.446	0.043	0.07	0.40	0.355	0.804
CMCP 0.05	0.05	NA	1.815	0.037	4.130	0.103	2.448	0.046	0.13	0.42	0.442	0.741
PLASSO 0.05	0.05	NA	0.817	0.451	2.176	1.236	1.124	0.584	0.02	2.26	0.141	1.404
PSCAD1 0.05	0.05	NA	0.989	0.589	2.156	1.372	1.259	0.729	0.17	0.79	0.378	1.122
PSCAD2 0.05	0.05	NA	1.021	0.617	2.219	1.448	1.298	0.776	0.19	0.72	0.394	1.036
PSCAD3 0.05	0.05	NA	1.021	0.632	2.211	1.467	1.298	0.797	0.19	0.70	0.394	1.049
PMCP1 0.05	0.05	NA	0.961	0.557	2.132	1.299	1.235	0.691	0.17	0.81	0.378	1.152
PMCP2 0.05	0.05	NA	1.010	0.616	2.201	1.431	1.283	0.774	0.19	0.71	0.394	1.038
PMCP3 0.05	0.05	NA	1.000	0.620	2.178	1.428	1.275	0.781	0.18	0.67	0.386	0.985

relative\_ratio\_0.1

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.1*rho	0.090	0.002	1.769	0.027	3.993	0.051	2.384	0.026	0.00	0.06	0.000	0.239
FSCAD 0.1*rho	0.090	0.002	1.753	0.025	3.950	0.054	2.359	0.023	0.00	0.06	0.000	0.239
FMCP 0.1*rho	0.090	0.002	1.753	0.025	3.951	0.052	2.360	0.023	0.01	0.06	0.100	0.239
CLASSO 0.1*rho	0.094	0.002	1.835	0.036	4.153	0.083	2.474	0.043	0.07	0.12	0.355	0.383
CSCAD 0.1*rho	0.094	0.003	1.813	0.036	4.111	0.093	2.446	0.042	0.07	0.15	0.355	0.411
CMCP 0.1*rho	0.094	0.003	1.815	0.037	4.110	0.091	2.447	0.046	0.13	0.14	0.442	0.377
PLASSO 0.1*rho	0.050	0.022	0.817	0.451	2.173	1.225	1.124	0.584	0.02	2.25	0.141	1.431
PSCAD1 0.1*rho	0.062	0.035	0.989	0.589	2.155	1.371	1.259	0.728	0.17	0.78	0.378	1.115
PSCAD2 0.1*rho	0.064	0.038	1.021	0.617	2.219	1.447	1.298	0.776	0.19	0.72	0.394	1.026
PSCAD3 0.1*rho	0.063	0.040	1.021	0.632	2.211	1.467	1.298	0.797	0.19	0.69	0.394	1.042
PMCP1 0.1*rho	0.061	0.035	0.961	0.557	2.132	1.299	1.235	0.691	0.17	0.81	0.378	1.152
PMCP2 0.1*rho	0.063	0.037	1.010	0.616	2.201	1.431	1.283	0.774	0.19	0.71	0.394	1.038
PMCP3 0.1*rho	0.063	0.039	1.000	0.620	2.178	1.428	1.275	0.781	0.18	0.67	0.386	0.985

relative\_ratio\_0.3

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.3*rho	0.271	0.005	1.769	0.027	3.986	0.046	2.384	0.026	0.00	0.00	0.000	0.000
FSCAD 0.3*rho	0.269	0.007	1.753	0.025	3.942	0.044	2.359	0.023	0.00	0.00	0.000	0.000

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FMCP 0.3*rho	0.269	0.007	1.753	0.025	3.944	0.043	2.359	0.023	0.01	0.00	0.100	0.000
CLASSO 0.3*rho	0.283	0.007	1.835	0.036	4.137	0.076	2.474	0.043	0.07	0.00	0.355	0.000
CSCAD 0.3*rho	0.282	0.009	1.813	0.036	4.090	0.078	2.445	0.043	0.07	0.00	0.355	0.000
CMCP 0.3*rho	0.282	0.010	1.815	0.037	4.093	0.084	2.447	0.046	0.13	0.00	0.442	0.000
PLASSO 0.3*rho	0.149	0.066	0.817	0.451	2.102	1.181	1.120	0.583	0.02	1.60	0.141	1.470
PSCAD1 0.3*rho	0.187	0.104	0.989	0.589	2.143	1.362	1.258	0.728	0.17	0.71	0.378	1.028
PSCAD2 0.3*rho	0.191	0.115	1.021	0.617	2.213	1.443	1.298	0.776	0.19	0.68	0.394	0.994
PSCAD3 0.3*rho	0.190	0.119	1.021	0.632	2.210	1.467	1.298	0.797	0.19	0.68	0.394	1.024
PMCP1 0.3*rho	0.183	0.106	0.961	0.557	2.128	1.296	1.235	0.691	0.17	0.78	0.378	1.133
PMCP2 0.3*rho	0.189	0.112	1.010	0.616	2.198	1.431	1.283	0.774	0.19	0.69	0.394	1.032
PMCP3 0.3*rho	0.189	0.116	1.000	0.620	2.178	1.428	1.275	0.781	0.18	0.67	0.386	0.985

relative\_ratio\_0.5

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.5*rho	0.452	0.009	1.769	0.027	3.986	0.046	2.384	0.026	0.00	0.00	0.000	0.000
FSCAD 0.5*rho	0.448	0.011	1.753	0.025	3.942	0.044	2.359	0.023	0.00	0.00	0.000	0.000
FMCP 0.5*rho	0.448	0.011	1.753	0.025	3.944	0.043	2.359	0.023	0.01	0.00	0.100	0.000
CLASSO 0.5*rho	0.471	0.012	1.835	0.036	4.137	0.076	2.474	0.043	0.07	0.00	0.355	0.000
CSCAD 0.5*rho	0.470	0.015	1.813	0.036	4.090	0.078	2.445	0.043	0.07	0.00	0.355	0.000
CMCP 0.5*rho	0.469	0.016	1.815	0.037	4.093	0.084	2.447	0.046	0.13	0.00	0.442	0.000
PLASSO 0.5*rho	0.248	0.110	0.817	0.451	2.030	1.171	1.113	0.583	0.02	1.20	0.141	1.363
PSCAD1 0.5*rho	0.311	0.173	0.989	0.589	2.124	1.347	1.255	0.726	0.17	0.66	0.378	1.017
PSCAD2 0.5*rho	0.318	0.192	1.021	0.617	2.191	1.412	1.295	0.774	0.19	0.63	0.394	0.971
PSCAD3 0.5*rho	0.317	0.199	1.021	0.632	2.202	1.458	1.297	0.797	0.19	0.66	0.394	0.997
PMCP1 0.5*rho	0.305	0.177	0.961	0.557	2.094	1.259	1.231	0.688	0.17	0.68	0.378	1.062
PMCP2 0.5*rho	0.314	0.187	1.010	0.616	2.183	1.420	1.281	0.774	0.19	0.65	0.394	1.009
PMCP3 0.5*rho	0.315	0.194	1.000	0.620	2.162	1.414	1.273	0.780	0.18	0.63	0.386	0.960



Mean difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.496	-1.769	-1.327	-0.890	-0.002	0.001	-0.001	0.005	0.001
FSCAD	0.496	-1.753	-1.311	-0.878	0.000	0.001	-0.001	0.003	0.003
FMCP	0.496	-1.753	-1.311	-0.880	0.001	0.002	-0.001	0.003	0.003
CLASSO	0.706	-1.835	-1.376	-0.927	-0.002	0.001	-0.001	0.008	0.003
CSCAD	0.696	-1.813	-1.358	-0.919	-0.001	0.000	0.000	0.003	0.004
CMCP	0.694	-1.815	-1.358	-0.920	-0.001	0.001	0.000	0.007	0.006
PLASSO	0.000	-0.362	-0.289	-0.243	-0.019	0.018	-0.015	0.054	0.007
PSCAD1	0.000	0.212	0.123	-0.033	-0.023	0.012	0.008	0.080	-0.009
PSCAD2	0.000	0.266	0.174	0.007	-0.022	0.010	-0.001	0.077	-0.026
PSCAD3	0.000	0.280	0.187	0.028	-0.017	0.013	-0.005	0.066	-0.017
PMCP1	0.000	0.205	0.117	-0.032	-0.013	0.010	0.012	0.086	-0.016
PMCP2	0.000	0.251	0.150	0.001	-0.016	0.009	0.000	0.060	0.003
PMCP3	0.000	0.270	0.184	0.037	-0.019	0.011	0.011	0.070	-0.010
FULL	0.494	-1.752	-1.311	-0.873	-0.004	0.003	-0.001	0.004	0.004
COMPLETE	0.687	-1.811	-1.353	-0.907	-0.003	0.003	0.000	0.011	0.007
LOGISTIC	0.000	0.614	0.484	0.321	-0.036	0.064	-0.057	0.072	0.076

sd difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.035	0.027	0.027	0.030	0.015	0.017	0.017	0.035	0.031
FSCAD	0.029	0.025	0.026	0.035	0.011	0.013	0.014	0.029	0.027
FMCP	0.028	0.025	0.026	0.035	0.010	0.011	0.014	0.023	0.027
CLASSO	0.050	0.036	0.034	0.038	0.016	0.019	0.023	0.037	0.048
CSCAD	0.049	0.036	0.038	0.047	0.016	0.017	0.024	0.038	0.049
CMCP	0.050	0.037	0.038	0.048	0.016	0.018	0.022	0.038	0.043
PLASSO	0.000	0.597	0.463	0.407	0.189	0.225	0.256	0.360	0.565
PSCAD1	0.000	0.745	0.638	0.623	0.207	0.262	0.303	0.497	0.511
PSCAD2	0.000	0.755	0.720	0.647	0.224	0.257	0.320	0.487	0.483
PSCAD3	0.000	0.773	0.703	0.654	0.229	0.261	0.314	0.504	0.473
PMCP1	0.000	0.745	0.638	0.618	0.197	0.262	0.311	0.461	0.440
PMCP2	0.000	0.773	0.666	0.642	0.226	0.255	0.314	0.487	0.517
PMCP3	0.000	0.764	0.707	0.649	0.229	0.243	0.303	0.490	0.435
FULL	0.043	0.026	0.026	0.028	0.024	0.026	0.027	0.051	0.051
COMPLETE	0.057	0.032	0.032	0.036	0.027	0.031	0.033	0.058	0.067
LOGISTIC	0.000	1.164	0.880	0.700	0.418	0.424	0.514	0.884	1.167

```

beta : 2 1.5 1 0 0 0 0
intercept : 0
sample size : 400
simulation time : 100
loss_rate: 0.625
error_independent: FALSE
missing_method: y_single
missing_location: 1
lambda_location_for_cv(SCAD): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
lambda_location_for_cv(MCP): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
file_name: ./data/beta_2_1.5_1_n_400_lambda_location_l1_30_error_independent_FALSE_logistic_method_Fan_2011.Rdata
table_original

```

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO	0	0	1.809	0.018	4.114	0.045	2.435	0.014	0.00	2.10	0.000	1.481
FSCAD	0	0	1.800	0.017	4.075	0.058	2.422	0.012	0.01	1.15	0.100	1.282
FMCP	0	0	1.800	0.017	4.080	0.064	2.423	0.012	0.02	0.95	0.141	1.527
CLASSO	0	0	1.854	0.021	4.224	0.056	2.498	0.020	0.00	1.94	0.000	1.503
CSCAD	0	0	1.843	0.022	4.202	0.077	2.484	0.020	0.03	1.62	0.171	1.581
CMCP	0	0	1.843	0.023	4.201	0.076	2.484	0.020	0.08	1.37	0.273	1.581
PLASSO	0	0	0.625	0.217	1.660	0.731	0.858	0.303	0.00	2.33	0.000	1.415
PSCAD1	0	0	0.681	0.365	1.610	1.095	0.915	0.510	0.08	0.74	0.273	1.060
PSCAD2	0	0	0.688	0.394	1.620	1.173	0.922	0.554	0.06	0.70	0.239	0.959
PSCAD3	0	0	0.697	0.389	1.641	1.181	0.932	0.554	0.07	0.72	0.256	0.975
PMCP1	0	0	0.678	0.372	1.599	1.086	0.908	0.515	0.06	0.76	0.239	1.055
PMCP2	0	0	0.687	0.369	1.592	1.057	0.913	0.511	0.05	0.68	0.219	0.931
PMCP3	0	0	0.689	0.385	1.608	1.153	0.917	0.545	0.05	0.74	0.219	0.949

relative\_ratio\_0.05

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.05	0.05	NA	1.809	0.018	4.080	0.032	2.435	0.014	0.00	0.13	0.000	0.367

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FSCAD 0.05	0.05	NA	1.800	0.017	4.058	0.036	2.422	0.012	0.01	0.14	0.100	0.427
FMCP 0.05	0.05	NA	1.800	0.017	4.062	0.039	2.423	0.012	0.02	0.19	0.141	0.486
CLASSO 0.05	0.05	NA	1.854	0.021	4.189	0.041	2.498	0.020	0.00	0.18	0.000	0.435
CSCAD 0.05	0.05	NA	1.843	0.022	4.177	0.058	2.484	0.020	0.03	0.36	0.171	0.689
CMCP 0.05	0.05	NA	1.843	0.023	4.177	0.057	2.484	0.020	0.08	0.37	0.273	0.661
PLASSO 0.05	0.05	NA	0.625	0.217	1.651	0.734	0.858	0.303	0.00	1.92	0.000	1.368
PSCAD1 0.05	0.05	NA	0.681	0.365	1.609	1.096	0.915	0.510	0.08	0.71	0.273	1.028
PSCAD2 0.05	0.05	NA	0.688	0.394	1.620	1.173	0.922	0.554	0.06	0.70	0.239	0.959
PSCAD3 0.05	0.05	NA	0.697	0.389	1.641	1.182	0.932	0.554	0.07	0.71	0.256	0.967
PMCP1 0.05	0.05	NA	0.678	0.372	1.598	1.085	0.908	0.515	0.06	0.72	0.239	0.986
PMCP2 0.05	0.05	NA	0.687	0.369	1.592	1.058	0.913	0.511	0.05	0.67	0.219	0.933
PMCP3 0.05	0.05	NA	0.689	0.385	1.607	1.153	0.917	0.545	0.05	0.72	0.219	0.944

relative\_ratio\_0.1

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.1*rho	0.092	0.001	1.809	0.018	4.072	0.024	2.435	0.014	0.00	0.00	0.000	0.000
FSCAD 0.1*rho	0.091	0.001	1.800	0.017	4.050	0.023	2.422	0.012	0.01	0.01	0.100	0.100
FMCP 0.1*rho	0.092	0.002	1.800	0.017	4.051	0.026	2.422	0.012	0.02	0.02	0.141	0.141
CLASSO 0.1*rho	0.095	0.001	1.854	0.021	4.178	0.035	2.498	0.020	0.00	0.01	0.000	0.100
CSCAD 0.1*rho	0.095	0.002	1.843	0.022	4.155	0.038	2.483	0.020	0.03	0.01	0.171	0.100
CMCP 0.1*rho	0.094	0.002	1.843	0.023	4.153	0.037	2.483	0.020	0.08	0.00	0.273	0.000
PLASSO 0.1*rho	0.042	0.018	0.625	0.217	1.654	0.729	0.858	0.302	0.00	2.03	0.000	1.396
PSCAD1 0.1*rho	0.047	0.027	0.681	0.365	1.610	1.096	0.915	0.510	0.08	0.72	0.273	1.045
PSCAD2 0.1*rho	0.046	0.028	0.688	0.394	1.620	1.173	0.922	0.554	0.06	0.70	0.239	0.959
PSCAD3 0.1*rho	0.046	0.028	0.697	0.389	1.641	1.181	0.932	0.554	0.07	0.72	0.256	0.975
PMCP1 0.1*rho	0.046	0.027	0.678	0.372	1.599	1.085	0.908	0.515	0.06	0.74	0.239	1.001
PMCP2 0.1*rho	0.045	0.026	0.687	0.369	1.592	1.057	0.913	0.511	0.05	0.68	0.219	0.931
PMCP3 0.1*rho	0.044	0.027	0.689	0.385	1.608	1.153	0.917	0.545	0.05	0.73	0.219	0.941

relative\_ratio\_0.3

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.3*rho	0.276	0.004	1.809	0.018	4.072	0.024	2.435	0.014	0.00	0.00	0.000	0.000
FSCAD 0.3*rho	0.274	0.004	1.800	0.017	4.049	0.022	2.422	0.012	0.01	0.00	0.100	0.000

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FMCP 0.3*rho	0.275	0.005	1.800	0.017	4.049	0.022	2.422	0.012	0.02	0.00	0.141	0.000
CLASSO 0.3*rho	0.284	0.004	1.854	0.021	4.177	0.035	2.498	0.020	0.00	0.00	0.000	0.000
CSCAD 0.3*rho	0.284	0.007	1.843	0.022	4.154	0.037	2.483	0.020	0.03	0.00	0.171	0.000
CMCP 0.3*rho	0.283	0.007	1.843	0.023	4.153	0.037	2.483	0.020	0.08	0.00	0.273	0.000
PLASSO 0.3*rho	0.125	0.055	0.625	0.217	1.605	0.718	0.855	0.302	0.00	1.46	0.000	1.359
PSCAD1 0.3*rho	0.141	0.080	0.681	0.365	1.607	1.095	0.915	0.510	0.08	0.68	0.273	1.014
PSCAD2 0.3*rho	0.137	0.083	0.688	0.394	1.620	1.173	0.922	0.554	0.06	0.69	0.239	0.961
PSCAD3 0.3*rho	0.137	0.084	0.697	0.389	1.641	1.182	0.932	0.554	0.07	0.71	0.256	0.967
PMCP1 0.3*rho	0.137	0.080	0.678	0.372	1.597	1.085	0.908	0.515	0.06	0.71	0.239	0.977
PMCP2 0.3*rho	0.136	0.079	0.687	0.369	1.592	1.058	0.913	0.511	0.05	0.67	0.219	0.933
PMCP3 0.3*rho	0.133	0.080	0.689	0.385	1.607	1.153	0.917	0.545	0.05	0.72	0.219	0.944

relative\_ratio\_0.5

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.5*rho	0.460	0.006	1.809	0.018	4.072	0.024	2.435	0.014	0.00	0.00	0.000	0.000
FSCAD 0.5*rho	0.457	0.007	1.800	0.017	4.049	0.022	2.422	0.012	0.01	0.00	0.100	0.000
FMCP 0.5*rho	0.458	0.008	1.800	0.017	4.049	0.022	2.422	0.012	0.02	0.00	0.141	0.000
CLASSO 0.5*rho	0.473	0.007	1.854	0.021	4.177	0.035	2.498	0.020	0.00	0.00	0.000	0.000
CSCAD 0.5*rho	0.473	0.012	1.843	0.022	4.154	0.037	2.483	0.020	0.03	0.00	0.171	0.000
CMCP 0.5*rho	0.472	0.012	1.843	0.023	4.153	0.037	2.483	0.020	0.08	0.00	0.273	0.000
PLASSO 0.5*rho	0.209	0.091	0.625	0.217	1.540	0.681	0.848	0.298	0.00	1.11	0.000	1.222
PSCAD1 0.5*rho	0.234	0.134	0.681	0.365	1.593	1.059	0.914	0.507	0.08	0.65	0.273	0.947
PSCAD2 0.5*rho	0.229	0.139	0.688	0.394	1.608	1.145	0.920	0.550	0.06	0.67	0.239	0.933
PSCAD3 0.5*rho	0.228	0.139	0.697	0.389	1.629	1.154	0.930	0.550	0.07	0.69	0.256	0.940
PMCP1 0.5*rho	0.229	0.133	0.678	0.372	1.583	1.055	0.906	0.511	0.06	0.67	0.239	0.943
PMCP2 0.5*rho	0.226	0.132	0.687	0.369	1.578	1.023	0.911	0.507	0.05	0.64	0.219	0.894
PMCP3 0.5*rho	0.222	0.133	0.689	0.385	1.590	1.121	0.915	0.541	0.05	0.68	0.219	0.898

Mean difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.499	-1.809	-1.351	-0.912	0.004	0.000	0.001	0.001	0.000
FSCAD	0.499	-1.800	-1.346	-0.903	0.000	0.000	0.001	0.002	0.000
FMCP	0.499	-1.800	-1.346	-0.903	0.000	0.000	0.003	0.002	0.000
CLASSO	0.687	-1.854	-1.386	-0.937	0.006	0.000	-0.001	0.001	0.004
CSCAD	0.679	-1.843	-1.378	-0.933	0.006	-0.002	-0.001	0.001	0.003
CMCP	0.678	-1.843	-1.377	-0.933	0.005	0.000	-0.002	0.003	0.002
PLASSO	0.000	-0.274	-0.164	-0.245	0.063	0.013	-0.022	0.005	0.031
PSCAD1	0.000	0.183	0.211	-0.079	0.064	0.003	-0.020	0.022	0.012
PSCAD2	0.000	0.208	0.219	-0.034	0.082	-0.001	-0.033	0.027	-0.005
PSCAD3	0.000	0.227	0.219	-0.013	0.074	-0.002	-0.030	0.027	-0.005
PMCP1	0.000	0.183	0.206	-0.069	0.076	0.002	-0.022	0.022	0.016
PMCP2	0.000	0.211	0.207	-0.028	0.071	-0.003	-0.016	0.025	0.006
PMCP3	0.000	0.227	0.213	-0.004	0.076	0.005	-0.035	0.027	-0.005
FULL	0.499	-1.800	-1.347	-0.902	0.003	-0.001	-0.001	-0.001	0.002
COMPLETE	0.677	-1.843	-1.381	-0.924	0.005	0.000	-0.005	0.000	0.004
LOGISTIC	0.000	0.311	0.257	0.081	0.063	0.007	-0.058	0.030	-0.015

sd difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.024	0.018	0.021	0.019	0.013	0.015	0.013	0.022	0.018
FSCAD	0.024	0.017	0.021	0.023	0.012	0.014	0.013	0.020	0.015
FMCP	0.024	0.017	0.022	0.023	0.013	0.017	0.014	0.021	0.017
CLASSO	0.033	0.021	0.025	0.024	0.016	0.016	0.015	0.025	0.021
CSCAD	0.035	0.022	0.031	0.032	0.020	0.020	0.016	0.026	0.023
CMCP	0.032	0.023	0.031	0.032	0.020	0.021	0.017	0.025	0.024
PLASSO	0.000	0.415	0.373	0.330	0.210	0.191	0.214	0.222	0.267
PSCAD1	0.000	0.495	0.469	0.463	0.238	0.189	0.264	0.290	0.302
PSCAD2	0.000	0.531	0.476	0.439	0.242	0.210	0.292	0.265	0.321
PSCAD3	0.000	0.522	0.477	0.440	0.263	0.229	0.295	0.265	0.322
PMCP1	0.000	0.506	0.473	0.443	0.227	0.180	0.263	0.290	0.309
PMCP2	0.000	0.501	0.481	0.435	0.245	0.214	0.277	0.259	0.295
PMCP3	0.000	0.521	0.477	0.419	0.263	0.205	0.287	0.265	0.320
FULL	0.033	0.017	0.021	0.019	0.024	0.026	0.022	0.035	0.031
COMPLETE	0.040	0.021	0.025	0.024	0.027	0.027	0.023	0.038	0.037
LOGISTIC	0.000	0.536	0.488	0.422	0.393	0.377	0.379	0.541	0.568

```

beta : 2 1.5 1 0 0 0 0
intercept : 0
sample size : 400
simulation time : 100
loss_rate: 0.625
error_independent: TRUE
missing_method: y_single
missing_location: 1
lambda_location_for_cv(SCAD): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
lambda_location_for_cv(MCP): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
file_name: ./data/beta_2_1.5_1_n_400_lambda_location_l1_30_error_independent_TRUE_logistic_method_Fan_2011.Rdata
table_original

```

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO	0	0	1.765	0.016	4.023	0.043	2.378	0.016	0	2.49	0	1.527
FSCAD	0	0	1.753	0.017	3.955	0.039	2.359	0.015	0	0.71	0	1.057
FMCP	0	0	1.753	0.017	3.957	0.045	2.359	0.015	0	0.51	0	1.020
CLASSO	0	0	1.824	0.022	4.178	0.061	2.461	0.025	0	2.88	0	1.641
CSCAD	0	0	1.811	0.022	4.121	0.080	2.441	0.024	0	1.70	0	1.617
CMCP	0	0	1.810	0.022	4.119	0.084	2.440	0.025	0	1.26	0	1.773
PLASSO	0	0	0.552	0.204	1.542	0.628	0.771	0.272	0	2.74	0	1.390
PSCAD1	0	0	0.530	0.299	1.143	0.797	0.675	0.400	0	0.57	0	1.037
PSCAD2	0	0	0.552	0.313	1.196	0.815	0.706	0.412	0	0.62	0	1.052
PSCAD3	0	0	0.555	0.306	1.209	0.790	0.710	0.403	0	0.64	0	1.040
PMCP1	0	0	0.526	0.305	1.132	0.787	0.670	0.401	0	0.60	0	1.044
PMCP2	0	0	0.537	0.300	1.166	0.779	0.688	0.398	0	0.60	0	0.995
PMCP3	0	0	0.552	0.309	1.206	0.799	0.706	0.407	0	0.66	0	1.037

relative\_ratio\_0.05

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.05	0.05	NA	1.765	0.016	3.987	0.036	2.378	0.016	0	0.19	0	0.443

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FSCAD 0.05	0.05	NA	1.753	0.017	3.945	0.031	2.359	0.015	0	0.06	0	0.278
FMCP 0.05	0.05	NA	1.753	0.017	3.948	0.034	2.359	0.015	0	0.09	0	0.321
CLASSO 0.05	0.05	NA	1.824	0.022	4.130	0.051	2.460	0.025	0	0.26	0	0.485
CSCAD 0.05	0.05	NA	1.811	0.022	4.094	0.059	2.440	0.024	0	0.21	0	0.498
CMCP 0.05	0.05	NA	1.810	0.022	4.098	0.063	2.440	0.025	0	0.28	0	0.552
PLASSO 0.05	0.05	NA	0.552	0.204	1.532	0.629	0.771	0.272	0	2.29	0	1.452
PSCAD1 0.05	0.05	NA	0.530	0.299	1.142	0.797	0.675	0.400	0	0.56	0	1.028
PSCAD2 0.05	0.05	NA	0.552	0.313	1.196	0.815	0.706	0.412	0	0.61	0	1.034
PSCAD3 0.05	0.05	NA	0.555	0.306	1.209	0.789	0.710	0.402	0	0.63	0	1.022
PMCP1 0.05	0.05	NA	0.526	0.305	1.131	0.787	0.670	0.401	0	0.58	0	1.017
PMCP2 0.05	0.05	NA	0.537	0.300	1.166	0.779	0.688	0.398	0	0.60	0	0.995
PMCP3 0.05	0.05	NA	0.552	0.309	1.206	0.798	0.706	0.407	0	0.65	0	1.019

relative\_ratio\_0.1

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.1*rho	0.090	0.001	1.765	0.016	3.976	0.030	2.378	0.016	0	0.01	0	0.100
FSCAD 0.1*rho	0.089	0.001	1.753	0.017	3.941	0.027	2.358	0.015	0	0.00	0	0.000
FMCP 0.1*rho	0.089	0.001	1.753	0.017	3.943	0.028	2.359	0.015	0	0.01	0	0.100
CLASSO 0.1*rho	0.093	0.001	1.824	0.022	4.115	0.044	2.460	0.025	0	0.01	0	0.100
CSCAD 0.1*rho	0.092	0.002	1.811	0.022	4.082	0.046	2.440	0.024	0	0.02	0	0.141
CMCP 0.1*rho	0.092	0.001	1.810	0.022	4.081	0.047	2.440	0.025	0	0.02	0	0.141
PLASSO 0.1*rho	0.035	0.012	0.552	0.204	1.536	0.627	0.771	0.272	0	2.41	0	1.436
PSCAD1 0.1*rho	0.031	0.018	0.530	0.299	1.143	0.797	0.675	0.400	0	0.57	0	1.037
PSCAD2 0.1*rho	0.032	0.019	0.552	0.313	1.196	0.815	0.706	0.412	0	0.62	0	1.052
PSCAD3 0.1*rho	0.032	0.018	0.555	0.306	1.209	0.790	0.710	0.403	0	0.64	0	1.040
PMCP1 0.1*rho	0.031	0.018	0.526	0.305	1.132	0.787	0.670	0.401	0	0.60	0	1.044
PMCP2 0.1*rho	0.031	0.018	0.537	0.300	1.166	0.779	0.688	0.398	0	0.60	0	0.995
PMCP3 0.1*rho	0.032	0.019	0.552	0.309	1.206	0.798	0.706	0.407	0	0.65	0	1.019

relative\_ratio\_0.3

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.3*rho	0.269	0.003	1.765	0.016	3.975	0.030	2.378	0.016	0	0.00	0	0.000
FSCAD 0.3*rho	0.266	0.003	1.753	0.017	3.941	0.027	2.358	0.015	0	0.00	0	0.000

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FMCP 0.3*rho	0.267	0.003	1.753	0.017	3.942	0.028	2.359	0.015	0	0.00	0	0.000
CLASSO 0.3*rho	0.278	0.004	1.824	0.022	4.114	0.044	2.460	0.025	0	0.00	0	0.000
CSCAD 0.3*rho	0.276	0.005	1.811	0.022	4.080	0.044	2.440	0.024	0	0.00	0	0.000
CMCP 0.3*rho	0.276	0.004	1.810	0.022	4.079	0.044	2.440	0.025	0	0.00	0	0.000
PLASSO 0.3*rho	0.104	0.037	0.552	0.204	1.493	0.625	0.769	0.272	0	1.83	0	1.457
PSCAD1 0.3*rho	0.094	0.053	0.530	0.299	1.142	0.797	0.675	0.400	0	0.55	0	1.009
PSCAD2 0.3*rho	0.096	0.056	0.552	0.313	1.196	0.815	0.706	0.412	0	0.61	0	1.034
PSCAD3 0.3*rho	0.095	0.055	0.555	0.306	1.209	0.789	0.710	0.402	0	0.63	0	1.022
PMCP1 0.3*rho	0.094	0.054	0.526	0.305	1.129	0.785	0.670	0.401	0	0.56	0	1.008
PMCP2 0.3*rho	0.094	0.053	0.537	0.300	1.165	0.778	0.688	0.398	0	0.59	0	0.986
PMCP3 0.3*rho	0.095	0.056	0.552	0.309	1.206	0.798	0.706	0.407	0	0.65	0	1.019

relative\_ratio\_0.5

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.5*rho	0.448	0.006	1.765	0.016	3.975	0.030	2.378	0.016	0	0.00	0	0.000
FSCAD 0.5*rho	0.444	0.005	1.753	0.017	3.941	0.027	2.358	0.015	0	0.00	0	0.000
FMCP 0.5*rho	0.444	0.006	1.753	0.017	3.942	0.028	2.359	0.015	0	0.00	0	0.000
CLASSO 0.5*rho	0.464	0.007	1.824	0.022	4.114	0.044	2.460	0.025	0	0.00	0	0.000
CSCAD 0.5*rho	0.461	0.009	1.811	0.022	4.080	0.044	2.440	0.024	0	0.00	0	0.000
CMCP 0.5*rho	0.460	0.007	1.810	0.022	4.079	0.044	2.440	0.025	0	0.00	0	0.000
PLASSO 0.5*rho	0.173	0.062	0.552	0.204	1.417	0.629	0.761	0.273	0	1.29	0	1.472
PSCAD1 0.5*rho	0.156	0.088	0.530	0.299	1.128	0.780	0.674	0.397	0	0.50	0	0.990
PSCAD2 0.5*rho	0.160	0.093	0.552	0.313	1.186	0.801	0.704	0.410	0	0.58	0	1.027
PSCAD3 0.5*rho	0.158	0.091	0.555	0.306	1.201	0.777	0.709	0.401	0	0.61	0	1.014
PMCP1 0.5*rho	0.156	0.090	0.526	0.305	1.121	0.776	0.669	0.399	0	0.53	0	1.000
PMCP2 0.5*rho	0.157	0.089	0.537	0.300	1.156	0.765	0.686	0.396	0	0.56	0	0.978
PMCP3 0.5*rho	0.159	0.093	0.552	0.309	1.198	0.786	0.705	0.406	0	0.63	0	1.012



Mean difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.500	-1.765	-1.323	-0.888	-0.002	0.000	0.001	-0.003	0.002
FSCAD	0.500	-1.753	-1.311	-0.878	-0.001	0.001	0.001	-0.002	0.001
FMCP	0.499	-1.753	-1.311	-0.878	0.000	0.000	0.000	-0.001	0.001
CLASSO	0.712	-1.824	-1.372	-0.918	-0.002	0.000	-0.001	-0.003	-0.005
CSCAD	0.704	-1.811	-1.359	-0.910	-0.002	-0.001	0.000	-0.004	-0.003
CMCP	0.704	-1.810	-1.360	-0.909	-0.002	0.000	-0.002	-0.001	-0.007
PLASSO	0.000	-0.269	-0.243	-0.194	-0.029	-0.014	-0.018	-0.022	-0.041
PSCAD1	0.000	0.155	0.079	0.012	-0.021	-0.012	0.002	-0.033	-0.038
PSCAD2	0.000	0.188	0.107	0.048	-0.020	-0.016	0.002	-0.037	-0.032
PSCAD3	0.000	0.204	0.122	0.067	-0.016	-0.019	-0.002	-0.029	-0.023
PMCP1	0.000	0.144	0.067	0.000	-0.016	-0.016	-0.002	-0.037	-0.033
PMCP2	0.000	0.182	0.102	0.039	-0.016	-0.018	-0.003	-0.029	-0.017
PMCP3	0.000	0.198	0.118	0.059	-0.014	-0.017	-0.002	-0.029	-0.023
FULL	0.500	-1.753	-1.311	-0.877	-0.004	0.000	0.002	-0.005	0.003
COMPLETE	0.706	-1.810	-1.359	-0.906	-0.003	-0.001	-0.004	-0.006	-0.006
LOGISTIC	0.000	0.287	0.186	0.129	-0.048	-0.019	-0.033	-0.070	-0.086

sd difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.031	0.016	0.020	0.019	0.012	0.014	0.012	0.023	0.026
FSCAD	0.021	0.017	0.018	0.019	0.009	0.010	0.007	0.013	0.011
FMCP	0.022	0.017	0.018	0.020	0.008	0.011	0.007	0.015	0.016
CLASSO	0.036	0.022	0.023	0.021	0.015	0.017	0.014	0.027	0.030
CSCAD	0.035	0.022	0.021	0.026	0.013	0.015	0.014	0.023	0.027
CMCP	0.034	0.022	0.022	0.023	0.014	0.015	0.012	0.025	0.027
PLASSO	0.000	0.366	0.337	0.241	0.155	0.158	0.148	0.223	0.274
PSCAD1	0.000	0.406	0.366	0.297	0.154	0.156	0.137	0.226	0.287
PSCAD2	0.000	0.404	0.375	0.296	0.173	0.168	0.154	0.243	0.295
PSCAD3	0.000	0.405	0.361	0.290	0.176	0.176	0.157	0.230	0.300
PMCP1	0.000	0.404	0.371	0.295	0.147	0.158	0.141	0.240	0.273
PMCP2	0.000	0.408	0.362	0.294	0.171	0.174	0.150	0.230	0.263
PMCP3	0.000	0.405	0.359	0.296	0.172	0.177	0.158	0.230	0.300
FULL	0.037	0.017	0.018	0.019	0.018	0.021	0.019	0.034	0.038
COMPLETE	0.041	0.022	0.022	0.020	0.021	0.023	0.021	0.038	0.042
LOGISTIC	0.000	0.414	0.367	0.289	0.274	0.263	0.263	0.477	0.527

```

beta : 3 1.5 0.5 0 0 0 0
intercept : 0
sample size : 200
simulation time : 100
loss_rate: 0.625
error_independent: FALSE
missing_method: y_single
missing_location: 1
lambda_location_for_cv(SCAD): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
lambda_location_for_cv(MCP): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
file_name: ./data/beta_3_1.5_0.5_n_200_lambda_location_l1_30_error_independent_FALSE_logistic_method_Fan_2011.Rdata
table_original

```

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO	0	0	2.744	0.024	4.643	0.056	3.108	0.019	0.18	1.71	0.386	1.479
FSCAD	0	0	2.729	0.025	4.611	0.072	3.088	0.018	0.44	1.29	0.499	1.499
FMCP	0	0	2.729	0.025	4.618	0.080	3.088	0.019	0.55	1.17	0.500	1.570
CLASSO	0	0	2.798	0.034	4.736	0.066	3.171	0.029	0.36	1.82	0.482	1.431
CSCAD	0	0	2.773	0.037	4.712	0.085	3.147	0.029	0.53	1.53	0.611	1.521
CMCP	0	0	2.774	0.038	4.709	0.088	3.148	0.030	0.67	1.23	0.587	1.556
PLASSO	0	0	1.093	0.530	2.839	1.708	1.481	0.733	0.20	2.37	0.402	1.600
PSCAD1	0	0	1.533	1.414	3.275	3.426	1.927	1.818	0.62	0.61	0.546	0.973
PSCAD2	0	0	1.605	1.433	3.459	3.508	2.025	1.856	0.66	0.63	0.517	0.981
PSCAD3	0	0	1.647	1.416	3.556	3.457	2.080	1.832	0.66	0.70	0.536	1.000
PMCP1	0	0	1.498	1.415	3.200	3.476	1.887	1.839	0.62	0.55	0.565	0.892
PMCP2	0	0	1.564	1.442	3.430	3.576	1.989	1.878	0.67	0.66	0.514	1.027
PMCP3	0	0	1.631	1.417	3.617	3.601	2.089	1.865	0.64	0.72	0.523	1.055

relative\_ratio\_0.05

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.05	0.05	NA	2.744	0.024	4.616	0.046	3.108	0.019	0.18	0.34	0.386	0.685

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FSCAD 0.05	0.05	NA	2.729	0.025	4.593	0.055	3.088	0.018	0.44	0.35	0.499	0.770
FMCP 0.05	0.05	NA	2.729	0.025	4.601	0.061	3.088	0.019	0.55	0.49	0.500	0.823
CLASSO 0.05	0.05	NA	2.798	0.034	4.703	0.051	3.170	0.029	0.36	0.27	0.482	0.548
CSCAD 0.05	0.05	NA	2.773	0.037	4.689	0.071	3.147	0.029	0.53	0.43	0.611	0.807
CMCP 0.05	0.05	NA	2.774	0.038	4.688	0.074	3.148	0.030	0.67	0.42	0.587	0.768
PLASSO 0.05	0.05	NA	1.093	0.530	2.830	1.709	1.481	0.733	0.20	2.06	0.402	1.569
PSCAD1 0.05	0.05	NA	1.533	1.414	3.275	3.426	1.927	1.818	0.62	0.60	0.546	0.964
PSCAD2 0.05	0.05	NA	1.605	1.433	3.459	3.508	2.025	1.856	0.66	0.62	0.517	0.972
PSCAD3 0.05	0.05	NA	1.647	1.416	3.556	3.457	2.080	1.832	0.66	0.69	0.536	0.992
PMCP1 0.05	0.05	NA	1.498	1.415	3.200	3.476	1.887	1.839	0.62	0.55	0.565	0.892
PMCP2 0.05	0.05	NA	1.564	1.442	3.430	3.576	1.989	1.878	0.67	0.65	0.514	1.019
PMCP3 0.05	0.05	NA	1.631	1.417	3.617	3.601	2.089	1.865	0.64	0.71	0.523	1.047

relative\_ratio\_0.1

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.1*rho	0.096	0.003	2.744	0.024	4.594	0.036	3.107	0.019	0.18	0.02	0.386	0.141
FSCAD 0.1*rho	0.097	0.003	2.729	0.025	4.572	0.038	3.088	0.018	0.44	0.05	0.499	0.219
FMCP 0.1*rho	0.097	0.004	2.729	0.025	4.575	0.042	3.088	0.019	0.55	0.09	0.500	0.288
CLASSO 0.1*rho	0.097	0.003	2.798	0.034	4.686	0.046	3.170	0.029	0.36	0.02	0.482	0.141
CSCAD 0.1*rho	0.098	0.002	2.773	0.037	4.664	0.048	3.147	0.029	0.53	0.06	0.611	0.239
CMCP 0.1*rho	0.098	0.002	2.774	0.038	4.663	0.050	3.147	0.030	0.67	0.05	0.587	0.219
PLASSO 0.1*rho	0.084	0.049	1.093	0.530	2.813	1.695	1.480	0.732	0.20	1.90	0.402	1.554
PSCAD1 0.1*rho	0.125	0.084	1.533	1.414	3.275	3.426	1.927	1.818	0.62	0.60	0.546	0.964
PSCAD2 0.1*rho	0.129	0.084	1.605	1.433	3.458	3.508	2.025	1.856	0.66	0.61	0.517	0.952
PSCAD3 0.1*rho	0.129	0.086	1.647	1.416	3.555	3.458	2.080	1.832	0.66	0.68	0.536	0.973
PMCP1 0.1*rho	0.125	0.085	1.498	1.415	3.198	3.476	1.887	1.839	0.62	0.54	0.565	0.881
PMCP2 0.1*rho	0.129	0.085	1.564	1.442	3.429	3.576	1.989	1.878	0.67	0.64	0.514	1.000
PMCP3 0.1*rho	0.134	0.093	1.631	1.417	3.616	3.602	2.089	1.865	0.64	0.70	0.523	1.030

relative\_ratio\_0.3

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.3*rho	0.287	0.010	2.744	0.024	4.592	0.036	3.107	0.019	0.18	0.00	0.386	0.000
FSCAD 0.3*rho	0.292	0.010	2.729	0.025	4.566	0.034	3.087	0.018	0.44	0.00	0.499	0.000

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FMCP 0.3*rho	0.291	0.011	2.729	0.025	4.564	0.035	3.088	0.019	0.55	0.00	0.500	0.000
CLASSO 0.3*rho	0.292	0.008	2.798	0.034	4.684	0.044	3.170	0.029	0.36	0.00	0.482	0.000
CSCAD 0.3*rho	0.295	0.007	2.773	0.037	4.657	0.049	3.147	0.029	0.53	0.00	0.611	0.000
CMCP 0.3*rho	0.295	0.007	2.774	0.038	4.657	0.050	3.147	0.030	0.67	0.00	0.587	0.000
PLASSO 0.3*rho	0.253	0.147	1.093	0.530	2.701	1.676	1.470	0.732	0.20	1.31	0.402	1.468
PSCAD1 0.3*rho	0.376	0.251	1.533	1.414	3.212	3.272	1.921	1.804	0.62	0.52	0.546	0.870
PSCAD2 0.3*rho	0.388	0.253	1.605	1.433	3.405	3.379	2.020	1.843	0.66	0.54	0.517	0.869
PSCAD3 0.3*rho	0.388	0.257	1.647	1.416	3.504	3.327	2.075	1.819	0.66	0.62	0.536	0.896
PMCP1 0.3*rho	0.375	0.256	1.498	1.415	3.150	3.344	1.882	1.827	0.62	0.48	0.565	0.810
PMCP2 0.3*rho	0.388	0.255	1.564	1.442	3.362	3.428	1.982	1.865	0.67	0.55	0.514	0.869
PMCP3 0.3*rho	0.401	0.280	1.631	1.417	3.549	3.453	2.082	1.851	0.64	0.62	0.523	0.930

relative\_ratio\_0.5

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.5*rho	0.479	0.016	2.744	0.024	4.592	0.036	3.107	0.019	0.18	0.00	0.386	0.000
FSCAD 0.5*rho	0.486	0.016	2.729	0.025	4.566	0.034	3.087	0.018	0.44	0.00	0.499	0.000
FMCP 0.5*rho	0.484	0.018	2.729	0.025	4.564	0.035	3.088	0.019	0.55	0.00	0.500	0.000
CLASSO 0.5*rho	0.487	0.013	2.798	0.034	4.684	0.044	3.170	0.029	0.36	0.00	0.482	0.000
CSCAD 0.5*rho	0.491	0.012	2.773	0.037	4.657	0.049	3.147	0.029	0.53	0.00	0.611	0.000
CMCP 0.5*rho	0.492	0.012	2.774	0.038	4.657	0.050	3.147	0.030	0.67	0.00	0.587	0.000
PLASSO 0.5*rho	0.422	0.246	1.093	0.530	2.544	1.492	1.447	0.705	0.20	0.96	0.402	1.317
PSCAD1 0.5*rho	0.627	0.418	1.533	1.414	3.099	3.110	1.903	1.780	0.62	0.37	0.546	0.691
PSCAD2 0.5*rho	0.646	0.422	1.605	1.433	3.296	3.174	2.004	1.815	0.66	0.44	0.517	0.783
PSCAD3 0.5*rho	0.646	0.428	1.647	1.416	3.388	3.127	2.058	1.792	0.66	0.50	0.536	0.810
PMCP1 0.5*rho	0.625	0.427	1.498	1.415	3.040	3.147	1.865	1.800	0.62	0.36	0.565	0.704
PMCP2 0.5*rho	0.647	0.425	1.564	1.442	3.235	3.217	1.964	1.836	0.67	0.42	0.514	0.768
PMCP3 0.5*rho	0.668	0.466	1.631	1.417	3.409	3.216	2.062	1.820	0.64	0.48	0.523	0.822

Mean difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.494	-2.744	-1.380	-0.468	0.000	0.001	0.001	0.005	0.003
FSCAD	0.495	-2.729	-1.364	-0.474	-0.002	0.000	0.000	0.006	0.001
FMCP	0.492	-2.729	-1.365	-0.470	-0.003	-0.001	0.001	0.010	0.002
CLASSO	0.675	-2.798	-1.412	-0.473	0.004	0.000	0.001	0.004	0.000
CSCAD	0.663	-2.773	-1.408	-0.476	0.004	0.000	0.001	0.004	0.003
CMCP	0.667	-2.774	-1.407	-0.476	0.003	-0.001	0.000	0.003	-0.002
PLASSO	0.000	-0.204	-0.294	-0.075	0.069	-0.022	0.042	0.090	0.021
PSCAD1	0.000	0.941	0.203	-0.044	0.005	0.003	0.060	0.070	0.091
PSCAD2	0.000	1.053	0.325	-0.038	-0.009	-0.011	0.083	0.081	0.098
PSCAD3	0.000	1.108	0.376	-0.030	-0.005	-0.025	0.072	0.064	0.111
PMCP1	0.000	0.930	0.185	-0.035	0.016	-0.005	0.043	0.088	0.103
PMCP2	0.000	1.000	0.244	-0.039	0.001	-0.003	0.050	0.068	0.118
PMCP3	0.000	1.094	0.341	0.014	0.012	-0.017	0.059	0.075	0.109
FULL	0.494	-2.729	-1.371	-0.454	-0.002	-0.002	0.000	0.007	0.000
COMPLETE	0.661	-2.780	-1.399	-0.460	0.000	-0.001	0.000	0.006	-0.001
LOGISTIC	0.000	7.837	4.271	2.817	-0.683	0.980	-0.079	-1.436	-3.987

sd difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.030	0.024	0.029	0.029	0.016	0.015	0.019	0.031	0.027
FSCAD	0.031	0.025	0.037	0.035	0.020	0.015	0.020	0.032	0.027
FMCP	0.034	0.025	0.034	0.037	0.020	0.019	0.022	0.037	0.030
CLASSO	0.041	0.034	0.032	0.029	0.016	0.019	0.016	0.026	0.029
CSCAD	0.042	0.037	0.051	0.035	0.021	0.023	0.019	0.030	0.032
CMCP	0.042	0.038	0.049	0.037	0.020	0.024	0.019	0.029	0.032
PLASSO	0.000	1.035	0.587	0.464	0.362	0.231	0.305	0.554	0.621
PSCAD1	0.000	1.691	1.089	0.697	0.406	0.260	0.390	0.591	0.912
PSCAD2	0.000	1.698	1.125	0.712	0.425	0.275	0.430	0.597	0.939
PSCAD3	0.000	1.672	1.130	0.714	0.426	0.290	0.439	0.622	0.944
PMCP1	0.000	1.690	1.080	0.699	0.416	0.258	0.388	0.574	0.904
PMCP2	0.000	1.709	1.125	0.716	0.409	0.283	0.402	0.639	0.956
PMCP3	0.000	1.696	1.125	0.760	0.456	0.300	0.439	0.666	0.939
FULL	0.042	0.025	0.031	0.032	0.032	0.030	0.031	0.052	0.049
COMPLETE	0.054	0.034	0.035	0.036	0.032	0.036	0.033	0.051	0.056
LOGISTIC	0.000	56.831	35.068	24.320	7.244	10.895	2.124	16.761	41.405

```

beta : 3 1.5 0.5 0 0 0 0
intercept : 0
sample size : 200
simulation time : 100
loss_rate: 0.625
error_independent: TRUE
missing_method: y_single
missing_location: 1
lambda_location_for_cv(SCAD): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
lambda_location_for_cv(MCP): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
file_name: ./data/beta_3_1.5_0.5_n_200_lambda_location_l1_30_error_independent_TRUE_logistic_method_Fan_2011.Rdata
table_original

```

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO	0	0	2.700	0.022	4.584	0.062	3.060	0.024	0.13	2.16	0.338	1.581
FSCAD	0	0	2.681	0.021	4.523	0.058	3.036	0.021	0.31	1.01	0.465	1.159
FMCP	0	0	2.681	0.022	4.527	0.067	3.037	0.021	0.38	0.70	0.488	1.150
CLASSO	0	0	2.775	0.035	4.721	0.074	3.146	0.039	0.36	2.31	0.482	1.542
CSCAD	0	0	2.751	0.033	4.663	0.088	3.118	0.036	0.43	1.49	0.517	1.467
CMCP	0	0	2.751	0.033	4.663	0.098	3.118	0.037	0.50	1.03	0.503	1.473
PLASSO	0	0	0.996	0.422	2.422	1.096	1.303	0.506	0.22	2.37	0.416	1.515
PSCAD1	0	0	1.123	0.736	2.327	1.569	1.376	0.850	0.53	0.77	0.521	1.062
PSCAD2	0	0	1.276	0.924	2.654	1.977	1.564	1.092	0.55	0.75	0.539	1.086
PSCAD3	0	0	1.255	0.888	2.657	1.932	1.553	1.052	0.60	0.77	0.550	1.053
PMCP1	0	0	1.105	0.715	2.304	1.530	1.358	0.825	0.55	0.79	0.520	1.038
PMCP2	0	0	1.198	0.789	2.520	1.748	1.478	0.927	0.57	0.72	0.555	1.055
PMCP3	0	0	1.237	0.865	2.562	1.795	1.511	0.990	0.58	0.73	0.535	1.053

relative\_ratio\_0.05

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.05	0.05	NA	2.700	0.022	4.550	0.055	3.060	0.024	0.13	0.32	0.338	0.530

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FSCAD 0.05	0.05	NA	2.681	0.021	4.510	0.053	3.036	0.021	0.31	0.17	0.465	0.473
FMCP 0.05	0.05	NA	2.681	0.022	4.515	0.059	3.037	0.021	0.38	0.22	0.488	0.543
CLASSO 0.05	0.05	NA	2.775	0.035	4.682	0.076	3.145	0.039	0.36	0.39	0.482	0.634
CSCAD 0.05	0.05	NA	2.751	0.033	4.642	0.076	3.118	0.036	0.43	0.34	0.517	0.623
CMCP 0.05	0.05	NA	2.751	0.033	4.645	0.089	3.118	0.037	0.50	0.37	0.503	0.720
PLASSO 0.05	0.05	NA	0.996	0.422	2.414	1.099	1.302	0.506	0.22	2.01	0.416	1.554
PSCAD1 0.05	0.05	NA	1.123	0.736	2.327	1.569	1.376	0.850	0.53	0.75	0.521	1.038
PSCAD2 0.05	0.05	NA	1.276	0.924	2.654	1.977	1.564	1.092	0.55	0.74	0.539	1.060
PSCAD3 0.05	0.05	NA	1.255	0.888	2.657	1.932	1.553	1.052	0.60	0.77	0.550	1.053
PMCP1 0.05	0.05	NA	1.105	0.715	2.303	1.529	1.358	0.825	0.55	0.73	0.520	0.993
PMCP2 0.05	0.05	NA	1.198	0.789	2.520	1.748	1.478	0.927	0.57	0.72	0.555	1.055
PMCP3 0.05	0.05	NA	1.237	0.865	2.562	1.795	1.511	0.990	0.58	0.73	0.535	1.053

relative\_ratio\_0.1

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.1*rho	0.094	0.004	2.700	0.022	4.536	0.053	3.060	0.024	0.13	0.08	0.338	0.273
FSCAD 0.1*rho	0.095	0.004	2.681	0.021	4.503	0.047	3.036	0.021	0.31	0.06	0.465	0.239
FMCP 0.1*rho	0.095	0.005	2.681	0.022	4.505	0.053	3.037	0.021	0.38	0.07	0.488	0.256
CLASSO 0.1*rho	0.097	0.003	2.775	0.035	4.661	0.075	3.145	0.039	0.36	0.07	0.482	0.256
CSCAD 0.1*rho	0.097	0.003	2.751	0.033	4.625	0.069	3.118	0.036	0.43	0.08	0.517	0.273
CMCP 0.1*rho	0.097	0.004	2.751	0.033	4.629	0.076	3.118	0.037	0.50	0.12	0.503	0.327
PLASSO 0.1*rho	0.073	0.033	0.996	0.422	2.402	1.100	1.302	0.506	0.22	1.87	0.416	1.548
PSCAD1 0.1*rho	0.087	0.036	1.123	0.736	2.325	1.568	1.376	0.849	0.53	0.74	0.521	1.031
PSCAD2 0.1*rho	0.094	0.043	1.276	0.924	2.652	1.977	1.564	1.092	0.55	0.73	0.539	1.053
PSCAD3 0.1*rho	0.094	0.037	1.255	0.888	2.655	1.932	1.553	1.052	0.60	0.76	0.550	1.046
PMCP1 0.1*rho	0.088	0.036	1.105	0.715	2.302	1.528	1.358	0.825	0.55	0.72	0.520	0.986
PMCP2 0.1*rho	0.093	0.041	1.198	0.789	2.518	1.747	1.478	0.927	0.57	0.71	0.555	1.047
PMCP3 0.1*rho	0.095	0.043	1.237	0.865	2.560	1.794	1.511	0.990	0.58	0.72	0.535	1.045

relative\_ratio\_0.3

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.3*rho	0.283	0.011	2.700	0.022	4.527	0.048	3.060	0.024	0.13	0.00	0.338	0.000
FSCAD 0.3*rho	0.286	0.012	2.681	0.021	4.496	0.043	3.036	0.021	0.31	0.00	0.465	0.000

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FMCP 0.3*rho	0.286	0.014	2.681	0.022	4.497	0.046	3.037	0.021	0.38	0.00	0.488	0.000
CLASSO 0.3*rho	0.291	0.010	2.775	0.035	4.653	0.067	3.145	0.039	0.36	0.00	0.482	0.000
CSCAD 0.3*rho	0.292	0.010	2.751	0.033	4.615	0.065	3.118	0.036	0.43	0.00	0.517	0.000
CMCP 0.3*rho	0.291	0.011	2.751	0.033	4.614	0.067	3.117	0.037	0.50	0.00	0.503	0.000
PLASSO 0.3*rho	0.220	0.100	0.996	0.422	2.306	1.090	1.294	0.510	0.22	1.25	0.416	1.438
PSCAD1 0.3*rho	0.262	0.109	1.123	0.736	2.309	1.558	1.374	0.849	0.53	0.68	0.521	0.984
PSCAD2 0.3*rho	0.283	0.130	1.276	0.924	2.636	1.966	1.562	1.092	0.55	0.69	0.539	1.012
PSCAD3 0.3*rho	0.282	0.110	1.255	0.888	2.633	1.916	1.550	1.051	0.60	0.71	0.550	0.998
PMCP1 0.3*rho	0.265	0.109	1.105	0.715	2.281	1.504	1.356	0.823	0.55	0.66	0.520	0.924
PMCP2 0.3*rho	0.278	0.123	1.198	0.789	2.501	1.730	1.476	0.926	0.57	0.67	0.555	0.995
PMCP3 0.3*rho	0.285	0.130	1.237	0.865	2.539	1.776	1.508	0.989	0.58	0.67	0.535	0.995

relative\_ratio\_0.5

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.5*rho	0.471	0.018	2.700	0.022	4.527	0.048	3.060	0.024	0.13	0.00	0.338	0.000
FSCAD 0.5*rho	0.477	0.021	2.681	0.021	4.496	0.043	3.036	0.021	0.31	0.00	0.465	0.000
FMCP 0.5*rho	0.477	0.023	2.681	0.022	4.497	0.046	3.037	0.021	0.38	0.00	0.488	0.000
CLASSO 0.5*rho	0.485	0.017	2.775	0.035	4.653	0.067	3.145	0.039	0.36	0.00	0.482	0.000
CSCAD 0.5*rho	0.486	0.017	2.751	0.033	4.615	0.065	3.118	0.036	0.43	0.00	0.517	0.000
CMCP 0.5*rho	0.485	0.018	2.751	0.033	4.614	0.067	3.117	0.037	0.50	0.00	0.503	0.000
PLASSO 0.5*rho	0.367	0.166	0.996	0.422	2.157	1.006	1.271	0.509	0.22	0.79	0.416	1.200
PSCAD1 0.5*rho	0.436	0.182	1.123	0.736	2.225	1.502	1.358	0.848	0.53	0.52	0.521	0.904
PSCAD2 0.5*rho	0.471	0.216	1.276	0.924	2.560	1.896	1.549	1.087	0.55	0.57	0.539	0.902
PSCAD3 0.5*rho	0.470	0.184	1.255	0.888	2.549	1.848	1.534	1.047	0.60	0.58	0.550	0.901
PMCP1 0.5*rho	0.442	0.182	1.105	0.715	2.216	1.458	1.343	0.821	0.55	0.54	0.520	0.834
PMCP2 0.5*rho	0.464	0.205	1.198	0.789	2.413	1.640	1.460	0.919	0.57	0.53	0.555	0.881
PMCP3 0.5*rho	0.476	0.217	1.237	0.865	2.462	1.700	1.494	0.984	0.58	0.55	0.535	0.892



Mean difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.496	-2.700	-1.362	-0.465	0.000	-0.001	0.000	0.002	0.003
FSCAD	0.497	-2.681	-1.345	-0.470	0.000	0.000	0.002	0.001	0.001
FMCP	0.497	-2.681	-1.346	-0.470	0.000	-0.001	0.002	0.001	0.000
CLASSO	0.690	-2.775	-1.401	-0.477	0.004	0.001	0.002	0.002	0.006
CSCAD	0.681	-2.751	-1.386	-0.478	0.002	-0.001	0.002	0.002	0.001
CMCP	0.682	-2.751	-1.385	-0.478	0.004	0.000	0.001	0.001	0.000
PLASSO	0.000	-0.523	-0.349	-0.231	0.025	0.006	0.022	0.016	0.031
PSCAD1	0.000	0.411	0.115	-0.163	0.002	-0.003	0.028	-0.028	0.091
PSCAD2	0.000	0.578	0.214	-0.135	-0.006	-0.011	0.025	-0.010	0.061
PSCAD3	0.000	0.569	0.210	-0.158	0.001	-0.010	0.015	-0.028	0.062
PMCP1	0.000	0.408	0.116	-0.174	0.005	0.000	0.031	-0.028	0.077
PMCP2	0.000	0.489	0.150	-0.153	0.000	-0.012	0.029	-0.025	0.095
PMCP3	0.000	0.553	0.202	-0.137	-0.006	-0.005	0.031	-0.028	0.096
FULL	0.495	-2.681	-1.344	-0.448	0.000	0.000	0.002	0.000	0.006
COMPLETE	0.674	-2.750	-1.378	-0.462	0.003	0.002	0.002	0.002	0.010
LOGISTIC	0.000	1.173	0.539	0.089	0.065	0.020	0.046	-0.021	0.138

sd difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.029	0.022	0.026	0.026	0.013	0.016	0.017	0.032	0.032
FSCAD	0.024	0.021	0.025	0.031	0.009	0.012	0.012	0.026	0.027
FMCP	0.026	0.022	0.027	0.032	0.012	0.013	0.015	0.027	0.028
CLASSO	0.047	0.035	0.031	0.026	0.015	0.016	0.020	0.036	0.037
CSCAD	0.044	0.033	0.039	0.029	0.014	0.014	0.022	0.031	0.035
CMCP	0.044	0.033	0.038	0.029	0.015	0.015	0.020	0.037	0.036
PLASSO	0.000	0.826	0.482	0.312	0.211	0.277	0.238	0.399	0.406
PSCAD1	0.000	1.058	0.603	0.437	0.241	0.279	0.320	0.441	0.554
PSCAD2	0.000	1.243	0.690	0.492	0.265	0.313	0.326	0.524	0.668
PSCAD3	0.000	1.200	0.707	0.471	0.283	0.321	0.330	0.481	0.676
PMCP1	0.000	1.021	0.599	0.439	0.254	0.264	0.315	0.454	0.537
PMCP2	0.000	1.115	0.673	0.478	0.269	0.313	0.326	0.491	0.570
PMCP3	0.000	1.169	0.669	0.497	0.272	0.317	0.327	0.482	0.575
FULL	0.039	0.022	0.024	0.026	0.024	0.024	0.026	0.051	0.051
COMPLETE	0.057	0.034	0.029	0.031	0.029	0.026	0.029	0.058	0.060
LOGISTIC	0.000	1.929	0.860	0.531	0.479	0.583	0.506	1.121	1.267

```

beta : 3 1.5 0.5 0 0 0 0
intercept : 0
sample size : 400
simulation time : 100
loss_rate: 0.625
error_independent: FALSE
missing_method: y_single
missing_location: 1
lambda_location_for_cv(SCAD): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
lambda_location_for_cv(MCP): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
file_name: ./data/beta_3_1.5_0.5_n_400_lambda_location_l1_30_error_independent_FALSE_logistic_method_Fan_2011.Rdata
table_original

```

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO	0	0	2.744	0.021	4.619	0.042	3.104	0.015	0.06	1.90	0.239	1.642
FSCAD	0	0	2.735	0.020	4.597	0.056	3.091	0.014	0.38	1.19	0.488	1.562
FMCP	0	0	2.735	0.020	4.595	0.049	3.091	0.013	0.45	0.99	0.500	1.521
CLASSO	0	0	2.804	0.026	4.718	0.048	3.172	0.022	0.23	1.52	0.423	1.337
CSCAD	0	0	2.788	0.026	4.689	0.057	3.154	0.021	0.43	1.18	0.498	1.298
CMCP	0	0	2.789	0.026	4.689	0.058	3.154	0.021	0.55	0.94	0.500	1.434
PLASSO	0	0	0.807	0.307	1.969	0.689	1.055	0.341	0.11	2.36	0.314	1.586
PSCAD1	0	0	0.829	0.428	1.834	1.055	1.065	0.532	0.44	0.78	0.499	1.133
PSCAD2	0	0	0.848	0.441	1.899	1.102	1.096	0.551	0.42	0.78	0.496	1.097
PSCAD3	0	0	0.867	0.450	1.919	1.121	1.111	0.560	0.45	0.76	0.539	1.093
PMCP1	0	0	0.812	0.423	1.822	1.061	1.052	0.526	0.45	0.78	0.500	1.142
PMCP2	0	0	0.853	0.437	1.897	1.101	1.098	0.547	0.43	0.77	0.498	1.081
PMCP3	0	0	0.875	0.455	1.937	1.120	1.121	0.563	0.46	0.76	0.540	1.074

```

relative_ratio_0.05

```

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.05	0.05	NA	2.744	0.021	4.589	0.026	3.104	0.015	0.06	0.10	0.239	0.333

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FSCAD 0.05	0.05	NA	2.735	0.020	4.578	0.034	3.091	0.014	0.38	0.16	0.488	0.443
FMCP 0.05	0.05	NA	2.735	0.020	4.574	0.029	3.091	0.013	0.45	0.13	0.500	0.367
CLASSO 0.05	0.05	NA	2.804	0.026	4.692	0.041	3.172	0.022	0.23	0.11	0.423	0.399
CSCAD 0.05	0.05	NA	2.788	0.026	4.671	0.046	3.154	0.021	0.43	0.11	0.498	0.424
CMCP 0.05	0.05	NA	2.789	0.026	4.670	0.045	3.154	0.021	0.55	0.13	0.500	0.442
PLASSO 0.05	0.05	NA	0.807	0.307	1.957	0.692	1.055	0.341	0.11	1.86	0.314	1.538
PSCAD1 0.05	0.05	NA	0.829	0.428	1.834	1.054	1.065	0.532	0.44	0.77	0.499	1.127
PSCAD2 0.05	0.05	NA	0.848	0.441	1.898	1.102	1.096	0.551	0.42	0.76	0.496	1.084
PSCAD3 0.05	0.05	NA	0.867	0.450	1.919	1.121	1.111	0.560	0.45	0.76	0.539	1.093
PMCP1 0.05	0.05	NA	0.812	0.423	1.821	1.061	1.052	0.526	0.45	0.76	0.500	1.138
PMCP2 0.05	0.05	NA	0.853	0.437	1.897	1.101	1.098	0.547	0.43	0.76	0.498	1.084
PMCP3 0.05	0.05	NA	0.875	0.455	1.937	1.120	1.121	0.563	0.46	0.76	0.540	1.074

relative\_ratio\_0.1

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.1*rho	0.095	0.002	2.744	0.021	4.583	0.024	3.104	0.015	0.06	0.00	0.239	0.000
FSCAD 0.1*rho	0.096	0.003	2.735	0.020	4.567	0.023	3.091	0.014	0.38	0.00	0.488	0.000
FMCP 0.1*rho	0.096	0.004	2.735	0.020	4.566	0.023	3.091	0.013	0.45	0.00	0.500	0.000
CLASSO 0.1*rho	0.097	0.002	2.804	0.026	4.687	0.033	3.172	0.022	0.23	0.02	0.423	0.141
CSCAD 0.1*rho	0.098	0.002	2.788	0.026	4.664	0.034	3.154	0.021	0.43	0.02	0.498	0.141
CMCP 0.1*rho	0.098	0.003	2.789	0.026	4.664	0.036	3.154	0.021	0.55	0.03	0.500	0.171
PLASSO 0.1*rho	0.061	0.026	0.807	0.307	1.956	0.689	1.055	0.341	0.11	1.87	0.314	1.522
PSCAD1 0.1*rho	0.083	0.038	0.829	0.428	1.833	1.054	1.065	0.532	0.44	0.76	0.499	1.120
PSCAD2 0.1*rho	0.084	0.039	0.848	0.441	1.899	1.102	1.096	0.551	0.42	0.77	0.496	1.090
PSCAD3 0.1*rho	0.085	0.039	0.867	0.450	1.919	1.121	1.111	0.560	0.45	0.76	0.539	1.093
PMCP1 0.1*rho	0.082	0.035	0.812	0.423	1.821	1.060	1.052	0.526	0.45	0.76	0.500	1.129
PMCP2 0.1*rho	0.085	0.039	0.853	0.437	1.897	1.101	1.098	0.547	0.43	0.77	0.498	1.081
PMCP3 0.1*rho	0.085	0.038	0.875	0.455	1.937	1.120	1.121	0.563	0.46	0.76	0.540	1.074

relative\_ratio\_0.3

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.3*rho	0.284	0.007	2.744	0.021	4.583	0.024	3.104	0.015	0.06	0.00	0.239	0.000
FSCAD 0.3*rho	0.289	0.010	2.735	0.020	4.567	0.023	3.091	0.014	0.38	0.00	0.488	0.000

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FMCP 0.3*rho	0.289	0.011	2.735	0.020	4.566	0.023	3.091	0.013	0.45	0.00	0.500	0.000
CLASSO 0.3*rho	0.290	0.007	2.804	0.026	4.684	0.032	3.172	0.022	0.23	0.00	0.423	0.000
CSCAD 0.3*rho	0.294	0.007	2.788	0.026	4.661	0.032	3.154	0.021	0.43	0.00	0.498	0.000
CMCP 0.3*rho	0.293	0.008	2.789	0.026	4.660	0.032	3.154	0.021	0.55	0.00	0.500	0.000
PLASSO 0.3*rho	0.184	0.079	0.807	0.307	1.851	0.669	1.046	0.343	0.11	1.16	0.314	1.308
PSCAD1 0.3*rho	0.248	0.113	0.829	0.428	1.816	1.045	1.063	0.531	0.44	0.67	0.499	1.064
PSCAD2 0.3*rho	0.251	0.118	0.848	0.441	1.880	1.088	1.094	0.551	0.42	0.69	0.496	1.042
PSCAD3 0.3*rho	0.254	0.118	0.867	0.450	1.904	1.111	1.109	0.559	0.45	0.71	0.539	1.057
PMCP1 0.3*rho	0.247	0.106	0.812	0.423	1.801	1.048	1.049	0.525	0.45	0.68	0.500	1.062
PMCP2 0.3*rho	0.254	0.118	0.853	0.437	1.878	1.094	1.096	0.547	0.43	0.69	0.498	1.051
PMCP3 0.3*rho	0.256	0.115	0.875	0.455	1.915	1.111	1.118	0.563	0.46	0.68	0.540	1.024

relative\_ratio\_0.5

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.5*rho	0.473	0.012	2.744	0.021	4.583	0.024	3.104	0.015	0.06	0.00	0.239	0.000
FSCAD 0.5*rho	0.482	0.017	2.735	0.020	4.567	0.023	3.091	0.014	0.38	0.00	0.488	0.000
FMCP 0.5*rho	0.481	0.018	2.735	0.020	4.566	0.023	3.091	0.013	0.45	0.00	0.500	0.000
CLASSO 0.5*rho	0.483	0.012	2.804	0.026	4.684	0.032	3.172	0.022	0.23	0.00	0.423	0.000
CSCAD 0.5*rho	0.489	0.012	2.788	0.026	4.661	0.032	3.154	0.021	0.43	0.00	0.498	0.000
CMCP 0.5*rho	0.489	0.014	2.789	0.026	4.660	0.032	3.154	0.021	0.55	0.00	0.500	0.000
PLASSO 0.5*rho	0.307	0.132	0.807	0.307	1.766	0.650	1.033	0.346	0.11	0.82	0.314	1.149
PSCAD1 0.5*rho	0.414	0.189	0.829	0.428	1.758	0.974	1.054	0.525	0.44	0.53	0.499	0.893
PSCAD2 0.5*rho	0.418	0.197	0.848	0.441	1.812	1.018	1.082	0.544	0.42	0.54	0.496	0.881
PSCAD3 0.5*rho	0.423	0.196	0.867	0.450	1.836	1.044	1.097	0.553	0.45	0.55	0.539	0.892
PMCP1 0.5*rho	0.412	0.176	0.812	0.423	1.742	0.977	1.040	0.519	0.45	0.53	0.500	0.904
PMCP2 0.5*rho	0.423	0.197	0.853	0.437	1.808	1.017	1.084	0.540	0.43	0.52	0.498	0.870
PMCP3 0.5*rho	0.426	0.191	0.875	0.455	1.859	1.056	1.109	0.558	0.46	0.55	0.540	0.903

Mean difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.501	-2.744	-1.373	-0.466	0.001	-0.001	0.003	-0.002	0.000
FSCAD	0.501	-2.735	-1.360	-0.473	0.001	-0.003	0.002	-0.002	-0.001
FMCP	0.502	-2.735	-1.360	-0.472	-0.001	-0.001	0.001	-0.002	-0.004
CLASSO	0.681	-2.804	-1.406	-0.475	0.000	0.000	0.001	0.002	0.002
CSCAD	0.673	-2.788	-1.393	-0.480	-0.001	-0.001	0.001	0.001	0.000
CMCP	0.674	-2.789	-1.392	-0.479	-0.001	0.000	0.001	-0.002	0.001
PLASSO	0.000	-0.462	-0.307	-0.105	0.013	-0.007	0.015	-0.036	0.010
PSCAD1	0.000	0.237	0.042	-0.066	0.018	-0.019	0.030	-0.051	-0.027
PSCAD2	0.000	0.283	0.074	-0.035	0.015	-0.012	0.032	-0.039	-0.022
PSCAD3	0.000	0.294	0.074	-0.037	0.017	-0.012	0.027	-0.046	-0.022
PMCP1	0.000	0.218	0.036	-0.083	0.019	-0.020	0.025	-0.041	-0.025
PMCP2	0.000	0.271	0.054	-0.042	0.012	-0.016	0.027	-0.037	-0.021
PMCP3	0.000	0.290	0.064	-0.044	0.020	-0.015	0.027	-0.041	-0.032
FULL	0.503	-2.735	-1.368	-0.454	-0.002	-0.001	0.001	-0.007	0.000
COMPLETE	0.672	-2.790	-1.397	-0.463	-0.003	-0.001	0.000	-0.002	0.002
LOGISTIC	0.000	0.453	0.129	0.122	-0.016	-0.035	0.041	-0.109	0.020

sd difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.019	0.021	0.022	0.021	0.012	0.011	0.013	0.018	0.020
FSCAD	0.020	0.020	0.025	0.030	0.012	0.012	0.013	0.020	0.020
FMCP	0.018	0.020	0.026	0.030	0.013	0.012	0.014	0.018	0.017
CLASSO	0.027	0.026	0.022	0.021	0.009	0.011	0.013	0.019	0.025
CSCAD	0.027	0.026	0.031	0.026	0.011	0.010	0.013	0.016	0.026
CMCP	0.028	0.026	0.030	0.028	0.011	0.012	0.015	0.016	0.028
PLASSO	0.000	0.632	0.391	0.305	0.190	0.191	0.186	0.272	0.300
PSCAD1	0.000	0.731	0.481	0.449	0.201	0.209	0.186	0.334	0.405
PSCAD2	0.000	0.726	0.477	0.459	0.239	0.226	0.200	0.368	0.420
PSCAD3	0.000	0.724	0.503	0.464	0.251	0.238	0.210	0.359	0.421
PMCP1	0.000	0.715	0.476	0.438	0.212	0.218	0.188	0.331	0.408
PMCP2	0.000	0.735	0.488	0.463	0.233	0.221	0.202	0.349	0.420
PMCP3	0.000	0.737	0.519	0.463	0.246	0.248	0.213	0.356	0.411
FULL	0.026	0.020	0.022	0.021	0.020	0.021	0.022	0.032	0.034
COMPLETE	0.034	0.025	0.024	0.026	0.022	0.022	0.024	0.039	0.043
LOGISTIC	0.000	0.752	0.492	0.437	0.380	0.393	0.366	0.621	0.689

```

beta : 3 1.5 0.5 0 0 0 0
intercept : 0
sample size : 400
simulation time : 100
loss_rate: 0.625
error_independent: TRUE
missing_method: y_single
missing_location: 1
lambda_location_for_cv(SCAD): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
lambda_location_for_cv(MCP): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
file_name: ./data/beta_3_1.5_0.5_n_400_lambda_location_l1_30_error_independent_TRUE_logistic_method_Fan_2011.Rdata
table_original

```

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO	0	0	2.697	0.017	4.559	0.044	3.054	0.017	0.02	2.35	0.141	1.533
FSCAD	0	0	2.685	0.017	4.528	0.057	3.038	0.016	0.22	1.33	0.416	1.627
FMCP	0	0	2.685	0.017	4.523	0.056	3.038	0.016	0.22	0.96	0.416	1.483
CLASSO	0	0	2.768	0.023	4.672	0.048	3.134	0.025	0.12	2.15	0.327	1.533
CSCAD	0	0	2.752	0.023	4.630	0.058	3.114	0.024	0.27	0.92	0.446	1.383
CMCP	0	0	2.752	0.023	4.632	0.060	3.114	0.025	0.40	0.72	0.492	1.371
PLASSO	0	0	0.694	0.300	1.732	0.729	0.912	0.356	0.05	2.56	0.219	1.526
PSCAD1	0	0	0.672	0.395	1.516	1.032	0.883	0.529	0.41	0.61	0.494	0.963
PSCAD2	0	0	0.707	0.407	1.577	1.056	0.921	0.540	0.41	0.63	0.494	0.928
PSCAD3	0	0	0.711	0.405	1.603	1.062	0.932	0.539	0.41	0.64	0.494	0.927
PMCP1	0	0	0.674	0.393	1.518	1.021	0.883	0.518	0.40	0.62	0.492	0.982
PMCP2	0	0	0.693	0.400	1.563	1.061	0.908	0.537	0.40	0.66	0.492	0.945
PMCP3	0	0	0.707	0.408	1.585	1.079	0.922	0.544	0.40	0.62	0.492	0.930

relative\_ratio\_0.05

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.05	0.05	NA	2.697	0.017	4.527	0.042	3.054	0.017	0.02	0.15	0.141	0.359

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FSCAD 0.05	0.05	NA	2.685	0.017	4.508	0.049	3.038	0.016	0.22	0.18	0.416	0.411
FMCP 0.05	0.05	NA	2.685	0.017	4.505	0.046	3.038	0.016	0.22	0.14	0.416	0.377
CLASSO 0.05	0.05	NA	2.768	0.023	4.640	0.049	3.134	0.025	0.12	0.10	0.327	0.302
CSCAD 0.05	0.05	NA	2.752	0.023	4.616	0.048	3.114	0.024	0.27	0.13	0.446	0.367
CMCP 0.05	0.05	NA	2.752	0.023	4.620	0.053	3.114	0.025	0.40	0.19	0.492	0.465
PLASSO 0.05	0.05	NA	0.694	0.300	1.721	0.728	0.912	0.357	0.05	2.07	0.219	1.552
PSCAD1 0.05	0.05	NA	0.672	0.395	1.515	1.031	0.883	0.529	0.41	0.58	0.494	0.923
PSCAD2 0.05	0.05	NA	0.707	0.407	1.577	1.056	0.921	0.540	0.41	0.60	0.494	0.888
PSCAD3 0.05	0.05	NA	0.711	0.405	1.602	1.062	0.932	0.539	0.41	0.61	0.494	0.886
PMCP1 0.05	0.05	NA	0.674	0.393	1.517	1.020	0.883	0.518	0.40	0.60	0.492	0.964
PMCP2 0.05	0.05	NA	0.693	0.400	1.562	1.060	0.908	0.537	0.40	0.63	0.492	0.895
PMCP3 0.05	0.05	NA	0.707	0.408	1.584	1.078	0.922	0.544	0.40	0.61	0.492	0.909

relative\_ratio\_0.1

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.1*rho	0.093	0.003	2.697	0.017	4.519	0.037	3.054	0.017	0.02	0.03	0.141	0.171
FSCAD 0.1*rho	0.094	0.004	2.685	0.017	4.500	0.044	3.038	0.016	0.22	0.06	0.416	0.239
FMCP 0.1*rho	0.094	0.004	2.685	0.017	4.500	0.043	3.038	0.016	0.22	0.06	0.416	0.239
CLASSO 0.1*rho	0.096	0.003	2.768	0.023	4.635	0.047	3.134	0.025	0.12	0.02	0.327	0.141
CSCAD 0.1*rho	0.097	0.003	2.752	0.023	4.610	0.048	3.114	0.024	0.27	0.03	0.446	0.171
CMCP 0.1*rho	0.097	0.003	2.752	0.023	4.610	0.050	3.114	0.025	0.40	0.02	0.492	0.141
PLASSO 0.1*rho	0.054	0.027	0.694	0.300	1.720	0.728	0.912	0.357	0.05	2.08	0.219	1.625
PSCAD1 0.1*rho	0.071	0.038	0.672	0.395	1.515	1.031	0.883	0.529	0.41	0.57	0.494	0.924
PSCAD2 0.1*rho	0.072	0.038	0.707	0.407	1.577	1.056	0.921	0.540	0.41	0.61	0.494	0.886
PSCAD3 0.1*rho	0.073	0.037	0.711	0.405	1.602	1.062	0.932	0.539	0.41	0.62	0.494	0.885
PMCP1 0.1*rho	0.070	0.038	0.674	0.393	1.517	1.020	0.883	0.518	0.40	0.60	0.492	0.964
PMCP2 0.1*rho	0.072	0.037	0.693	0.400	1.562	1.060	0.908	0.537	0.40	0.63	0.492	0.895
PMCP3 0.1*rho	0.072	0.038	0.707	0.408	1.584	1.078	0.922	0.544	0.40	0.61	0.492	0.909

relative\_ratio\_0.3

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.3*rho	0.280	0.008	2.697	0.017	4.516	0.032	3.054	0.017	0.02	0.00	0.141	0.000
FSCAD 0.3*rho	0.283	0.012	2.685	0.017	4.494	0.034	3.038	0.016	0.22	0.00	0.416	0.000

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FMCP 0.3*rho	0.282	0.012	2.685	0.017	4.493	0.033	3.038	0.015	0.22	0.00	0.416	0.000
CLASSO 0.3*rho	0.287	0.008	2.768	0.023	4.633	0.044	3.134	0.025	0.12	0.00	0.327	0.000
CSCAD 0.3*rho	0.290	0.010	2.752	0.023	4.606	0.043	3.113	0.024	0.27	0.00	0.446	0.000
CMCP 0.3*rho	0.290	0.010	2.752	0.023	4.607	0.045	3.114	0.025	0.40	0.00	0.492	0.000
PLASSO 0.3*rho	0.163	0.081	0.694	0.300	1.655	0.733	0.906	0.360	0.05	1.48	0.219	1.554
PSCAD1 0.3*rho	0.212	0.114	0.672	0.395	1.501	1.021	0.881	0.528	0.41	0.53	0.494	0.904
PSCAD2 0.3*rho	0.217	0.113	0.707	0.407	1.567	1.046	0.919	0.539	0.41	0.57	0.494	0.868
PSCAD3 0.3*rho	0.219	0.112	0.711	0.405	1.594	1.054	0.930	0.538	0.41	0.59	0.494	0.877
PMCP1 0.3*rho	0.210	0.115	0.674	0.393	1.502	1.007	0.881	0.517	0.40	0.54	0.492	0.915
PMCP2 0.3*rho	0.216	0.112	0.693	0.400	1.550	1.047	0.907	0.536	0.40	0.59	0.492	0.877
PMCP3 0.3*rho	0.215	0.114	0.707	0.408	1.572	1.061	0.920	0.542	0.40	0.57	0.492	0.868

relative\_ratio\_0.5

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.5*rho	0.467	0.013	2.697	0.017	4.516	0.032	3.054	0.017	0.02	0.00	0.141	0.000
FSCAD 0.5*rho	0.471	0.021	2.685	0.017	4.494	0.034	3.038	0.016	0.22	0.00	0.416	0.000
FMCP 0.5*rho	0.470	0.020	2.685	0.017	4.493	0.033	3.038	0.015	0.22	0.00	0.416	0.000
CLASSO 0.5*rho	0.478	0.013	2.768	0.023	4.633	0.044	3.134	0.025	0.12	0.00	0.327	0.000
CSCAD 0.5*rho	0.483	0.016	2.752	0.023	4.606	0.043	3.113	0.024	0.27	0.00	0.446	0.000
CMCP 0.5*rho	0.483	0.017	2.752	0.023	4.607	0.045	3.114	0.025	0.40	0.00	0.492	0.000
PLASSO 0.5*rho	0.271	0.136	0.694	0.300	1.585	0.729	0.897	0.363	0.05	1.08	0.219	1.383
PSCAD1 0.5*rho	0.354	0.191	0.672	0.395	1.466	0.999	0.874	0.526	0.41	0.42	0.494	0.768
PSCAD2 0.5*rho	0.362	0.189	0.707	0.407	1.522	1.034	0.910	0.539	0.41	0.45	0.494	0.783
PSCAD3 0.5*rho	0.364	0.186	0.711	0.405	1.549	1.041	0.921	0.539	0.41	0.47	0.494	0.784
PMCP1 0.5*rho	0.350	0.192	0.674	0.393	1.471	0.984	0.876	0.515	0.40	0.44	0.492	0.783
PMCP2 0.5*rho	0.360	0.186	0.693	0.400	1.499	1.035	0.895	0.536	0.40	0.45	0.492	0.783
PMCP3 0.5*rho	0.358	0.190	0.707	0.408	1.531	1.051	0.911	0.543	0.40	0.46	0.492	0.784



Mean difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.505	-2.697	-1.355	-0.464	0.001	-0.001	0.000	-0.007	-0.003
FSCAD	0.504	-2.685	-1.342	-0.467	0.000	0.000	0.000	-0.006	-0.002
FMCP	0.505	-2.685	-1.343	-0.466	0.001	-0.001	0.001	-0.007	-0.002
CLASSO	0.693	-2.768	-1.390	-0.475	0.001	0.000	0.000	-0.006	0.000
CSCAD	0.682	-2.752	-1.376	-0.479	0.001	0.000	-0.001	-0.003	0.001
CMCP	0.683	-2.752	-1.376	-0.479	0.000	0.000	-0.002	-0.005	0.001
PLASSO	0.000	-0.402	-0.250	-0.141	0.018	-0.002	0.004	-0.036	0.036
PSCAD1	0.000	0.217	0.086	-0.102	0.012	-0.017	-0.009	-0.017	0.031
PSCAD2	0.000	0.264	0.123	-0.085	0.012	-0.012	-0.014	-0.027	0.031
PSCAD3	0.000	0.279	0.137	-0.081	0.011	-0.015	-0.013	-0.027	0.022
PMCP1	0.000	0.222	0.089	-0.097	0.013	-0.015	-0.009	-0.023	0.034
PMCP2	0.000	0.256	0.117	-0.080	0.020	-0.013	-0.010	-0.026	0.013
PMCP3	0.000	0.275	0.135	-0.079	0.012	-0.009	-0.016	-0.028	0.022
FULL	0.506	-2.685	-1.342	-0.452	0.002	-0.001	-0.001	-0.010	-0.001
COMPLETE	0.685	-2.751	-1.375	-0.462	0.003	0.000	0.000	-0.010	0.000
LOGISTIC	0.000	0.446	0.212	0.071	0.041	0.006	0.024	-0.123	0.014

sd difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.025	0.017	0.019	0.017	0.010	0.010	0.010	0.027	0.023
FSCAD	0.026	0.017	0.019	0.026	0.010	0.010	0.011	0.028	0.025
FMCP	0.026	0.017	0.019	0.024	0.009	0.010	0.010	0.027	0.024
CLASSO	0.033	0.023	0.021	0.018	0.011	0.012	0.011	0.023	0.020
CSCAD	0.032	0.023	0.022	0.023	0.011	0.012	0.010	0.022	0.019
CMCP	0.033	0.023	0.022	0.023	0.010	0.012	0.012	0.024	0.019
PLASSO	0.000	0.548	0.360	0.261	0.160	0.165	0.138	0.306	0.233
PSCAD1	0.000	0.628	0.432	0.383	0.181	0.163	0.141	0.370	0.237
PSCAD2	0.000	0.625	0.425	0.395	0.203	0.176	0.161	0.380	0.288
PSCAD3	0.000	0.622	0.421	0.396	0.206	0.180	0.167	0.381	0.303
PMCP1	0.000	0.622	0.430	0.382	0.184	0.169	0.142	0.354	0.246
PMCP2	0.000	0.625	0.423	0.392	0.195	0.179	0.154	0.378	0.271
PMCP3	0.000	0.622	0.418	0.393	0.192	0.175	0.170	0.381	0.303
FULL	0.032	0.017	0.019	0.016	0.017	0.017	0.016	0.039	0.037
COMPLETE	0.043	0.023	0.020	0.018	0.018	0.019	0.018	0.039	0.037
LOGISTIC	0.000	0.641	0.420	0.307	0.291	0.275	0.245	0.607	0.569

```

beta : 3 2 0.5 0 0 0 0
intercept : 0
sample size : 200
simulation time : 100
loss_rate: 0.625
error_independent: FALSE
missing_method: y_single
missing_location: 1
lambda_location_for_cv(SCAD): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
lambda_location_for_cv(MCP): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
file_name: ./data/beta_3_2_0.5_n_200_lambda_location_l1_30_error_independent_FALSE_logistic_method_Fan_2011.Rdata
table_original

```

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO	0	0	2.766	0.027	5.136	0.061	3.358	0.019	0.18	1.80	0.386	1.511
FSCAD	0	0	2.753	0.027	5.090	0.056	3.337	0.018	0.70	0.94	0.461	1.144
FMCP	0	0	2.753	0.027	5.086	0.058	3.337	0.018	0.75	0.57	0.435	1.094
CLASSO	0	0	2.819	0.036	5.235	0.068	3.422	0.030	0.34	1.68	0.476	1.456
CSCAD	0	0	2.799	0.037	5.200	0.086	3.398	0.029	0.57	1.27	0.517	1.340
CMCP	0	0	2.799	0.038	5.209	0.093	3.399	0.030	0.72	1.06	0.514	1.503
PLASSO	0	0	1.323	1.227	3.526	4.035	1.782	1.714	0.26	2.50	0.441	1.560
PSCAD1	0	0	1.709	1.780	3.732	4.880	2.199	2.649	0.69	0.64	0.486	0.916
PSCAD2	0	0	1.856	1.820	4.088	4.944	2.403	2.687	0.72	0.67	0.514	0.922
PSCAD3	0	0	1.836	1.830	4.069	4.962	2.387	2.697	0.70	0.68	0.503	0.931
PMCP1	0	0	1.703	1.808	3.761	4.915	2.203	2.673	0.65	0.65	0.500	0.914
PMCP2	0	0	1.796	1.833	3.933	4.923	2.324	2.692	0.72	0.66	0.514	0.934
PMCP3	0	0	1.826	1.830	4.020	4.905	2.366	2.687	0.71	0.68	0.518	0.942

relative\_ratio\_0.05

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.05	0.05	NA	2.766	0.027	5.105	0.050	3.358	0.019	0.18	0.29	0.386	0.624

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FSCAD 0.05	0.05	NA	2.753	0.027	5.075	0.050	3.337	0.018	0.70	0.17	0.461	0.514
FMCP 0.05	0.05	NA	2.753	0.027	5.077	0.052	3.337	0.018	0.75	0.20	0.435	0.620
CLASSO 0.05	0.05	NA	2.819	0.036	5.210	0.064	3.422	0.030	0.34	0.44	0.476	0.808
CSCAD 0.05	0.05	NA	2.799	0.037	5.183	0.079	3.398	0.029	0.57	0.40	0.517	0.865
CMCP 0.05	0.05	NA	2.799	0.038	5.192	0.080	3.399	0.030	0.72	0.47	0.514	0.870
PLASSO 0.05	0.05	NA	1.323	1.227	3.521	4.036	1.782	1.714	0.26	2.31	0.441	1.562
PSCAD1 0.05	0.05	NA	1.709	1.780	3.732	4.880	2.199	2.649	0.69	0.64	0.486	0.916
PSCAD2 0.05	0.05	NA	1.856	1.820	4.088	4.944	2.403	2.687	0.72	0.67	0.514	0.922
PSCAD3 0.05	0.05	NA	1.836	1.830	4.069	4.962	2.387	2.697	0.70	0.68	0.503	0.931
PMCP1 0.05	0.05	NA	1.703	1.808	3.761	4.915	2.203	2.673	0.65	0.65	0.500	0.914
PMCP2 0.05	0.05	NA	1.796	1.833	3.932	4.923	2.324	2.692	0.72	0.65	0.514	0.936
PMCP3 0.05	0.05	NA	1.826	1.830	4.020	4.905	2.366	2.687	0.71	0.68	0.518	0.942

relative\_ratio\_0.1

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.1*rho	0.097	0.003	2.766	0.027	5.085	0.029	3.357	0.019	0.18	0.01	0.386	0.100
FSCAD 0.1*rho	0.098	0.003	2.753	0.027	5.066	0.036	3.337	0.018	0.70	0.05	0.461	0.219
FMCP 0.1*rho	0.099	0.003	2.753	0.027	5.066	0.033	3.337	0.018	0.75	0.04	0.435	0.197
CLASSO 0.1*rho	0.098	0.003	2.819	0.036	5.183	0.048	3.422	0.030	0.34	0.04	0.476	0.197
CSCAD 0.1*rho	0.099	0.003	2.799	0.037	5.163	0.059	3.398	0.029	0.57	0.12	0.517	0.383
CMCP 0.1*rho	0.099	0.003	2.799	0.038	5.167	0.064	3.399	0.030	0.72	0.14	0.514	0.450
PLASSO 0.1*rho	0.084	0.061	1.323	1.227	3.507	4.017	1.782	1.714	0.26	2.17	0.441	1.596
PSCAD1 0.1*rho	0.118	0.086	1.709	1.780	3.732	4.880	2.199	2.649	0.69	0.64	0.486	0.916
PSCAD2 0.1*rho	0.127	0.092	1.856	1.820	4.086	4.944	2.403	2.687	0.72	0.66	0.514	0.913
PSCAD3 0.1*rho	0.128	0.092	1.836	1.830	4.068	4.962	2.386	2.697	0.70	0.67	0.503	0.922
PMCP1 0.1*rho	0.118	0.088	1.703	1.808	3.758	4.911	2.203	2.673	0.65	0.63	0.500	0.884
PMCP2 0.1*rho	0.126	0.089	1.796	1.833	3.931	4.923	2.324	2.692	0.72	0.64	0.514	0.927
PMCP3 0.1*rho	0.127	0.089	1.826	1.830	4.019	4.905	2.366	2.687	0.71	0.67	0.518	0.933

relative\_ratio\_0.3

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.3*rho	0.290	0.009	2.766	0.027	5.084	0.029	3.357	0.019	0.18	0.00	0.386	0.000
FSCAD 0.3*rho	0.295	0.008	2.753	0.027	5.060	0.029	3.337	0.018	0.70	0.00	0.461	0.000

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FMCP 0.3*rho	0.296	0.008	2.753	0.027	5.061	0.027	3.337	0.018	0.75	0.00	0.435	0.000
CLASSO 0.3*rho	0.293	0.008	2.819	0.036	5.178	0.046	3.422	0.030	0.34	0.00	0.476	0.000
CSCAD 0.3*rho	0.296	0.008	2.799	0.037	5.148	0.046	3.398	0.029	0.57	0.00	0.517	0.000
CMCP 0.3*rho	0.297	0.008	2.799	0.038	5.150	0.047	3.399	0.030	0.72	0.00	0.514	0.000
PLASSO 0.3*rho	0.253	0.184	1.323	1.227	3.380	3.969	1.772	1.713	0.26	1.51	0.441	1.527
PSCAD1 0.3*rho	0.353	0.257	1.709	1.780	3.708	4.862	2.196	2.647	0.69	0.58	0.486	0.806
PSCAD2 0.3*rho	0.381	0.277	1.856	1.820	4.059	4.919	2.400	2.685	0.72	0.62	0.514	0.862
PSCAD3 0.3*rho	0.384	0.276	1.836	1.830	4.043	4.937	2.384	2.695	0.70	0.64	0.503	0.871
PMCP1 0.3*rho	0.353	0.263	1.703	1.808	3.730	4.897	2.200	2.671	0.65	0.57	0.500	0.820
PMCP2 0.3*rho	0.378	0.267	1.796	1.833	3.909	4.915	2.321	2.691	0.72	0.59	0.514	0.866
PMCP3 0.3*rho	0.380	0.268	1.826	1.830	4.000	4.896	2.364	2.686	0.71	0.64	0.518	0.871

relative\_ratio\_0.5

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.5*rho	0.483	0.015	2.766	0.027	5.084	0.029	3.357	0.019	0.18	0.00	0.386	0.000
FSCAD 0.5*rho	0.492	0.014	2.753	0.027	5.060	0.029	3.337	0.018	0.70	0.00	0.461	0.000
FMCP 0.5*rho	0.493	0.013	2.753	0.027	5.061	0.027	3.337	0.018	0.75	0.00	0.435	0.000
CLASSO 0.5*rho	0.488	0.013	2.819	0.036	5.178	0.046	3.422	0.030	0.34	0.00	0.476	0.000
CSCAD 0.5*rho	0.494	0.013	2.799	0.037	5.148	0.046	3.398	0.029	0.57	0.00	0.517	0.000
CMCP 0.5*rho	0.494	0.013	2.799	0.038	5.150	0.047	3.399	0.030	0.72	0.00	0.514	0.000
PLASSO 0.5*rho	0.422	0.306	1.323	1.227	3.170	3.446	1.748	1.673	0.26	1.11	0.441	1.392
PSCAD1 0.5*rho	0.589	0.428	1.709	1.780	3.638	4.843	2.186	2.646	0.69	0.45	0.486	0.783
PSCAD2 0.5*rho	0.635	0.461	1.856	1.820	4.013	4.911	2.393	2.685	0.72	0.55	0.514	0.845
PSCAD3 0.5*rho	0.639	0.461	1.836	1.830	4.004	4.927	2.377	2.695	0.70	0.59	0.503	0.854
PMCP1 0.5*rho	0.588	0.439	1.703	1.808	3.683	4.887	2.193	2.672	0.65	0.48	0.500	0.797
PMCP2 0.5*rho	0.630	0.446	1.796	1.833	3.861	4.905	2.313	2.691	0.72	0.52	0.514	0.835
PMCP3 0.5*rho	0.633	0.447	1.826	1.830	3.956	4.885	2.357	2.686	0.71	0.58	0.518	0.843

Mean difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.498	-2.766	-1.841	-0.476	0.003	0.001	0.002	-0.002	0.001
FSCAD	0.497	-2.753	-1.822	-0.486	-0.001	-0.001	0.002	0.000	0.001
FMCP	0.498	-2.753	-1.821	-0.487	0.000	-0.001	0.001	0.000	-0.001
CLASSO	0.674	-2.819	-1.879	-0.480	0.005	0.000	0.001	0.000	-0.001
CSCAD	0.663	-2.799	-1.863	-0.486	0.003	-0.002	0.002	-0.001	-0.001
CMCP	0.665	-2.799	-1.864	-0.487	0.003	-0.002	0.002	0.000	-0.003
PLASSO	0.000	-0.199	-0.167	-0.182	0.113	-0.005	-0.024	0.032	-0.020
PSCAD1	0.000	0.808	0.627	-0.156	0.035	0.018	-0.020	-0.005	-0.012
PSCAD2	0.000	1.018	0.826	-0.152	0.050	0.018	-0.030	0.012	0.031
PSCAD3	0.000	1.056	0.874	-0.130	0.058	0.025	-0.036	-0.003	0.031
PMCP1	0.000	0.829	0.644	-0.143	0.044	0.011	-0.032	0.017	-0.011
PMCP2	0.000	0.950	0.754	-0.151	0.047	0.017	-0.028	-0.005	0.006
PMCP3	0.000	1.025	0.830	-0.145	0.061	0.026	-0.030	-0.005	0.006
FULL	0.498	-2.753	-1.833	-0.465	0.002	-0.001	0.003	-0.002	0.000
COMPLETE	0.661	-2.801	-1.865	-0.470	0.004	-0.001	-0.001	0.001	-0.003
LOGISTIC	0.000	15.793	10.605	0.165	1.960	-0.784	1.454	1.231	-2.159

sd difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.029	0.027	0.029	0.024	0.016	0.017	0.019	0.030	0.027
FSCAD	0.026	0.027	0.029	0.028	0.013	0.017	0.018	0.024	0.021
FMCP	0.026	0.027	0.029	0.027	0.014	0.015	0.017	0.024	0.017
CLASSO	0.043	0.036	0.036	0.025	0.016	0.020	0.018	0.036	0.033
CSCAD	0.045	0.037	0.046	0.029	0.020	0.024	0.019	0.038	0.035
CMCP	0.046	0.038	0.047	0.028	0.022	0.023	0.019	0.041	0.040
PLASSO	0.000	1.669	1.078	0.475	0.686	0.403	0.429	0.628	0.804
PSCAD1	0.000	2.062	1.975	0.655	0.331	0.344	0.348	0.509	1.274
PSCAD2	0.000	2.030	2.048	0.706	0.381	0.389	0.414	0.576	1.293
PSCAD3	0.000	2.011	2.013	0.714	0.388	0.388	0.418	0.593	1.293
PMCP1	0.000	2.048	1.999	0.657	0.354	0.350	0.346	0.555	1.269
PMCP2	0.000	2.026	2.055	0.693	0.356	0.378	0.407	0.579	1.270
PMCP3	0.000	2.013	2.036	0.697	0.369	0.387	0.421	0.579	1.270
FULL	0.040	0.028	0.030	0.029	0.030	0.030	0.029	0.050	0.046
COMPLETE	0.053	0.036	0.036	0.035	0.034	0.036	0.032	0.061	0.057
LOGISTIC	0.000	76.258	49.563	22.157	20.921	8.559	14.556	25.471	30.874

```

beta : 3 2 0.5 0 0 0 0
intercept : 0
sample size : 200
simulation time : 100
loss_rate: 0.625
error_independent: TRUE
missing_method: y_single
missing_location: 1
lambda_location_for_cv(SCAD): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
lambda_location_for_cv(MCP): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
file_name: ./data/beta_3_2_0.5_n_200_lambda_location_l1_30_error_independent_TRUE_logistic_method_Fan_2011.Rdata
table_original

```

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO	0	0	2.720	0.024	5.065	0.054	3.305	0.025	0.12	2.31	0.327	1.631
FSCAD	0	0	2.702	0.021	5.010	0.063	3.282	0.020	0.34	1.05	0.476	1.513
FMCP	0	0	2.702	0.021	5.010	0.066	3.282	0.019	0.46	0.88	0.501	1.526
CLASSO	0	0	2.790	0.032	5.201	0.071	3.392	0.036	0.28	2.46	0.451	1.579
CSCAD	0	0	2.767	0.029	5.135	0.082	3.363	0.033	0.41	1.30	0.494	1.460
CMCP	0	0	2.767	0.029	5.137	0.082	3.364	0.033	0.53	1.07	0.502	1.539
PLASSO	0	0	1.020	0.617	2.786	1.882	1.425	0.878	0.20	2.86	0.402	1.326
PSCAD1	0	0	1.988	7.733	5.120	23.501	2.748	11.715	0.53	0.69	0.502	0.918
PSCAD2	0	0	2.071	7.738	5.338	23.510	2.878	11.720	0.54	0.69	0.501	0.907
PSCAD3	0	0	2.133	7.731	5.500	23.494	2.968	11.711	0.53	0.68	0.502	0.920
PMCP1	0	0	1.225	0.977	2.822	2.504	1.604	1.251	0.52	0.67	0.502	0.911
PMCP2	0	0	2.118	7.733	5.465	23.496	2.944	11.712	0.49	0.73	0.502	0.952
PMCP3	0	0	2.139	7.730	5.528	23.491	2.977	11.709	0.53	0.70	0.502	0.916

relative\_ratio\_0.05

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.05	0.05	NA	2.720	0.024	5.029	0.052	3.305	0.025	0.12	0.37	0.327	0.646

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FSCAD 0.05	0.05	NA	2.702	0.021	4.994	0.051	3.281	0.020	0.34	0.25	0.476	0.626
FMCP 0.05	0.05	NA	2.702	0.021	4.996	0.053	3.282	0.019	0.46	0.26	0.501	0.597
CLASSO 0.05	0.05	NA	2.790	0.032	5.160	0.068	3.392	0.036	0.28	0.38	0.451	0.616
CSCAD 0.05	0.05	NA	2.767	0.029	5.117	0.070	3.363	0.033	0.41	0.27	0.494	0.633
CMCP 0.05	0.05	NA	2.767	0.029	5.122	0.071	3.364	0.033	0.53	0.30	0.502	0.628
PLASSO 0.05	0.05	NA	1.020	0.617	2.777	1.885	1.424	0.878	0.20	2.50	0.402	1.382
PSCAD1 0.05	0.05	NA	1.988	7.733	5.120	23.501	2.748	11.715	0.53	0.69	0.502	0.918
PSCAD2 0.05	0.05	NA	2.071	7.738	5.338	23.510	2.878	11.720	0.54	0.69	0.501	0.907
PSCAD3 0.05	0.05	NA	2.133	7.731	5.500	23.494	2.968	11.711	0.53	0.67	0.502	0.911
PMCP1 0.05	0.05	NA	1.225	0.977	2.822	2.504	1.604	1.251	0.52	0.66	0.502	0.890
PMCP2 0.05	0.05	NA	2.118	7.733	5.465	23.496	2.944	11.712	0.49	0.73	0.502	0.952
PMCP3 0.05	0.05	NA	2.139	7.730	5.528	23.491	2.977	11.709	0.53	0.70	0.502	0.916

relative\_ratio\_0.1

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.1*rho	0.094	0.003	2.720	0.024	5.006	0.051	3.305	0.025	0.12	0.03	0.327	0.223
FSCAD 0.1*rho	0.096	0.004	2.702	0.021	4.983	0.047	3.281	0.020	0.34	0.08	0.476	0.339
FMCP 0.1*rho	0.096	0.004	2.702	0.021	4.982	0.046	3.282	0.019	0.46	0.06	0.501	0.278
CLASSO 0.1*rho	0.096	0.003	2.790	0.032	5.140	0.063	3.392	0.036	0.28	0.08	0.451	0.273
CSCAD 0.1*rho	0.097	0.003	2.767	0.029	5.106	0.062	3.363	0.033	0.41	0.10	0.494	0.333
CMCP 0.1*rho	0.097	0.003	2.767	0.029	5.107	0.061	3.364	0.033	0.53	0.09	0.502	0.288
PLASSO 0.1*rho	0.073	0.044	1.020	0.617	2.766	1.866	1.424	0.878	0.20	2.41	0.402	1.386
PSCAD1 0.1*rho	0.144	0.460	1.988	7.733	5.103	23.350	2.748	11.714	0.53	0.66	0.502	0.879
PSCAD2 0.1*rho	0.154	0.460	2.071	7.738	5.321	23.359	2.878	11.719	0.54	0.66	0.501	0.867
PSCAD3 0.1*rho	0.157	0.460	2.133	7.731	5.485	23.344	2.968	11.710	0.53	0.66	0.502	0.890
PMCP1 0.1*rho	0.099	0.057	1.225	0.977	2.818	2.501	1.604	1.250	0.52	0.64	0.502	0.871
PMCP2 0.1*rho	0.150	0.461	2.118	7.733	5.449	23.346	2.944	11.711	0.49	0.72	0.502	0.933
PMCP3 0.1*rho	0.156	0.460	2.139	7.730	5.513	23.340	2.977	11.708	0.53	0.69	0.502	0.895

relative\_ratio\_0.3

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.3*rho	0.282	0.010	2.720	0.024	5.002	0.047	3.305	0.025	0.12	0.00	0.327	0.000
FSCAD 0.3*rho	0.287	0.012	2.702	0.021	4.974	0.041	3.281	0.020	0.34	0.00	0.476	0.000

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FMCP 0.3*rho	0.287	0.013	2.702	0.021	4.976	0.040	3.282	0.019	0.46	0.00	0.501	0.000
CLASSO 0.3*rho	0.289	0.009	2.790	0.032	5.132	0.061	3.392	0.037	0.28	0.00	0.451	0.000
CSCAD 0.3*rho	0.292	0.009	2.767	0.029	5.094	0.055	3.362	0.033	0.41	0.00	0.494	0.000
CMCP 0.3*rho	0.292	0.010	2.767	0.029	5.097	0.058	3.364	0.033	0.53	0.00	0.502	0.000
PLASSO 0.3*rho	0.219	0.131	1.020	0.617	2.617	1.749	1.414	0.876	0.20	1.47	0.402	1.235
PSCAD1 0.3*rho	0.433	1.381	1.988	7.733	5.067	23.343	2.745	11.714	0.53	0.58	0.502	0.794
PSCAD2 0.3*rho	0.461	1.381	2.071	7.738	5.290	23.352	2.875	11.718	0.54	0.62	0.501	0.789
PSCAD3 0.3*rho	0.471	1.381	2.133	7.731	5.454	23.336	2.965	11.709	0.53	0.62	0.502	0.814
PMCP1 0.3*rho	0.297	0.172	1.225	0.977	2.775	2.390	1.600	1.243	0.52	0.56	0.502	0.783
PMCP2 0.3*rho	0.450	1.382	2.118	7.733	5.405	23.338	2.939	11.711	0.49	0.65	0.502	0.833
PMCP3 0.3*rho	0.469	1.380	2.139	7.730	5.474	23.332	2.973	11.707	0.53	0.63	0.502	0.787

relative\_ratio\_0.5

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.5*rho	0.471	0.017	2.720	0.024	5.002	0.047	3.305	0.025	0.12	0.00	0.327	0.000
FSCAD 0.5*rho	0.478	0.020	2.702	0.021	4.974	0.041	3.281	0.020	0.34	0.00	0.476	0.000
FMCP 0.5*rho	0.478	0.022	2.702	0.021	4.976	0.040	3.282	0.019	0.46	0.00	0.501	0.000
CLASSO 0.5*rho	0.482	0.015	2.790	0.032	5.132	0.061	3.392	0.037	0.28	0.00	0.451	0.000
CSCAD 0.5*rho	0.486	0.015	2.767	0.029	5.094	0.055	3.362	0.033	0.41	0.00	0.494	0.000
CMCP 0.5*rho	0.487	0.016	2.767	0.029	5.097	0.058	3.364	0.033	0.53	0.00	0.502	0.000
PLASSO 0.5*rho	0.364	0.218	1.020	0.617	2.484	1.736	1.393	0.879	0.20	1.03	0.402	1.049
PSCAD1 0.5*rho	0.722	2.302	1.988	7.733	5.008	23.343	2.735	11.714	0.53	0.50	0.502	0.785
PSCAD2 0.5*rho	0.768	2.302	2.071	7.738	5.223	23.352	2.864	11.719	0.54	0.52	0.501	0.759
PSCAD3 0.5*rho	0.785	2.301	2.133	7.731	5.398	23.335	2.956	11.709	0.53	0.55	0.502	0.783
PMCP1 0.5*rho	0.494	0.287	1.225	0.977	2.717	2.336	1.590	1.238	0.52	0.46	0.502	0.744
PMCP2 0.5*rho	0.750	2.304	2.118	7.733	5.342	23.338	2.930	11.711	0.49	0.56	0.502	0.795
PMCP3 0.5*rho	0.781	2.300	2.139	7.730	5.413	23.332	2.964	11.708	0.53	0.55	0.502	0.744



Mean difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.506	-2.720	-1.818	-0.464	0.001	-0.002	0.000	-0.006	-0.006
FSCAD	0.504	-2.702	-1.801	-0.472	0.000	-0.001	0.001	-0.008	-0.002
FMCP	0.502	-2.702	-1.802	-0.471	0.000	-0.001	0.001	0.000	-0.005
CLASSO	0.700	-2.790	-1.869	-0.472	0.000	-0.003	0.001	-0.004	-0.001
CSCAD	0.688	-2.767	-1.849	-0.478	0.000	-0.001	0.001	0.002	-0.007
CMCP	0.688	-2.767	-1.851	-0.478	-0.002	-0.003	0.001	-0.002	-0.003
PLASSO	0.000	-0.366	-0.317	-0.098	0.037	-0.031	0.044	0.002	-0.021
PSCAD1	0.000	1.306	0.954	0.155	0.291	-0.018	0.042	0.266	-0.007
PSCAD2	0.000	1.464	1.090	0.201	0.292	-0.027	0.044	0.235	0.008
PSCAD3	0.000	1.560	1.172	0.225	0.290	-0.016	0.037	0.260	0.008
PMCP1	0.000	0.563	0.238	-0.064	0.023	-0.020	0.048	-0.054	0.016
PMCP2	0.000	1.493	1.102	0.207	0.295	-0.022	0.028	0.246	0.001
PMCP3	0.000	1.535	1.140	0.216	0.281	-0.021	0.030	0.258	0.001
FULL	0.507	-2.702	-1.800	-0.448	0.001	-0.003	0.000	-0.010	-0.005
COMPLETE	0.686	-2.767	-1.846	-0.459	-0.001	-0.005	0.002	-0.003	0.000
LOGISTIC	0.000	2.816	2.263	0.679	0.519	-0.144	0.100	0.511	-0.101

sd difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.036	0.024	0.024	0.024	0.015	0.015	0.013	0.036	0.034
FSCAD	0.036	0.021	0.024	0.029	0.007	0.011	0.013	0.031	0.028
FMCP	0.034	0.021	0.024	0.031	0.013	0.014	0.010	0.032	0.027
CLASSO	0.043	0.032	0.032	0.026	0.016	0.018	0.016	0.039	0.035
CSCAD	0.042	0.029	0.033	0.030	0.014	0.014	0.014	0.034	0.030
CMCP	0.044	0.029	0.033	0.031	0.013	0.017	0.013	0.036	0.029
PLASSO	0.000	1.023	0.846	0.403	0.318	0.274	0.297	0.513	0.347
PSCAD1	0.000	7.845	7.472	2.407	2.608	0.390	0.411	3.405	0.390
PSCAD2	0.000	7.839	7.471	2.418	2.614	0.417	0.480	3.421	0.360
PSCAD3	0.000	7.830	7.463	2.420	2.614	0.425	0.482	3.428	0.360
PMCP1	0.000	1.259	0.899	0.563	0.301	0.402	0.375	0.728	0.377
PMCP2	0.000	7.841	7.473	2.413	2.614	0.432	0.476	3.425	0.367
PMCP3	0.000	7.835	7.469	2.419	2.614	0.426	0.477	3.427	0.367
FULL	0.045	0.021	0.024	0.024	0.024	0.025	0.022	0.056	0.054
COMPLETE	0.054	0.030	0.030	0.033	0.026	0.030	0.028	0.064	0.057
LOGISTIC	0.000	13.647	13.603	3.847	4.571	1.125	0.723	5.390	1.278

```

beta : 3 2 0.5 0 0 0 0
intercept : 0
sample size : 400
simulation time : 100
loss_rate: 0.625
error_independent: FALSE
missing_method: y_single
missing_location: 1
lambda_location_for_cv(SCAD): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
lambda_location_for_cv(MCP): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
file_name: ./data/beta_3_2_0.5_n_400_lambda_location_l1_30_error_independent_FALSE_logistic_method_Fan_2011.Rdata
table_original

```

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO	0	0	2.769	0.020	5.106	0.038	3.357	0.012	0.08	1.50	0.273	1.474
FSCAD	0	0	2.758	0.020	5.080	0.046	3.342	0.013	0.50	0.87	0.503	1.397
FMCP	0	0	2.758	0.020	5.078	0.041	3.342	0.013	0.52	0.58	0.502	1.208
CLASSO	0	0	2.821	0.026	5.215	0.053	3.422	0.021	0.25	1.78	0.435	1.586
CSCAD	0	0	2.808	0.028	5.182	0.055	3.403	0.021	0.60	1.07	0.492	1.380
CMCP	0	0	2.808	0.028	5.180	0.052	3.404	0.022	0.71	0.71	0.456	1.250
PLASSO	0	0	0.812	0.289	2.043	0.847	1.076	0.359	0.12	2.51	0.327	1.534
PSCAD1	0	0	0.899	0.484	2.072	1.452	1.184	0.666	0.47	0.71	0.502	1.076
PSCAD2	0	0	0.917	0.486	2.051	1.271	1.195	0.639	0.49	0.66	0.502	0.890
PSCAD3	0	0	0.918	0.490	2.044	1.267	1.196	0.639	0.49	0.63	0.502	0.861
PMCP1	0	0	0.904	0.485	2.063	1.374	1.186	0.654	0.48	0.69	0.502	1.002
PMCP2	0	0	0.912	0.489	2.050	1.280	1.191	0.644	0.48	0.67	0.502	0.900
PMCP3	0	0	0.921	0.491	2.077	1.285	1.204	0.643	0.48	0.69	0.502	0.929

relative\_ratio\_0.05

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.05	0.05	NA	2.769	0.020	5.080	0.021	3.357	0.013	0.08	0.05	0.273	0.219

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FSCAD 0.05	0.05	NA	2.758	0.020	5.066	0.028	3.342	0.013	0.50	0.08	0.503	0.307
FMCP 0.05	0.05	NA	2.758	0.020	5.065	0.025	3.342	0.013	0.52	0.07	0.502	0.256
CLASSO 0.05	0.05	NA	2.821	0.026	5.186	0.037	3.422	0.021	0.25	0.14	0.435	0.403
CSCAD 0.05	0.05	NA	2.808	0.028	5.165	0.038	3.403	0.021	0.60	0.16	0.492	0.443
CMCP 0.05	0.05	NA	2.808	0.028	5.167	0.041	3.403	0.022	0.71	0.18	0.456	0.458
PLASSO 0.05	0.05	NA	0.812	0.289	2.032	0.851	1.076	0.359	0.12	2.08	0.327	1.522
PSCAD1 0.05	0.05	NA	0.899	0.484	2.072	1.452	1.184	0.666	0.47	0.71	0.502	1.076
PSCAD2 0.05	0.05	NA	0.917	0.486	2.051	1.271	1.195	0.639	0.49	0.66	0.502	0.890
PSCAD3 0.05	0.05	NA	0.918	0.490	2.044	1.267	1.196	0.639	0.49	0.63	0.502	0.861
PMCP1 0.05	0.05	NA	0.904	0.485	2.063	1.374	1.186	0.654	0.48	0.69	0.502	1.002
PMCP2 0.05	0.05	NA	0.912	0.489	2.050	1.280	1.191	0.644	0.48	0.67	0.502	0.900
PMCP3 0.05	0.05	NA	0.921	0.491	2.077	1.285	1.204	0.643	0.48	0.69	0.502	0.929

relative\_ratio\_0.1

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.1*rho	0.095	0.002	2.769	0.020	5.077	0.019	3.357	0.013	0.08	0.00	0.273	0.000
FSCAD 0.1*rho	0.097	0.003	2.758	0.020	5.061	0.020	3.342	0.013	0.50	0.01	0.503	0.100
FMCP 0.1*rho	0.097	0.004	2.758	0.020	5.061	0.021	3.342	0.013	0.52	0.01	0.502	0.100
CLASSO 0.1*rho	0.097	0.002	2.821	0.026	5.176	0.031	3.422	0.021	0.25	0.00	0.435	0.000
CSCAD 0.1*rho	0.098	0.002	2.808	0.028	5.154	0.030	3.403	0.021	0.60	0.00	0.492	0.000
CMCP 0.1*rho	0.099	0.002	2.808	0.028	5.155	0.031	3.403	0.022	0.71	0.00	0.456	0.000
PLASSO 0.1*rho	0.062	0.028	0.812	0.289	2.029	0.851	1.076	0.360	0.12	2.07	0.327	1.559
PSCAD1 0.1*rho	0.086	0.037	0.899	0.484	2.072	1.452	1.184	0.666	0.47	0.71	0.502	1.076
PSCAD2 0.1*rho	0.090	0.038	0.917	0.486	2.050	1.271	1.195	0.639	0.49	0.65	0.502	0.880
PSCAD3 0.1*rho	0.091	0.039	0.918	0.490	2.044	1.267	1.196	0.639	0.49	0.63	0.502	0.861
PMCP1 0.1*rho	0.088	0.036	0.904	0.485	2.063	1.374	1.186	0.654	0.48	0.69	0.502	1.002
PMCP2 0.1*rho	0.089	0.039	0.912	0.489	2.050	1.280	1.191	0.644	0.48	0.67	0.502	0.900
PMCP3 0.1*rho	0.090	0.038	0.921	0.491	2.077	1.285	1.204	0.643	0.48	0.69	0.502	0.929

relative\_ratio\_0.3

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.3*rho	0.285	0.007	2.769	0.020	5.077	0.019	3.357	0.013	0.08	0.00	0.273	0.000
FSCAD 0.3*rho	0.291	0.010	2.758	0.020	5.060	0.019	3.342	0.013	0.50	0.00	0.503	0.000

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FMCP 0.3*rho	0.290	0.011	2.758	0.020	5.060	0.020	3.342	0.013	0.52	0.00	0.502	0.000
CLASSO 0.3*rho	0.291	0.007	2.821	0.026	5.176	0.031	3.422	0.021	0.25	0.00	0.435	0.000
CSCAD 0.3*rho	0.295	0.007	2.808	0.028	5.154	0.030	3.403	0.021	0.60	0.00	0.492	0.000
CMCP 0.3*rho	0.296	0.007	2.808	0.028	5.155	0.031	3.403	0.022	0.71	0.00	0.456	0.000
PLASSO 0.3*rho	0.187	0.084	0.812	0.289	1.930	0.840	1.067	0.361	0.12	1.32	0.327	1.413
PSCAD1 0.3*rho	0.259	0.111	0.899	0.484	2.047	1.434	1.181	0.665	0.47	0.63	0.502	1.002
PSCAD2 0.3*rho	0.270	0.114	0.917	0.486	2.021	1.261	1.191	0.639	0.49	0.56	0.502	0.820
PSCAD3 0.3*rho	0.272	0.116	0.918	0.490	2.017	1.255	1.193	0.639	0.49	0.55	0.502	0.796
PMCP1 0.3*rho	0.263	0.109	0.904	0.485	2.036	1.352	1.183	0.652	0.48	0.60	0.502	0.899
PMCP2 0.3*rho	0.266	0.116	0.912	0.489	2.023	1.268	1.187	0.643	0.48	0.59	0.502	0.842
PMCP3 0.3*rho	0.269	0.115	0.921	0.491	2.050	1.273	1.200	0.642	0.48	0.61	0.502	0.863

relative\_ratio\_0.5

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.5*rho	0.475	0.012	2.769	0.020	5.077	0.019	3.357	0.013	0.08	0.00	0.273	0.000
FSCAD 0.5*rho	0.485	0.017	2.758	0.020	5.060	0.019	3.342	0.013	0.50	0.00	0.503	0.000
FMCP 0.5*rho	0.484	0.018	2.758	0.020	5.060	0.020	3.342	0.013	0.52	0.00	0.502	0.000
CLASSO 0.5*rho	0.485	0.011	2.821	0.026	5.176	0.031	3.422	0.021	0.25	0.00	0.435	0.000
CSCAD 0.5*rho	0.492	0.011	2.808	0.028	5.154	0.030	3.403	0.021	0.60	0.00	0.492	0.000
CMCP 0.5*rho	0.493	0.012	2.808	0.028	5.155	0.031	3.403	0.022	0.71	0.00	0.456	0.000
PLASSO 0.5*rho	0.312	0.140	0.812	0.289	1.830	0.817	1.052	0.364	0.12	0.91	0.327	1.215
PSCAD1 0.5*rho	0.432	0.186	0.899	0.484	2.008	1.413	1.174	0.664	0.47	0.53	0.502	0.893
PSCAD2 0.5*rho	0.450	0.190	0.917	0.486	1.991	1.246	1.186	0.638	0.49	0.49	0.502	0.745
PSCAD3 0.5*rho	0.454	0.194	0.918	0.490	1.979	1.242	1.185	0.638	0.49	0.47	0.502	0.731
PMCP1 0.5*rho	0.438	0.181	0.904	0.485	1.995	1.327	1.176	0.649	0.48	0.51	0.502	0.810
PMCP2 0.5*rho	0.443	0.193	0.912	0.489	1.989	1.255	1.181	0.642	0.48	0.51	0.502	0.772
PMCP3 0.5*rho	0.448	0.191	0.921	0.491	2.012	1.250	1.194	0.641	0.48	0.52	0.502	0.772

Mean difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.500	-2.769	-1.839	-0.469	0.003	-0.001	0.000	0.001	-0.002
FSCAD	0.500	-2.758	-1.824	-0.478	0.001	-0.001	0.000	-0.001	0.000
FMCP	0.501	-2.758	-1.825	-0.476	0.001	-0.001	0.000	-0.002	-0.001
CLASSO	0.681	-2.821	-1.876	-0.479	0.002	-0.001	0.001	-0.001	0.001
CSCAD	0.670	-2.808	-1.861	-0.486	0.001	-0.001	0.002	0.001	0.001
CMCP	0.671	-2.808	-1.860	-0.487	0.000	-0.001	0.001	0.002	-0.001
PLASSO	0.000	-0.450	-0.236	-0.132	0.041	-0.009	-0.026	0.020	-0.028
PSCAD1	0.000	0.314	0.320	-0.080	0.042	-0.035	-0.033	0.022	-0.084
PSCAD2	0.000	0.377	0.366	-0.069	0.033	-0.046	-0.013	0.005	-0.092
PSCAD3	0.000	0.372	0.370	-0.063	0.022	-0.046	-0.013	0.015	-0.093
PMCP1	0.000	0.328	0.333	-0.078	0.031	-0.037	-0.022	0.015	-0.104
PMCP2	0.000	0.357	0.355	-0.071	0.032	-0.049	-0.013	0.005	-0.085
PMCP3	0.000	0.365	0.365	-0.066	0.031	-0.045	-0.013	0.005	-0.080
FULL	0.502	-2.758	-1.833	-0.459	0.001	-0.003	-0.001	0.000	-0.006
COMPLETE	0.671	-2.808	-1.868	-0.469	-0.001	0.000	-0.002	0.000	0.000
LOGISTIC	0.000	0.544	0.431	0.078	0.022	-0.021	-0.033	0.025	-0.048

sd difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.019	0.020	0.021	0.019	0.011	0.008	0.009	0.021	0.016
FSCAD	0.018	0.020	0.024	0.028	0.010	0.007	0.009	0.021	0.013
FMCP	0.018	0.020	0.022	0.028	0.008	0.007	0.011	0.020	0.014
CLASSO	0.030	0.026	0.024	0.020	0.012	0.012	0.013	0.026	0.021
CSCAD	0.029	0.028	0.027	0.024	0.010	0.010	0.013	0.021	0.019
CMCP	0.030	0.028	0.026	0.024	0.008	0.009	0.013	0.024	0.018
PLASSO	0.000	0.555	0.487	0.309	0.244	0.218	0.220	0.341	0.322
PSCAD1	0.000	0.699	0.613	0.461	0.266	0.263	0.314	0.420	0.384
PSCAD2	0.000	0.678	0.596	0.482	0.267	0.259	0.286	0.386	0.374
PSCAD3	0.000	0.690	0.591	0.487	0.268	0.252	0.286	0.373	0.377
PMCP1	0.000	0.715	0.603	0.465	0.252	0.263	0.292	0.395	0.377
PMCP2	0.000	0.687	0.592	0.476	0.267	0.265	0.286	0.386	0.390
PMCP3	0.000	0.688	0.589	0.480	0.263	0.269	0.286	0.386	0.414
FULL	0.027	0.020	0.021	0.020	0.020	0.019	0.019	0.034	0.030
COMPLETE	0.038	0.027	0.024	0.024	0.023	0.024	0.024	0.041	0.036
LOGISTIC	0.000	0.711	0.630	0.487	0.464	0.433	0.407	0.697	0.722

```

beta : 3 2 0.5 0 0 0 0
intercept : 0
sample size : 400
simulation time : 100
loss_rate: 0.625
error_independent: TRUE
missing_method: y_single
missing_location: 1
lambda_location_for_cv(SCAD): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
lambda_location_for_cv(MCP): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
file_name: ./data/beta_3_2_0.5_n_400_lambda_location_l1_30_error_independent_TRUE_logistic_method_Fan_2011.Rdata
table_original

```

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO	0	0	2.715	0.016	5.039	0.043	3.296	0.015	0.01	2.80	0.100	1.531
FSCAD	0	0	2.704	0.016	5.000	0.051	3.282	0.014	0.29	1.26	0.456	1.593
FMCP	0	0	2.705	0.016	5.002	0.056	3.282	0.014	0.26	1.16	0.441	1.613
CLASSO	0	0	2.783	0.025	5.168	0.053	3.379	0.026	0.12	2.59	0.327	1.577
CSCAD	0	0	2.769	0.024	5.122	0.063	3.361	0.024	0.40	1.20	0.492	1.570
CMCP	0	0	2.769	0.024	5.119	0.061	3.361	0.024	0.44	0.82	0.499	1.438
PLASSO	0	0	0.734	0.317	1.839	0.693	0.978	0.375	0.07	2.65	0.256	1.373
PSCAD1	0	0	0.712	0.334	1.557	0.826	0.921	0.420	0.37	0.71	0.485	1.066
PSCAD2	0	0	0.722	0.348	1.578	0.867	0.936	0.441	0.42	0.66	0.496	0.966
PSCAD3	0	0	0.731	0.348	1.609	0.874	0.949	0.443	0.43	0.68	0.498	0.963
PMCP1	0	0	0.709	0.333	1.545	0.834	0.916	0.422	0.38	0.69	0.488	1.070
PMCP2	0	0	0.716	0.345	1.566	0.860	0.929	0.439	0.39	0.66	0.490	0.945
PMCP3	0	0	0.725	0.348	1.586	0.862	0.941	0.439	0.40	0.67	0.492	0.943

relative\_ratio\_0.05

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.05	0.05	NA	2.715	0.016	4.997	0.035	3.296	0.015	0.01	0.18	0.100	0.411

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FSCAD 0.05	0.05	NA	2.704	0.016	4.980	0.040	3.282	0.014	0.29	0.14	0.456	0.403
FMCP 0.05	0.05	NA	2.705	0.016	4.980	0.038	3.282	0.014	0.26	0.17	0.441	0.403
CLASSO 0.05	0.05	NA	2.783	0.025	5.128	0.051	3.379	0.026	0.12	0.22	0.327	0.462
CSCAD 0.05	0.05	NA	2.769	0.024	5.104	0.048	3.361	0.024	0.40	0.16	0.492	0.443
CMCP 0.05	0.05	NA	2.769	0.024	5.101	0.049	3.361	0.024	0.44	0.13	0.499	0.393
PLASSO 0.05	0.05	NA	0.734	0.317	1.826	0.695	0.978	0.375	0.07	2.09	0.256	1.364
PSCAD1 0.05	0.05	NA	0.712	0.334	1.557	0.826	0.921	0.420	0.37	0.70	0.485	1.068
PSCAD2 0.05	0.05	NA	0.722	0.348	1.577	0.866	0.936	0.441	0.42	0.65	0.496	0.957
PSCAD3 0.05	0.05	NA	0.731	0.348	1.609	0.874	0.949	0.443	0.43	0.68	0.498	0.963
PMCP1 0.05	0.05	NA	0.709	0.333	1.545	0.834	0.916	0.422	0.38	0.67	0.488	1.064
PMCP2 0.05	0.05	NA	0.716	0.345	1.566	0.860	0.929	0.439	0.39	0.66	0.490	0.945
PMCP3 0.05	0.05	NA	0.725	0.348	1.586	0.862	0.941	0.439	0.40	0.67	0.492	0.943

relative\_ratio\_0.1

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.1*rho	0.093	0.002	2.715	0.016	4.986	0.029	3.296	0.015	0.01	0.00	0.100	0.000
FSCAD 0.1*rho	0.094	0.004	2.704	0.016	4.970	0.034	3.282	0.014	0.29	0.00	0.456	0.000
FMCP 0.1*rho	0.094	0.004	2.705	0.016	4.970	0.033	3.282	0.014	0.26	0.01	0.441	0.100
CLASSO 0.1*rho	0.095	0.003	2.783	0.025	5.114	0.046	3.379	0.026	0.12	0.02	0.327	0.141
CSCAD 0.1*rho	0.097	0.003	2.769	0.024	5.095	0.045	3.361	0.024	0.40	0.03	0.492	0.171
CMCP 0.1*rho	0.097	0.003	2.769	0.024	5.094	0.043	3.361	0.024	0.44	0.02	0.499	0.141
PLASSO 0.1*rho	0.052	0.027	0.734	0.317	1.826	0.690	0.978	0.375	0.07	2.14	0.256	1.363
PSCAD1 0.1*rho	0.069	0.037	0.712	0.334	1.555	0.826	0.921	0.420	0.37	0.67	0.485	1.035
PSCAD2 0.1*rho	0.071	0.037	0.722	0.348	1.577	0.866	0.936	0.441	0.42	0.65	0.496	0.957
PSCAD3 0.1*rho	0.072	0.036	0.731	0.348	1.608	0.874	0.949	0.443	0.43	0.67	0.498	0.954
PMCP1 0.1*rho	0.068	0.037	0.709	0.333	1.544	0.833	0.916	0.422	0.38	0.67	0.488	1.055
PMCP2 0.1*rho	0.070	0.037	0.716	0.345	1.566	0.860	0.929	0.439	0.39	0.66	0.490	0.945
PMCP3 0.1*rho	0.070	0.037	0.725	0.348	1.586	0.862	0.941	0.439	0.40	0.67	0.492	0.943

relative\_ratio\_0.3

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.3*rho	0.279	0.007	2.715	0.016	4.986	0.029	3.296	0.015	0.01	0.00	0.100	0.000
FSCAD 0.3*rho	0.283	0.012	2.704	0.016	4.970	0.034	3.282	0.014	0.29	0.00	0.456	0.000

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FMCP 0.3*rho	0.282	0.012	2.705	0.016	4.969	0.033	3.282	0.014	0.26	0.00	0.441	0.000
CLASSO 0.3*rho	0.286	0.008	2.783	0.025	5.112	0.046	3.379	0.026	0.12	0.00	0.327	0.000
CSCAD 0.3*rho	0.291	0.009	2.769	0.024	5.092	0.042	3.360	0.024	0.40	0.00	0.492	0.000
CMCP 0.3*rho	0.290	0.010	2.769	0.024	5.092	0.041	3.361	0.024	0.44	0.00	0.499	0.000
PLASSO 0.3*rho	0.155	0.081	0.734	0.317	1.746	0.681	0.972	0.376	0.07	1.42	0.256	1.379
PSCAD1 0.3*rho	0.206	0.110	0.712	0.334	1.548	0.822	0.920	0.420	0.37	0.64	0.485	1.030
PSCAD2 0.3*rho	0.213	0.110	0.722	0.348	1.570	0.865	0.935	0.441	0.42	0.62	0.496	0.930
PSCAD3 0.3*rho	0.216	0.109	0.731	0.348	1.606	0.872	0.949	0.443	0.43	0.66	0.498	0.934
PMCP1 0.3*rho	0.204	0.110	0.709	0.333	1.538	0.830	0.915	0.422	0.38	0.63	0.488	1.031
PMCP2 0.3*rho	0.209	0.110	0.716	0.345	1.562	0.862	0.928	0.440	0.39	0.64	0.490	0.927
PMCP3 0.3*rho	0.210	0.110	0.725	0.348	1.584	0.860	0.940	0.439	0.40	0.66	0.492	0.924

relative\_ratio\_0.5

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.5*rho	0.465	0.012	2.715	0.016	4.986	0.029	3.296	0.015	0.01	0.00	0.100	0.000
FSCAD 0.5*rho	0.472	0.021	2.704	0.016	4.970	0.034	3.282	0.014	0.29	0.00	0.456	0.000
FMCP 0.5*rho	0.471	0.020	2.705	0.016	4.969	0.033	3.282	0.014	0.26	0.00	0.441	0.000
CLASSO 0.5*rho	0.477	0.013	2.783	0.025	5.112	0.046	3.379	0.026	0.12	0.00	0.327	0.000
CSCAD 0.5*rho	0.485	0.016	2.769	0.024	5.092	0.042	3.360	0.024	0.40	0.00	0.492	0.000
CMCP 0.5*rho	0.484	0.017	2.769	0.024	5.092	0.041	3.361	0.024	0.44	0.00	0.499	0.000
PLASSO 0.5*rho	0.258	0.135	0.734	0.317	1.672	0.647	0.962	0.375	0.07	1.08	0.256	1.277
PSCAD1 0.5*rho	0.343	0.183	0.712	0.334	1.498	0.785	0.910	0.415	0.37	0.52	0.485	0.948
PSCAD2 0.5*rho	0.356	0.183	0.722	0.348	1.537	0.847	0.928	0.439	0.42	0.54	0.496	0.915
PSCAD3 0.5*rho	0.360	0.181	0.731	0.348	1.566	0.858	0.940	0.444	0.43	0.57	0.498	0.913
PMCP1 0.5*rho	0.340	0.184	0.709	0.333	1.492	0.793	0.907	0.418	0.38	0.52	0.488	0.948
PMCP2 0.5*rho	0.349	0.183	0.716	0.345	1.520	0.848	0.919	0.440	0.39	0.54	0.490	0.904
PMCP3 0.5*rho	0.351	0.183	0.725	0.348	1.540	0.849	0.929	0.440	0.40	0.56	0.492	0.903



Mean difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.502	-2.715	-1.810	-0.461	-0.002	-0.002	0.002	-0.003	-0.002
FSCAD	0.501	-2.704	-1.800	-0.466	-0.001	-0.001	0.001	-0.002	-0.001
FMCP	0.501	-2.705	-1.800	-0.464	0.000	-0.002	0.003	-0.002	0.000
CLASSO	0.690	-2.783	-1.857	-0.472	0.000	-0.001	0.001	-0.004	0.001
CSCAD	0.680	-2.769	-1.843	-0.480	0.000	-0.002	0.000	-0.001	0.003
CMCP	0.682	-2.769	-1.843	-0.480	0.000	-0.003	0.000	-0.003	0.001
PLASSO	0.000	-0.534	-0.359	-0.163	0.020	0.000	0.011	-0.010	0.005
PSCAD1	0.000	0.155	0.127	-0.116	0.032	0.007	0.014	-0.010	-0.029
PSCAD2	0.000	0.158	0.127	-0.116	0.040	0.004	0.021	-0.018	0.000
PSCAD3	0.000	0.188	0.153	-0.110	0.038	0.006	0.026	-0.018	0.012
PMCP1	0.000	0.139	0.111	-0.121	0.035	0.014	0.013	-0.010	-0.019
PMCP2	0.000	0.160	0.131	-0.110	0.031	0.005	0.027	-0.018	0.011
PMCP3	0.000	0.192	0.157	-0.097	0.034	0.006	0.026	-0.018	0.024
FULL	0.503	-2.704	-1.800	-0.451	-0.002	-0.001	0.002	-0.004	-0.003
COMPLETE	0.680	-2.768	-1.843	-0.461	-0.001	-0.002	0.001	-0.005	0.002
LOGISTIC	0.000	0.332	0.253	0.046	0.027	0.001	0.021	-0.037	0.035

sd difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.023	0.016	0.017	0.018	0.015	0.011	0.012	0.026	0.026
FSCAD	0.021	0.016	0.016	0.028	0.014	0.009	0.011	0.020	0.021
FMCP	0.023	0.016	0.016	0.027	0.014	0.010	0.011	0.022	0.023
CLASSO	0.035	0.025	0.021	0.019	0.015	0.014	0.013	0.026	0.031
CSCAD	0.033	0.024	0.020	0.024	0.011	0.010	0.011	0.022	0.026
CMCP	0.031	0.024	0.020	0.022	0.013	0.011	0.011	0.019	0.023
PLASSO	0.000	0.469	0.361	0.234	0.200	0.169	0.140	0.259	0.319
PSCAD1	0.000	0.576	0.435	0.368	0.226	0.195	0.142	0.275	0.368
PSCAD2	0.000	0.590	0.446	0.380	0.220	0.202	0.155	0.262	0.385
PSCAD3	0.000	0.585	0.429	0.385	0.230	0.209	0.162	0.262	0.407
PMCP1	0.000	0.571	0.451	0.364	0.220	0.191	0.143	0.275	0.366
PMCP2	0.000	0.582	0.455	0.375	0.228	0.204	0.157	0.262	0.367
PMCP3	0.000	0.581	0.431	0.381	0.233	0.208	0.161	0.262	0.390
FULL	0.029	0.016	0.016	0.017	0.020	0.017	0.017	0.036	0.039
COMPLETE	0.041	0.025	0.020	0.019	0.022	0.020	0.019	0.038	0.044
LOGISTIC	0.000	0.605	0.454	0.296	0.320	0.294	0.245	0.537	0.671

```

beta : 3 2 1 0 0 0 0
intercept : 0
sample size : 400
simulation time : 100
loss_rate: 0.625
error_independent: TRUE
missing_method: y_single
missing_location: 1
lambda_location_for_cv(SCAD): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
lambda_location_for_cv(MCP): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
file_name: ./data/beta_3_2_1_n_400_lambda_location_l1_30_error_independent_TRUE_logistic_method_Fan_2001.Rdata
table_original

```

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO	0	0	2.720	0.015	5.500	0.038	3.398	0.015	0.00	2.50	0.000	1.592
FSCAD	0	0	2.709	0.014	5.443	0.047	3.380	0.014	0.00	1.14	0.000	1.271
FMCP	0	0	2.709	0.014	5.449	0.055	3.380	0.014	0.00	1.01	0.000	1.501
CLASSO	0	0	2.786	0.021	5.642	0.059	3.481	0.023	0.00	2.55	0.000	1.579
CSCAD	0	0	2.772	0.021	5.596	0.074	3.461	0.023	0.01	1.56	0.100	1.641
CMCP	0	0	2.772	0.020	5.588	0.072	3.462	0.023	0.03	1.04	0.171	1.414
PLASSO	0	0	0.740	0.309	2.102	0.888	1.053	0.420	0.00	3.00	0.000	1.385
PSCAD1	0	0	0.741	0.490	1.683	1.407	0.967	0.689	0.02	0.85	0.141	1.175
PSCAD2	0	0	0.787	0.497	1.834	1.392	1.042	0.685	0.03	0.88	0.171	1.094
PSCAD3	0	0	0.812	0.513	1.895	1.432	1.070	0.699	0.03	0.94	0.171	1.108
PMCP1	0	0	0.733	0.490	1.682	1.405	0.961	0.684	0.04	0.83	0.197	1.181
PMCP2	0	0	0.779	0.505	1.815	1.449	1.026	0.702	0.04	0.92	0.197	1.143
PMCP3	0	0	0.816	0.513	1.913	1.462	1.076	0.708	0.04	0.97	0.197	1.167

relative\_ratio\_0.05

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.05	0.05	NA	2.720	0.015	5.462	0.033	3.398	0.015	0.00	0.14	0.000	0.377

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FSCAD 0.05	0.05	NA	2.709	0.014	5.427	0.034	3.380	0.014	0.00	0.08	0.000	0.273
FMCP 0.05	0.05	NA	2.709	0.014	5.432	0.037	3.380	0.014	0.00	0.16	0.000	0.420
CLASSO 0.05	0.05	NA	2.786	0.021	5.602	0.049	3.481	0.023	0.00	0.24	0.000	0.495
CSCAD 0.05	0.05	NA	2.772	0.021	5.572	0.058	3.461	0.023	0.01	0.27	0.100	0.548
CMCP 0.05	0.05	NA	2.772	0.020	5.569	0.057	3.462	0.023	0.03	0.20	0.171	0.492
PLASSO 0.05	0.05	NA	0.740	0.309	2.091	0.891	1.053	0.420	0.00	2.53	0.000	1.527
PSCAD1 0.05	0.05	NA	0.741	0.490	1.682	1.406	0.967	0.689	0.02	0.79	0.141	1.094
PSCAD2 0.05	0.05	NA	0.787	0.497	1.834	1.392	1.042	0.685	0.03	0.88	0.171	1.094
PSCAD3 0.05	0.05	NA	0.812	0.513	1.895	1.432	1.070	0.699	0.03	0.93	0.171	1.103
PMCP1 0.05	0.05	NA	0.733	0.490	1.680	1.405	0.961	0.684	0.04	0.78	0.197	1.142
PMCP2 0.05	0.05	NA	0.779	0.505	1.815	1.449	1.026	0.702	0.04	0.92	0.197	1.143
PMCP3 0.05	0.05	NA	0.816	0.513	1.913	1.462	1.076	0.708	0.04	0.96	0.197	1.154

relative\_ratio\_0.1

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.1*rho	0.092	0.001	2.720	0.015	5.454	0.027	3.398	0.015	0.00	0.01	0.000	0.100
FSCAD 0.1*rho	0.091	0.001	2.709	0.014	5.423	0.029	3.380	0.014	0.00	0.01	0.000	0.100
FMCP 0.1*rho	0.091	0.001	2.709	0.014	5.424	0.028	3.380	0.014	0.00	0.02	0.000	0.141
CLASSO 0.1*rho	0.094	0.001	2.786	0.021	5.588	0.041	3.481	0.023	0.00	0.01	0.000	0.100
CSCAD 0.1*rho	0.094	0.002	2.772	0.021	5.555	0.043	3.461	0.023	0.01	0.00	0.100	0.000
CMCP 0.1*rho	0.094	0.002	2.772	0.020	5.556	0.042	3.461	0.023	0.03	0.00	0.171	0.000
PLASSO 0.1*rho	0.035	0.018	0.740	0.309	2.096	0.886	1.053	0.420	0.00	2.66	0.000	1.506
PSCAD1 0.1*rho	0.035	0.026	0.741	0.490	1.683	1.406	0.967	0.689	0.02	0.81	0.141	1.125
PSCAD2 0.1*rho	0.037	0.026	0.787	0.497	1.834	1.392	1.042	0.685	0.03	0.88	0.171	1.094
PSCAD3 0.1*rho	0.037	0.026	0.812	0.513	1.895	1.432	1.070	0.699	0.03	0.93	0.171	1.103
PMCP1 0.1*rho	0.035	0.026	0.733	0.490	1.681	1.405	0.961	0.684	0.04	0.80	0.197	1.181
PMCP2 0.1*rho	0.036	0.027	0.779	0.505	1.815	1.449	1.026	0.702	0.04	0.92	0.197	1.143
PMCP3 0.1*rho	0.037	0.027	0.816	0.513	1.913	1.462	1.076	0.708	0.04	0.97	0.197	1.167

relative\_ratio\_0.3

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.3*rho	0.276	0.003	2.720	0.015	5.453	0.028	3.398	0.015	0.00	0.00	0.000	0.000
FSCAD 0.3*rho	0.274	0.004	2.709	0.014	5.422	0.026	3.380	0.014	0.00	0.00	0.000	0.000

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FMCP 0.3*rho	0.274	0.003	2.709	0.014	5.422	0.026	3.380	0.014	0.00	0.00	0.000	0.000
CLASSO 0.3*rho	0.283	0.004	2.786	0.021	5.587	0.040	3.481	0.023	0.00	0.00	0.000	0.000
CSCAD 0.3*rho	0.282	0.006	2.772	0.021	5.555	0.043	3.461	0.023	0.01	0.00	0.100	0.000
CMCP 0.3*rho	0.282	0.006	2.772	0.020	5.556	0.042	3.461	0.023	0.03	0.00	0.171	0.000
PLASSO 0.3*rho	0.106	0.055	0.740	0.309	2.048	0.864	1.051	0.419	0.00	2.11	0.000	1.582
PSCAD1 0.3*rho	0.104	0.077	0.741	0.490	1.677	1.401	0.967	0.689	0.02	0.75	0.141	1.058
PSCAD2 0.3*rho	0.110	0.079	0.787	0.497	1.826	1.370	1.042	0.684	0.03	0.85	0.171	1.067
PSCAD3 0.3*rho	0.111	0.079	0.812	0.513	1.893	1.431	1.070	0.699	0.03	0.92	0.171	1.089
PMCP1 0.3*rho	0.105	0.079	0.733	0.490	1.678	1.403	0.961	0.684	0.04	0.77	0.197	1.136
PMCP2 0.3*rho	0.109	0.082	0.779	0.505	1.812	1.446	1.026	0.702	0.04	0.90	0.197	1.124
PMCP3 0.3*rho	0.112	0.082	0.816	0.513	1.912	1.460	1.076	0.708	0.04	0.95	0.197	1.140

relative\_ratio\_0.5

	rho	r_sd	L_inf	L_sd	L_1	L_1_sd	L_2	L_2_sd	tn0e0	t0en0	tn0e0_sd	t0en0_sd
FLASSO 0.5*rho	0.460	0.006	2.720	0.015	5.453	0.028	3.398	0.015	0.00	0.00	0.000	0.000
FSCAD 0.5*rho	0.457	0.006	2.709	0.014	5.422	0.026	3.380	0.014	0.00	0.00	0.000	0.000
FMCP 0.5*rho	0.457	0.006	2.709	0.014	5.422	0.026	3.380	0.014	0.00	0.00	0.000	0.000
CLASSO 0.5*rho	0.472	0.007	2.786	0.021	5.587	0.040	3.481	0.023	0.00	0.00	0.000	0.000
CSCAD 0.5*rho	0.471	0.009	2.772	0.021	5.555	0.043	3.461	0.023	0.01	0.00	0.100	0.000
CMCP 0.5*rho	0.471	0.009	2.772	0.020	5.556	0.042	3.461	0.023	0.03	0.00	0.171	0.000
PLASSO 0.5*rho	0.176	0.091	0.740	0.309	1.982	0.792	1.045	0.414	0.00	1.73	0.000	1.510
PSCAD1 0.5*rho	0.174	0.129	0.741	0.490	1.655	1.332	0.964	0.684	0.02	0.70	0.141	1.020
PSCAD2 0.5*rho	0.184	0.131	0.787	0.497	1.809	1.331	1.040	0.681	0.03	0.80	0.171	1.064
PSCAD3 0.5*rho	0.186	0.132	0.812	0.513	1.872	1.363	1.068	0.694	0.03	0.87	0.171	1.070
PMCP1 0.5*rho	0.175	0.132	0.733	0.490	1.654	1.338	0.959	0.679	0.04	0.70	0.197	1.059
PMCP2 0.5*rho	0.182	0.137	0.779	0.505	1.783	1.368	1.023	0.696	0.04	0.82	0.197	1.067
PMCP3 0.5*rho	0.187	0.136	0.816	0.513	1.882	1.386	1.074	0.703	0.04	0.86	0.197	1.073

Mean difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.500	-2.720	-1.819	-0.914	-0.003	0.000	0.000	-0.004	0.001
FSCAD	0.499	-2.709	-1.808	-0.904	-0.002	0.001	0.001	-0.002	0.001
FMCP	0.500	-2.709	-1.808	-0.904	-0.002	0.001	0.000	-0.003	0.000
CLASSO	0.692	-2.786	-1.865	-0.937	-0.005	0.001	0.000	-0.003	-0.001
CSCAD	0.682	-2.772	-1.851	-0.932	-0.004	0.001	0.002	-0.001	-0.001
CMCP	0.682	-2.772	-1.851	-0.933	-0.004	0.000	0.000	-0.001	0.000
PLASSO	0.000	-0.408	-0.349	-0.169	-0.048	-0.008	-0.011	-0.032	0.012
PSCAD1	0.000	0.258	0.097	0.058	-0.055	-0.018	-0.017	-0.036	0.018
PSCAD2	0.000	0.321	0.132	0.112	-0.050	-0.001	-0.018	-0.048	0.023
PSCAD3	0.000	0.352	0.146	0.133	-0.061	0.005	-0.024	-0.040	0.024
PMCP1	0.000	0.238	0.079	0.038	-0.048	-0.012	-0.011	-0.039	0.012
PMCP2	0.000	0.296	0.113	0.085	-0.043	-0.007	-0.010	-0.048	0.015
PMCP3	0.000	0.348	0.140	0.130	-0.060	0.002	-0.021	-0.040	0.015
FULL	0.499	-2.709	-1.808	-0.903	-0.003	0.000	-0.001	-0.005	0.004
COMPLETE	0.682	-2.771	-1.851	-0.924	-0.006	0.002	-0.001	-0.005	0.002
LOGISTIC	0.000	0.503	0.266	0.196	-0.068	-0.011	-0.040	-0.065	-0.023

sd difference between estimation and true beta value

	(intercept)	x1	x2	x3	x4	x5	x6	x7	x8
FLASSO	0.024	0.015	0.018	0.017	0.013	0.011	0.014	0.021	0.023
FSCAD	0.021	0.014	0.017	0.019	0.011	0.009	0.012	0.011	0.018
FMCP	0.023	0.014	0.017	0.019	0.012	0.009	0.011	0.019	0.022
CLASSO	0.031	0.021	0.019	0.020	0.016	0.012	0.015	0.026	0.028
CSCAD	0.032	0.021	0.020	0.026	0.016	0.011	0.015	0.024	0.026
CMCP	0.029	0.020	0.019	0.026	0.015	0.009	0.015	0.021	0.023
PLASSO	0.000	0.577	0.450	0.315	0.221	0.172	0.200	0.336	0.323
PSCAD1	0.000	0.665	0.540	0.392	0.248	0.156	0.240	0.383	0.394
PSCAD2	0.000	0.689	0.555	0.399	0.268	0.173	0.256	0.403	0.395
PSCAD3	0.000	0.695	0.566	0.389	0.281	0.204	0.265	0.411	0.399
PMCP1	0.000	0.670	0.529	0.400	0.246	0.154	0.236	0.394	0.384
PMCP2	0.000	0.695	0.554	0.409	0.270	0.184	0.243	0.405	0.394
PMCP3	0.000	0.704	0.580	0.397	0.282	0.199	0.267	0.414	0.394
FULL	0.030	0.015	0.017	0.017	0.019	0.017	0.020	0.033	0.035
COMPLETE	0.039	0.021	0.020	0.018	0.022	0.019	0.021	0.038	0.039
LOGISTIC	0.000	0.770	0.581	0.402	0.353	0.310	0.340	0.700	0.654