Results simulation study DelayedGSD

January 20, 2023

1 Rejection rate

Power by method (columns) and scenario (rows): (nominal level 0.8)

scenario	N	missing	binding	fixC	ar	method 1	method 2	method 3
1	10000	TRUE	TRUE	FALSE	10	81.00	80.79	80.45
3	10000	TRUE	TRUE	FALSE	5	80.60	80.45	80.21
5	10000	TRUE	TRUE	TRUE	10	79.81	80.41	80.39
7	10000	TRUE	TRUE	TRUE	5	80.00	80.46	80.08
9	10000	TRUE	FALSE	TRUE	10	80.50	80.85	80.91
11	10000	TRUE	FALSE	TRUE	5	80.73	80.82	80.75
13	10000	TRUE	FALSE	FALSE	10	80.67	80.60	80.65
15	10000	TRUE	FALSE	FALSE	5	80.65	80.64	80.46
17	10000	FALSE	TRUE	FALSE	5	80.31	80.28	79.93

⚠ slightly too high power for some scenario

Type 1 error by method (columns) and scenario (rows): (nominal level 0.025)

```
tablePrintH0 <- dcast(res2stageS.rejection[hypo=="typeI"],
                      scenario + N + missing + binding + fixC + ar ~ method.
   char,
                      value.var = "rejectionRate")
print(tablePrintH0, row.names = FALSE)
```

scenario	N	missing	binding	fixC	ar	method 1	method 2	method 3
2	10000	TRUE	TRUE	FALSE	10	2.46	2.53	2.40
4	10000	TRUE	TRUE	FALSE	5	2.42	2.41	2.40
6	10000	TRUE	TRUE	TRUE	10	2.25	2.25	2.45
8	10000	TRUE	TRUE	TRUE	5	2.42	2.39	2.50
10	10000	TRUE	FALSE	TRUE	10	2.09	2.09	2.26
12	10000	TRUE	FALSE	TRUE	5	2.30	2.28	2.33
14	10000	TRUE	FALSE	FALSE	10	2.29	2.28	2.46
16	10000	TRUE	FALSE	FALSE	5	2.38	2.37	2.46
18	10000	FALSE	TRUE	FALSE	5	2.46	2.44	2.45

⚠ slightly too lower type 1 error for some scenario

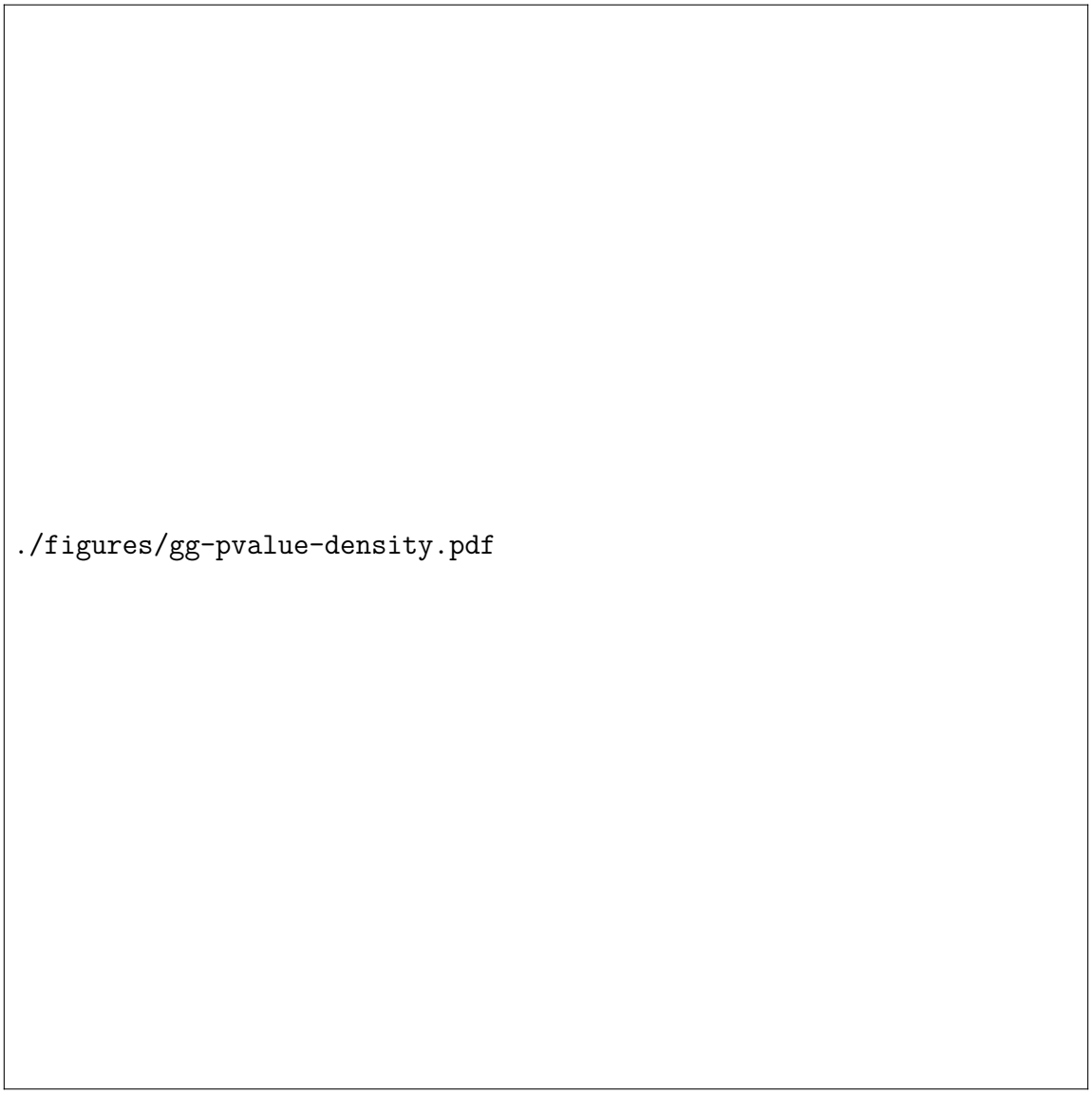

Figure 1: Naive and adjusted p-value distribution over all simulations. Each row correspond to a different scenario

2 Conclusion of the trial

Relative frequency of stopping for efficacy/futility at decision/final

- Method 1

	N	missing	hypo	binding	fixC	ar	decision.eff	decision.fut	final.eff	final.fut
1:	10000	TRUE	power	TRUE	FALSE	10	37.82	6.050	43.18	13.0
2:	10000	TRUE	typeI	TRUE	FALSE	10	0.79	70.850	1.67	26.7
3:	10000	TRUE	power	TRUE	FALSE	5	35.60	6.020	45.00	13.4
4:	10000	TRUE	typeI	TRUE	FALSE	5	0.68	69.210	1.74	28.4
5:	10000	TRUE	power	TRUE	TRUE	10	36.45	6.530	43.36	13.7
6:	10000	TRUE	typeI	TRUE	TRUE	10	0.64	71.290	1.61	26.5
7:	10000	TRUE	power	TRUE	TRUE	5	34.68	5.860	45.32	14.1
8:	10000	TRUE	typeI	TRUE	TRUE	5	0.72	69.110	1.70	28.5
9:	10000	TRUE	power	FALSE	TRUE	10	37.57	6.630	42.93	12.9
10:	2870	TRUE	typeI	FALSE	TRUE	10	1.99	0.976	5.30	91.7
11:	10000	TRUE	power	FALSE	TRUE	5	36.02	6.280	44.71	13.0
12:	3043	TRUE	typeI	FALSE	TRUE	5	2.40	0.296	5.16	92.1
13:	10000	TRUE	power	FALSE	FALSE	10	38.32	5.870	42.35	13.5
14:	2874	TRUE	typeI	FALSE	FALSE	10	2.40	0.313	5.57	91.7
15:	10000	TRUE	power	FALSE	FALSE	5	36.75	5.700	43.90	13.6
16:	3080	TRUE	typeI	FALSE	FALSE	5	2.18	0.000	5.55	92.3
17:	10000	FALSE	power	TRUE	FALSE	5	33.98	5.330	46.33	14.4
18:	10000	FALSE	typeI	TRUE	FALSE	5	0.74	67.480	1.72	30.1

⚠ something is not quite right for non-binding scenarios under the null (`N` should be 10000).

Method 2:

	N	missing	hypo	binding	fixC	ar	decision.eff	decision.fut	final.eff	final.fut
1:	10000	TRUE	power	TRUE	FALSE	10	37.66	6.2200	43.13	13.0
2:	10000	TRUE	typeI	TRUE	FALSE	10	0.85	71.1800	1.68	26.3
3:	10000	TRUE	power	TRUE	FALSE	5	35.55	6.1000	44.90	13.5
4:	10000	TRUE	typeI	TRUE	FALSE	5	0.67	69.0500	1.74	28.5
5:	10000	TRUE	power	TRUE	TRUE	10	36.82	5.9400	43.59	13.6
6:	10000	TRUE	typeI	TRUE	TRUE	10	0.63	70.0200	1.62	27.7
7:	10000	TRUE	power	TRUE	TRUE	5	35.06	5.6300	45.40	13.9
8:	10000	TRUE	typeI	TRUE	TRUE	5	0.71	68.4600	1.68	29.1
9:	10000	TRUE	power	FALSE	TRUE	10	37.76	6.2100	43.09	12.9
10:	2956	TRUE	typeI	FALSE	TRUE	10	1.89	0.8796	5.18	92.1
11:	10000	TRUE	power	FALSE	TRUE	5	36.07	6.1000	44.75	13.1
12:	3093	TRUE	typeI	FALSE	TRUE	5	2.33	0.2263	5.04	92.4
13:	10000	TRUE	power	FALSE	FALSE	10	38.33	6.1100	42.27	13.3
14:	2820	TRUE	typeI	FALSE	FALSE	10	2.45	0.3191	5.64	91.6
15:	10000	TRUE	power	FALSE	FALSE	5	36.78	5.7200	43.86	13.6
16:	3075	TRUE	typeI	FALSE	FALSE	5	2.15	0.0325	5.56	92.3
17:	10000	FALSE	power	TRUE	FALSE	5	33.68	5.1700	46.60	14.5
18:	10000	FALSE	typeI	TRUE	FALSE	5	0.72	67.4200	1.72	30.1

⚠ something is not quite right for non-binding scenarios under the null (`N` should be 10000).

Method 3:

	N	missing	hypo	binding	fixC	ar	decision.eff	decision.fut	final.eff	final.fut
1:	10000	TRUE	power	TRUE	FALSE	10	40.44	6.540	40.01	13.0
2:	10000	TRUE	typeI	TRUE	FALSE	10	0.74	68.770	1.66	28.8
3:	10000	TRUE	power	TRUE	FALSE	5	36.49	6.420	43.72	13.4
4:	10000	TRUE	typeI	TRUE	FALSE	5	0.68	68.370	1.72	29.2
5:	10000	TRUE	power	TRUE	TRUE	10	39.85	5.830	40.54	13.8
6:	10000	TRUE	typeI	TRUE	TRUE	10	0.73	68.890	1.72	28.7
7:	10000	TRUE	power	TRUE	TRUE	5	35.70	5.810	44.38	14.1
8:	10000	TRUE	typeI	TRUE	TRUE	5	0.78	68.260	1.72	29.2
9:	10000	TRUE	power	FALSE	TRUE	10	41.03	6.390	39.88	12.7
10:	3086	TRUE	typeI	FALSE	TRUE	10	2.33	1.231	4.99	91.4
11:	10000	TRUE	power	FALSE	TRUE	5	37.08	6.140	43.67	13.1
12:	3133	TRUE	typeI	FALSE	TRUE	5	2.36	0.447	5.08	92.1
13:	10000	TRUE	power	FALSE	FALSE	10	41.47	6.050	39.18	13.3
14:	3130	TRUE	typeI	FALSE	FALSE	10	2.59	0.990	5.27	91.2
15:	10000	TRUE	power	FALSE	FALSE	5	37.37	5.860	43.09	13.7
16:	3163	TRUE	typeI	FALSE	FALSE	5	2.37	0.253	5.41	92.0
17:	10000	FALSE	power	TRUE	FALSE	5	34.66	5.580	45.27	14.5
18:	10000	FALSE	typeI	TRUE	FALSE	5	0.68	66.540	1.77	31.0

⚠ something is not quite right for non-binding scenarios under the null (`N` should be 10000).

3 Bias (True effect: 0.6 under the alternative)

Bias [1] per estimator and method:

	hypo	missing	binding	fixC	ar	biasMLE1	biasMLE2	biasMLE3	biasMUE1	biasMUE2	biasMUE3
1:	power	TRUE	TRUE	FALSE	10	0.0130	0.0131	0.0141	0.00547	0.00556	0.00321
2:	typeI	TRUE	TRUE	FALSE	10	-0.0184	-0.0184	-0.0185	-0.00426	-0.00433	-0.00472
3:	power	TRUE	TRUE	FALSE	5	0.0224	0.0222	0.0234	0.01008	0.01016	0.00902
4:	typeI	TRUE	TRUE	FALSE	5	-0.0304	-0.0308	-0.0306	-0.01176	-0.01214	-0.01214
5:	power	TRUE	TRUE	TRUE	10	0.0116	0.0121	0.0130	0.00457	0.00504	0.00306
6:	typeI	TRUE	TRUE	TRUE	10	-0.0221	-0.0223	-0.0223	-0.00817	-0.00830	-0.00816
7:	power	TRUE	TRUE	TRUE	5	0.0216	0.0220	0.0227	0.00990	0.01050	0.00875
8:	typeI	TRUE	TRUE	TRUE	5	-0.0339	-0.0344	-0.0341	-0.01450	-0.01457	-0.01499
9:	power	TRUE	FALSE	TRUE	10	0.0150	0.0151	0.0163	0.00371	0.00376	0.00221
10:	typeI	TRUE	FALSE	TRUE	10	0.1776	0.1740	0.1713	0.17905	0.17536	0.17171
11:	power	TRUE	FALSE	TRUE	5	0.0242	0.0242	0.0252	0.00864	0.00835	0.00797
12:	typeI	TRUE	FALSE	TRUE	5	0.1722	0.1701	0.1700	0.17292	0.17079	0.16962
13:	power	TRUE	FALSE	FALSE	10	0.0144	0.0141	0.0157	0.00338	0.00297	0.00317
14:	typeI	TRUE	FALSE	FALSE	10	0.1803	0.1821	0.1736	0.18129	0.18315	0.17484
15:	power	TRUE	FALSE	FALSE	5	0.0234	0.0233	0.0243	0.00884	0.00883	0.00811
16:	typeI	TRUE	FALSE	FALSE	5	0.1721	0.1720	0.1705	0.17225	0.17208	0.17059
17:	power	FALSE	TRUE	FALSE	5	0.0228	0.0228	0.0238	0.01197	0.01208	0.01063
18:	typeI	FALSE	TRUE	FALSE	5	-0.0295	-0.0297	-0.0299	-0.01105	-0.01139	-0.01161

⚠ clear bias for non-binding scenarios under the null

Median bias [2] per estimator and method:

	hypo	missing	binding	fixC	ar	mbiasMLE1	mbiasMLE2	mbiasMLE3	mbiasMUE1	mbiasMUE2	mbiasMUE3
1:	power	TRUE	TRUE	FALSE	10	0.0250	0.0240	0.0266	-0.0023	-0.0017	-0.0042
2:	typeI	TRUE	TRUE	FALSE	10	-0.0193	-0.0198	-0.0223	0.0002	-0.0013	0.0001
3:	power	TRUE	TRUE	FALSE	5	0.0387	0.0382	0.0406	-0.0030	-0.0016	-0.0018
4:	typeI	TRUE	TRUE	FALSE	5	-0.0346	-0.0339	-0.0361	0.0000	-0.0002	0.0001
5:	power	TRUE	TRUE	TRUE	10	0.0164	0.0188	0.0179	-0.0053	-0.0061	-0.0080
6:	typeI	TRUE	TRUE	TRUE	10	-0.0327	-0.0314	-0.0347	-0.0113	-0.0079	-0.0099
7:	power	TRUE	TRUE	TRUE	5	0.0356	0.0369	0.0361	-0.0073	-0.0075	-0.0075
8:	typeI	TRUE	TRUE	TRUE	5	-0.0473	-0.0492	-0.0493	-0.0105	-0.0081	-0.0105
9:	power	TRUE	FALSE	TRUE	10	0.0328	0.0301	0.0345	-0.0025	-0.0044	-0.0036
10:	typeI	TRUE	FALSE	TRUE	10	0.3599	0.3555	0.3474	0.3606	0.3562	0.3487
11:	power	TRUE	FALSE	TRUE	5	0.0479	0.0459	0.0499	-0.0014	-0.0012	-0.0026
12:	typeI	TRUE	FALSE	TRUE	5	0.3413	0.3432	0.3379	0.3413	0.3432	0.3382
13:	power	TRUE	FALSE	FALSE	10	0.0326	0.0324	0.0339	-0.0033	-0.0036	0.0012
14:	typeI	TRUE	FALSE	FALSE	10	0.3605	0.3621	0.3482	0.3612	0.3628	0.3508
15:	power	TRUE	FALSE	FALSE	5	0.0442	0.0442	0.0465	-0.0010	-0.0010	-0.0028
16:	typeI	TRUE	FALSE	FALSE	5	0.3455	0.3452	0.3410	0.3455	0.3452	0.3416

[1] average difference between the estimate and the truth

[2] Relative frequency at which the estimate is greater than the truth minus 0.5

```
17: power   FALSE    TRUE FALSE  5    0.0383    0.0378    0.0400   -0.0026   -0.0008   -0.0038
18: typeI   FALSE    TRUE FALSE  5   -0.0329   -0.0336   -0.0353    0.0044    0.0031    0.0035
```

4 Distribution of the estimates

Distribution of the estimates:

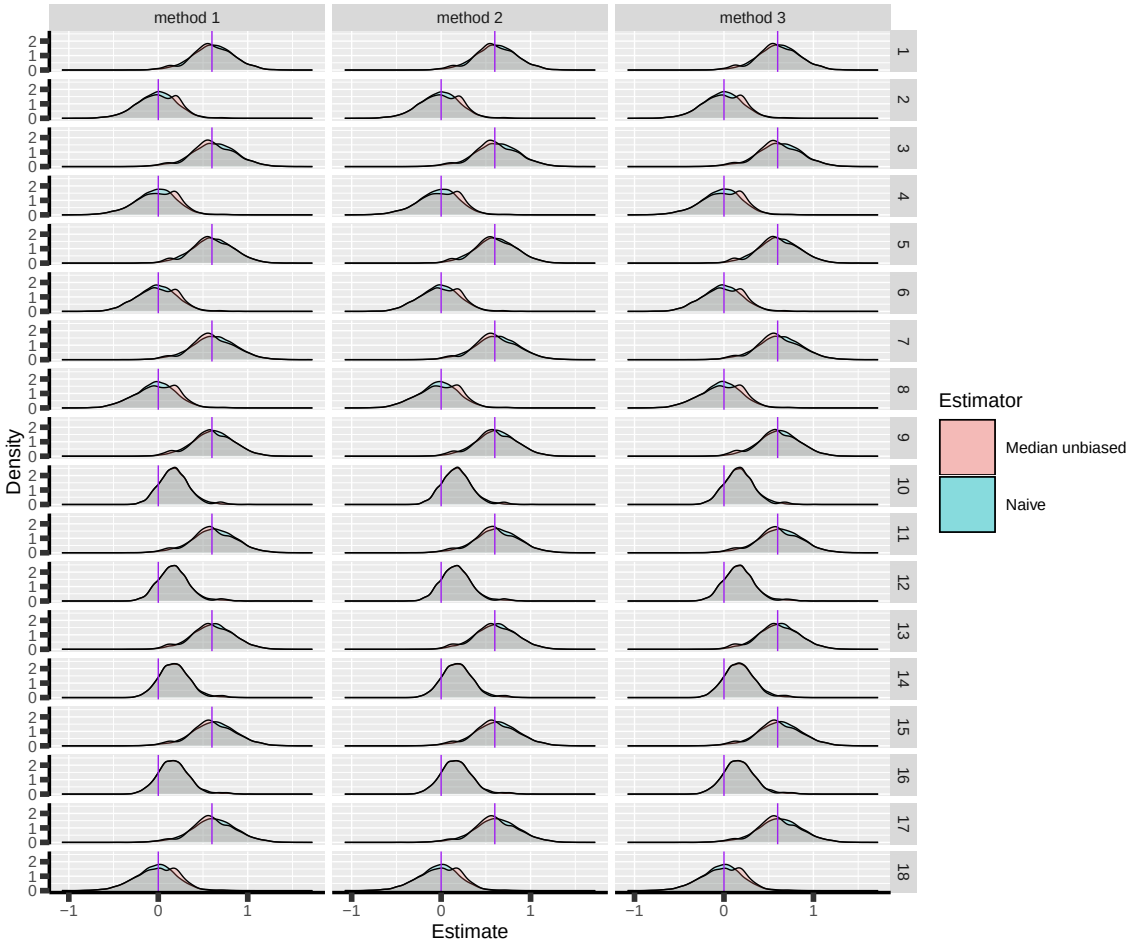

Figure 2: Naive and Median unbiased estimate distribution over all simulations. Each row correspond to a different scenario

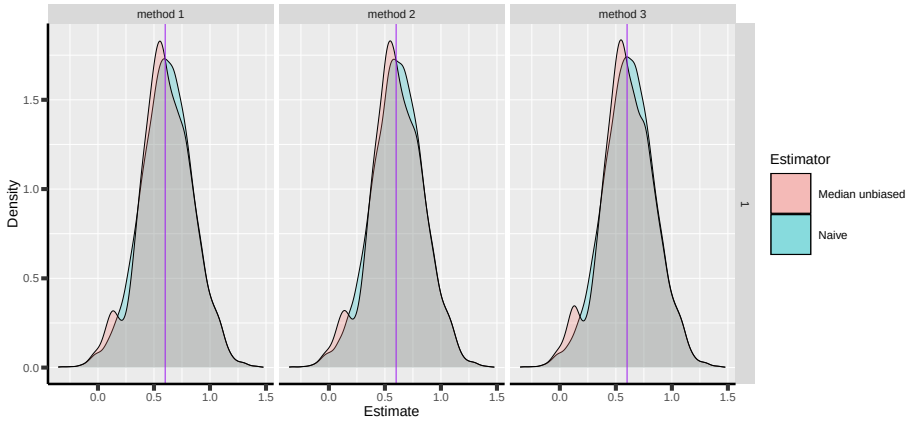

Figure 3: Same but specific to scenario 1

Distribution of the median unbiased estimate conditional to the stage:

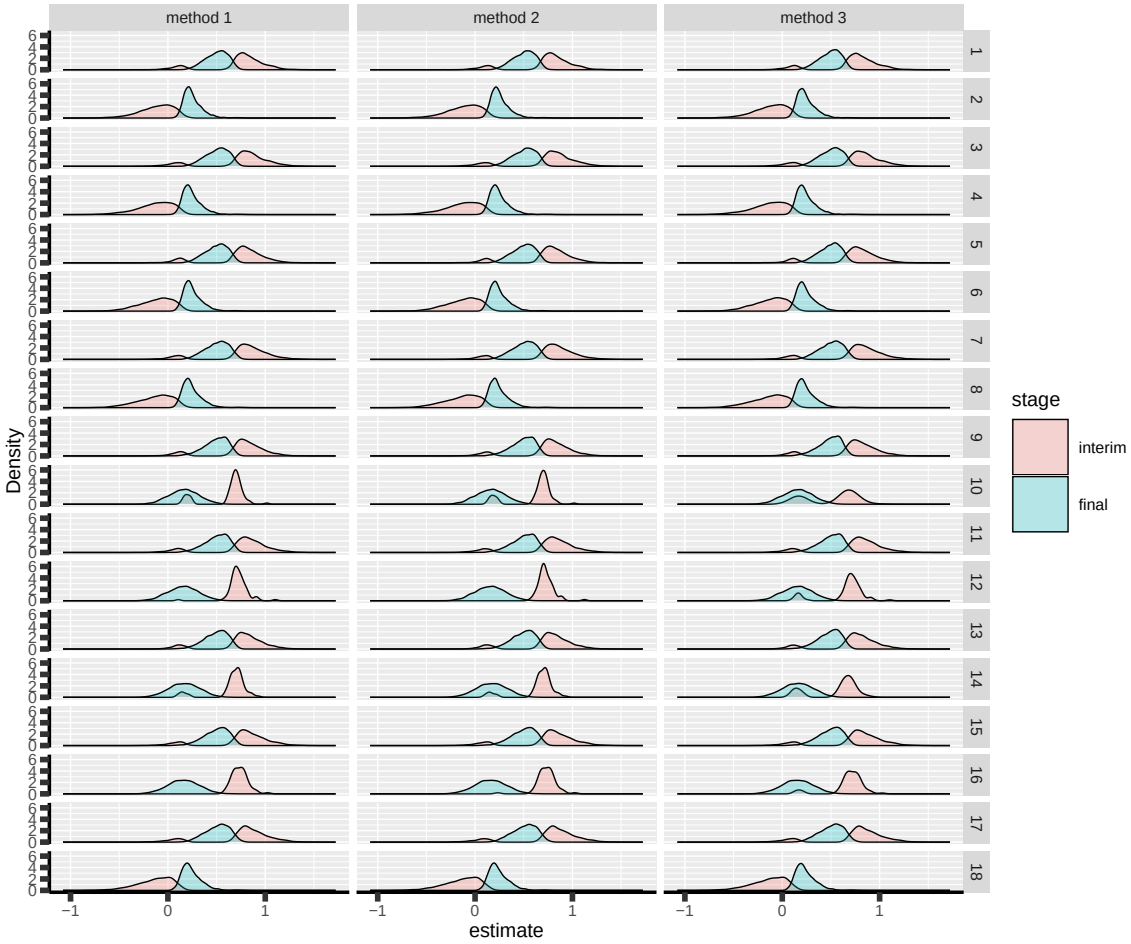

Figure 4: Median unbiased estimate distribution conditional to the stage. Each row correspond to a different scenario.

5 Special cases

Reason for stopping (first 4) or continuing the trial (last):

	scenario	1	2	3	4	5	6	7	8
reason	method								
decreasing information	1	0	0	1	1	0	0	0	0
	2	0	0	1	1	0	0	0	0
	3	0	0	1	1	0	0	0	0
efficacy	1	3740	77	3559	67	3696	82	3502	82
	2	3729	82	3554	68	3732	82	3546	83
	3	4137	107	3712	83	4071	110	3632	92
futility	1	646	7086	603	6922	600	7109	552	6901
	2	658	7120	611	6904	542	6981	523	6834
	3	560	6843	579	6822	495	6850	519	6812
Imax reached	1	1	1	0	0	2	2	0	0
	2	1	1	0	0	2	2	0	0
	3	1	1	0	0	2	2	0	0
no boundary crossed	1	5613	2836	5838	3011	5702	2807	5946	3017
	2	5612	2797	5835	3028	5724	2935	5931	3083
	3	5302	3049	5709	3095	5432	3038	5849	3096

	scenario	9	10	11	12	13	14	15	16
reason	method								
decreasing information	1	0	0	1	0	0	0	0	0
	2	0	0	1	0	0	0	0	0
	3	0	0	1	0	0	0	0	0
efficacy	1	3805	84	3634	82	3815	78	3674	67
	2	3824	81	3646	79	3816	78	3677	67
	3	4206	109	3761	88	4238	112	3788	83
futility	1	614	7130	596	6957	604	7126	571	6920
	2	572	7044	571	6907	628	7180	573	6925
	3	535	6914	561	6867	514	6870	535	6837
Imax reached	1	1	1	0	0	0	0	0	0
	2	1	1	0	0	0	0	0	0
	3	1	1	0	0	0	0	0	0
no boundary crossed	1	5580	2785	5770	2961	5581	2796	5755	3013
	2	5603	2874	5783	3014	5556	2742	5750	3008
	3	5258	2976	5678	3045	5248	3018	5677	3080

6 Reversal probability

Percentage of time we observe a reversal:

	N	hypo	missing	ar	binding	fixC	fu2eff_1	fu2eff_2	fu2eff_3	eff2fu_1	eff2fu_2	eff2fu_3
1:	10000	power	FALSE	5	TRUE	FALSE	0.06	0.07	0.01	0.04	0.04	0.63
2:	10000	power	TRUE	5	FALSE	FALSE	0.04	0.04	0.00	0.03	0.03	0.51
3:	10000	power	TRUE	5	FALSE	TRUE	0.04	0.03	0.03	0.36	0.42	0.56
4:	10000	power	TRUE	5	TRUE	FALSE	0.06	0.08	0.02	0.05	0.07	0.65
5:	10000	power	TRUE	5	TRUE	TRUE	0.02	0.02	0.01	0.36	0.42	0.63
6:	10000	power	TRUE	10	FALSE	FALSE	0.35	0.38	0.05	0.18	0.21	0.96
7:	10000	power	TRUE	10	FALSE	TRUE	0.15	0.13	0.10	0.63	0.61	1.13
8:	10000	power	TRUE	10	TRUE	FALSE	0.57	0.57	0.13	0.15	0.20	1.06
9:	10000	power	TRUE	10	TRUE	TRUE	0.17	0.16	0.11	0.70	0.68	0.99
10:	10000	typeI	FALSE	5	TRUE	FALSE	0.01	0.03	0.00	0.01	0.03	0.12
11:	10000	typeI	TRUE	5	FALSE	FALSE	0.00	0.00	0.00	0.00	0.01	0.08
12:	10000	typeI	TRUE	5	FALSE	TRUE	0.00	0.00	0.00	0.09	0.07	0.14
13:	10000	typeI	TRUE	5	TRUE	FALSE	0.02	0.02	0.00	0.01	0.03	0.15
14:	10000	typeI	TRUE	5	TRUE	TRUE	0.00	0.00	0.00	0.10	0.12	0.14
15:	10000	typeI	TRUE	10	FALSE	FALSE	0.00	0.00	0.00	0.09	0.09	0.31
16:	10000	typeI	TRUE	10	FALSE	TRUE	0.00	0.00	0.00	0.27	0.25	0.37
17:	10000	typeI	TRUE	10	TRUE	FALSE	0.11	0.11	0.03	0.09	0.08	0.36
18:	10000	typeI	TRUE	10	TRUE	TRUE	0.02	0.00	0.00	0.22	0.21	0.39

7 Frequency mismatch p-value / boundaries

When concluding for futility:

	hypo	missing	ar	binding	fixC	method 1	method 2	method 3
1:	power	FALSE	5	TRUE	FALSE	0.00000000	0.00000000	0.39860488
2:	power	TRUE	5	FALSE	FALSE	0.41343669	0.41322314	0.46059365
3:	power	TRUE	5	FALSE	TRUE	1.92008303	2.29405631	0.41558442
4:	power	TRUE	5	TRUE	FALSE	0.00000000	0.00000000	0.45477514
5:	power	TRUE	5	TRUE	TRUE	1.65000000	1.99590583	0.40160643
6:	power	TRUE	10	FALSE	FALSE	2.43145370	2.47422680	0.93023256
7:	power	TRUE	10	FALSE	TRUE	5.23076923	4.75195822	1.15243583
8:	power	TRUE	10	TRUE	FALSE	0.00000000	0.00000000	1.22762148
9:	power	TRUE	10	TRUE	TRUE	4.11094601	3.57325166	1.12187659
10:	typeI	FALSE	5	TRUE	FALSE	0.00000000	0.00000000	0.00000000
11:	typeI	TRUE	5	FALSE	FALSE	0.07037298	0.07047216	0.03428180
12:	typeI	TRUE	5	FALSE	TRUE	0.31994312	0.24432810	0.03448276
13:	typeI	TRUE	5	TRUE	FALSE	0.00000000	0.00000000	0.02049180
14:	typeI	TRUE	5	TRUE	TRUE	0.08198401	0.10244852	0.03076923
15:	typeI	TRUE	10	FALSE	FALSE	0.52930057	0.54012346	0.13869626
16:	typeI	TRUE	10	FALSE	TRUE	0.75159714	0.69166363	0.00000000
17:	typeI	TRUE	10	TRUE	FALSE	0.00000000	0.00000000	0.04098361
18:	typeI	TRUE	10	TRUE	TRUE	0.17391304	0.15345269	0.08200923

When concluding for efficacy:

	hypo	missing	ar	binding	fixC	method 1	method 2	method 3
1:	power	FALSE	5	TRUE	FALSE	0	0	0
2:	power	TRUE	5	FALSE	FALSE	0	0	0
3:	power	TRUE	5	FALSE	TRUE	0	0	0
4:	power	TRUE	5	TRUE	FALSE	0	0	0
5:	power	TRUE	5	TRUE	TRUE	0	0	0
6:	power	TRUE	10	FALSE	FALSE	0	0	0
7:	power	TRUE	10	FALSE	TRUE	0	0	0
8:	power	TRUE	10	TRUE	FALSE	0	0	0
9:	power	TRUE	10	TRUE	TRUE	0	0	0
10:	typeI	FALSE	5	TRUE	FALSE	0	0	0
11:	typeI	TRUE	5	FALSE	FALSE	0	0	0
12:	typeI	TRUE	5	FALSE	TRUE	0	0	0
13:	typeI	TRUE	5	TRUE	FALSE	0	0	0
14:	typeI	TRUE	5	TRUE	TRUE	0	0	0
15:	typeI	TRUE	10	FALSE	FALSE	0	0	0
16:	typeI	TRUE	10	FALSE	TRUE	0	0	0
17:	typeI	TRUE	10	TRUE	FALSE	0	0	0
18:	typeI	TRUE	10	TRUE	TRUE	0	0	0

8 Percentage of missing values

Here only for method 1 - values are very similar between different methods:

- `pc.all` percentage of observations with full data
- `pc.missing3` percentage of observations missing the final outcome but with intermediate outcome value and baseline.
- `pc.missing23` percentage of observations with only baseline value

	method	missing	ar	hypo	fixC	binding	N	pc.all	pc.missing3	pc.missing23
1:	1	TRUE	5	power	FALSE	TRUE	10000	79.53472	9.562374	10.902910
2:	1	TRUE	5	typeI	FALSE	TRUE	10000	79.53472	9.562374	10.902910
3:	1	TRUE	5	power	TRUE	TRUE	10000	79.44022	9.531225	11.028558
4:	1	TRUE	5	typeI	TRUE	TRUE	10000	79.44022	9.531225	11.028558
5:	1	TRUE	5	power	TRUE	FALSE	10000	79.71917	9.427430	10.853396
6:	1	TRUE	5	typeI	TRUE	FALSE	10000	79.71917	9.427430	10.853396
7:	1	TRUE	5	power	FALSE	FALSE	10000	79.64196	9.449136	10.908902
8:	1	TRUE	5	typeI	FALSE	FALSE	10000	79.64196	9.449136	10.908902
9:	1	FALSE	5	power	FALSE	TRUE	10000	87.78863	6.090240	6.121126
10:	1	FALSE	5	typeI	FALSE	TRUE	10000	87.78863	6.090240	6.121126
11:	1	TRUE	10	power	FALSE	TRUE	10000	71.60971	13.327969	15.062319
12:	1	TRUE	10	typeI	FALSE	TRUE	10000	71.60971	13.327969	15.062319
13:	1	TRUE	10	power	TRUE	TRUE	10000	71.52189	13.282615	15.195496
14:	1	TRUE	10	typeI	TRUE	TRUE	10000	71.52189	13.282615	15.195496
15:	1	TRUE	10	power	TRUE	FALSE	10000	71.85935	13.144488	14.996166
16:	1	TRUE	10	typeI	TRUE	FALSE	10000	71.85935	13.144488	14.996166
17:	1	TRUE	10	power	FALSE	FALSE	10000	71.79364	13.168843	15.037522
18:	1	TRUE	10	typeI	FALSE	FALSE	10000	71.79364	13.168843	15.037522

9 Information

Percentage of information for method 1[3]:

scenario	missing	binding	fixC	ar	interim	decision	final
1	TRUE	TRUE	FALSE	10	54.56262	63.87624	102.43196
2	TRUE	TRUE	FALSE	10	54.56262	68.44170	102.27378
3	TRUE	TRUE	FALSE	5	53.19699	57.43534	102.53302
4	TRUE	TRUE	FALSE	5	53.19699	60.05461	102.25032
5	TRUE	TRUE	TRUE	10	54.46422	63.55543	102.55590
6	TRUE	TRUE	TRUE	10	54.46422	68.38828	102.04570
7	TRUE	TRUE	TRUE	5	53.10347	57.19873	102.61372
8	TRUE	TRUE	TRUE	5	53.10347	59.95959	102.13328
9	TRUE	FALSE	TRUE	10	54.52041	63.81588	102.45701
10	TRUE	FALSE	TRUE	10	54.52041	68.36137	102.14337
11	TRUE	FALSE	TRUE	5	53.18289	57.37841	102.60304
12	TRUE	FALSE	TRUE	5	53.18289	60.00160	102.25444
13	TRUE	FALSE	FALSE	10	54.50746	63.85073	102.45852
14	TRUE	FALSE	FALSE	10	54.50746	68.22472	102.26402
15	TRUE	FALSE	FALSE	5	53.16583	57.37762	102.59683
16	TRUE	FALSE	FALSE	5	53.16583	59.91894	102.19314
17	FALSE	TRUE	FALSE	5	51.99597	56.30990	99.79909
18	FALSE	TRUE	FALSE	5	51.99597	59.23342	99.51892

Similar results for other methods.

[3] average over the reached stages