ANOVA with binary variables - The F-test and some Alternatives

Appendix B 9 Tables and Graphs of the Type I Error Rate for selected GEE methods for fixed n_i (5,10,..,50) in mixed designs

All tables and graphs refer to α=0.05. Reported are the proportions of rejections of the corresponding null hypothesis.

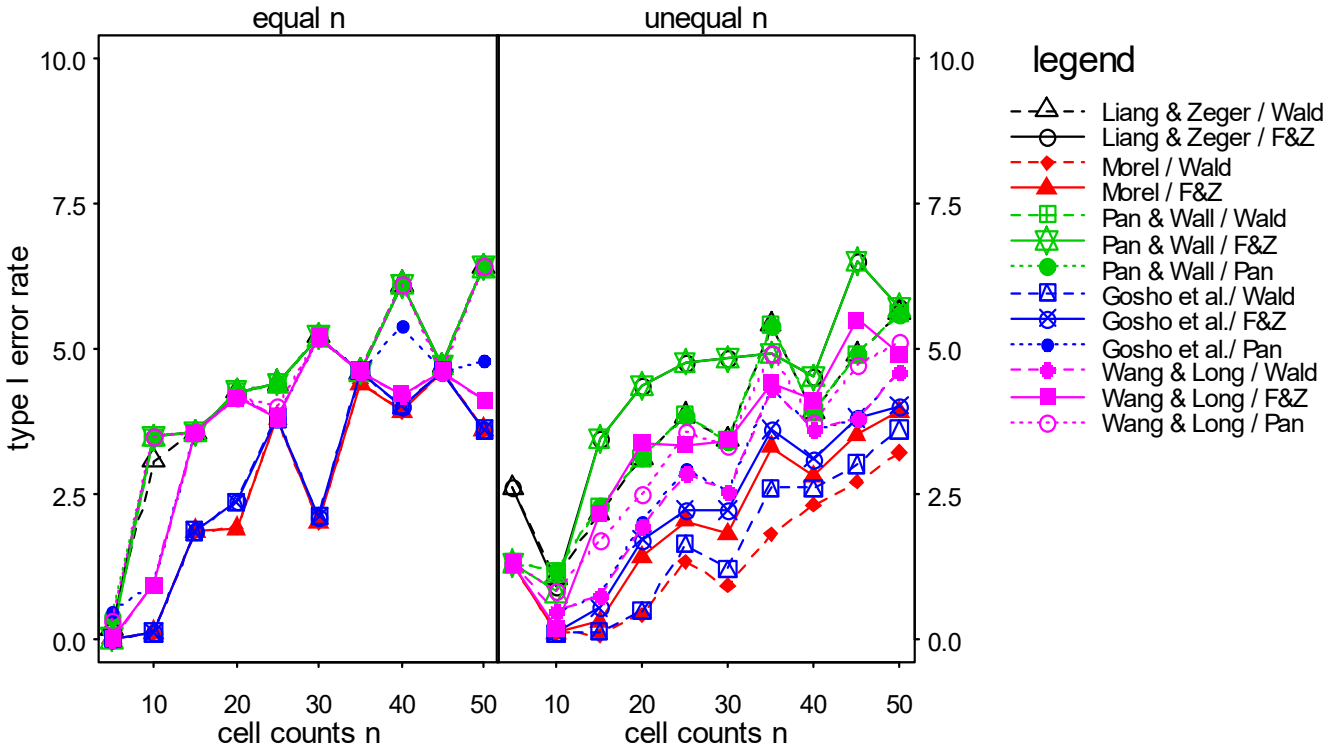
Table of Contents

9. 1. Main effect A - null model

9. 1. 1. equal correlations on B (r=0.3)

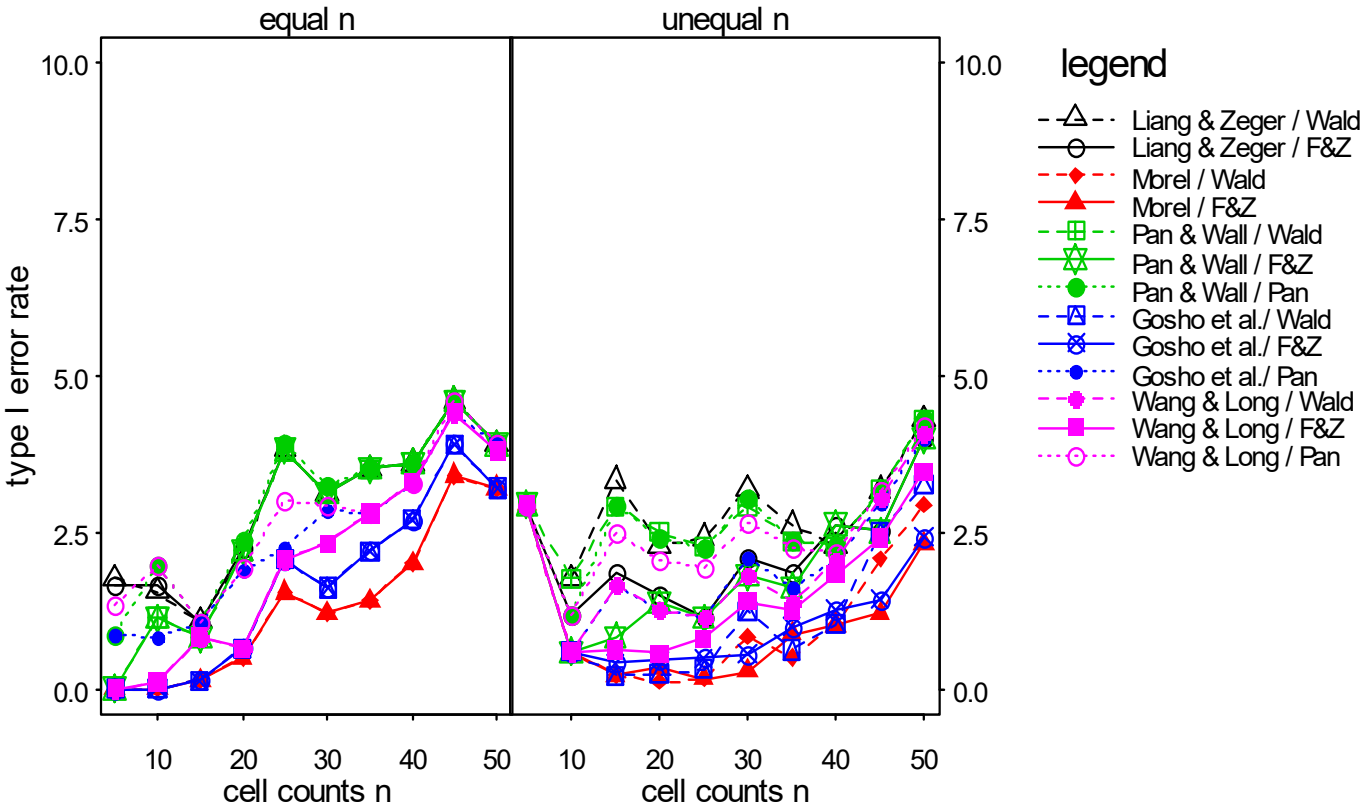
9. 1. 1. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	0.2	3.1	3.6	4.2	5.2	6.1	6.4	2.6	1.1	2.2	3.1	3.4	3.9	5.6
	Fan & Zhang	0.2	3.5	3.6	4.2	5.2	6.1	6.4	2.6	0.9	3.4	4.4	4.8	4.5	5.7
Morel et al.	Wald	0.0	0.1	1.9	1.9	2.0	3.9	3.6	1.3	0.1	0.1	0.4	0.9	2.3	3.2
	Fan & Zhang	0.0	0.1	1.9	1.9	2.0	3.9	3.6	1.3	0.1	0.3	1.4	1.8	2.8	3.9
Pan & Wall	Wald	0.0	3.5	3.6	4.2	5.2	6.1	6.4	1.3	1.2	2.3	3.1	3.4	3.9	5.6
	Fan & Zhang	0.0	3.5	3.6	4.2	5.2	6.1	6.4	1.3	0.8	3.4	4.4	4.8	4.5	5.7
	Pan	0.4	3.5	3.6	4.2	5.2	6.1	6.4	1.3	1.2	2.3	3.1	3.4	3.9	5.6
Gosho et al.	Wald	0.0	0.1	1.9	2.4	2.1	4.0	3.6		0.1	0.1	0.5	1.2	2.6	3.6
	Fan & Zhang	0.0	0.1	1.9	2.4	2.1	4.0	3.6		0.1	0.5	1.7	2.2	3.1	4.0
	Pan	0.5	0.9	3.6	4.2	5.2	5.4	4.8		0.4	0.8	2.0	2.5	3.6	4.6
Wang & Long	Wald	0.0	0.9	3.6	4.2	5.2	4.2	4.1	1.3	0.4	0.8	1.9	2.5	3.6	4.6
	Fan & Zhang	0.0	0.9	3.6	4.2	5.2	4.2	4.1	1.3	0.2	2.2	3.4	3.4	4.1	4.9
	Pan	0.3	3.5	3.6	4.2	5.2	6.1	6.4	1.3	0.8	1.7	2.5	3.3	3.7	5.1



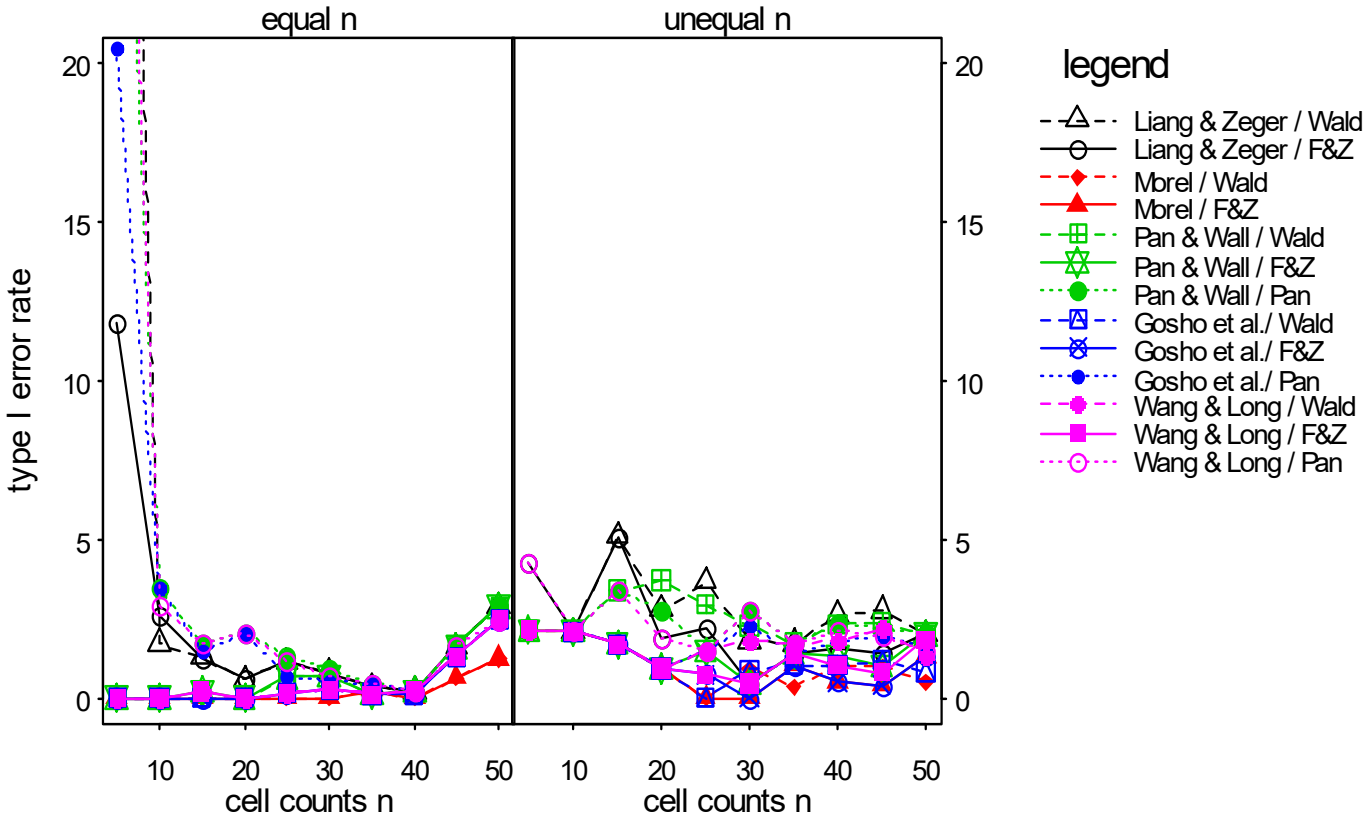
9. 1. 1. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	1.8	1.5	1.1	2.1	3.1	3.6	3.9	0.1	1.8	3.3	2.3	3.2	2.3	4.3
	Fan & Zhang	1.7	1.6	1.1	2.3	3.1	3.6	3.9	2.9	1.2	1.9	1.5	2.1	2.6	4.0
Morel et al.	Wald	0.0	0.0	0.1	0.5	1.2	2.0	3.2	2.9	0.6	0.2	0.1	0.8	1.0	2.9
	Fan & Zhang	0.0	0.0	0.1	0.5	1.2	2.0	3.2	2.9	0.6	0.2	0.3	0.3	1.0	2.3
Pan & Wall	Wald	0.0	1.1	0.8	2.2	3.1	3.6	3.9	2.9	1.8	2.9	2.5	2.9	2.3	4.3
	Fan & Zhang	0.0	1.1	0.8	2.2	3.1	3.6	3.9	2.9	0.6	0.8	1.4	1.8	2.6	4.0
	Pan	0.9	2.0	1.1	2.4	3.2	3.6	3.9	2.9	1.2	2.9	2.4	3.1	2.3	4.3
Gosho et al.	Wald	0.0	0.0	0.1	0.6	1.6	2.7	3.2		0.6	0.2	0.2	1.2	1.0	3.3
	Fan & Zhang	0.0	0.0	0.1	0.6	1.6	2.7	3.2		0.6	0.4	0.5	0.6	1.3	2.4
	Pan	0.9	0.8	1.1	1.9	2.8	3.3	3.9		0.6	1.7	1.3	2.1	2.1	4.0
Wang & Long	Wald	0.0	0.1	0.8	0.6	2.3	3.3	3.8	2.9	0.6	1.7	1.3	1.8	2.1	4.1
	Fan & Zhang	0.0	0.1	0.8	0.6	2.3	3.3	3.8	2.9	0.6	0.6	0.6	1.4	1.8	3.5
	Pan	1.3	2.0	1.1	1.9	2.9	3.3	3.9	2.9	1.2	2.5	2.0	2.6	2.2	4.2



9. 1. 1. 3 p = 0.9

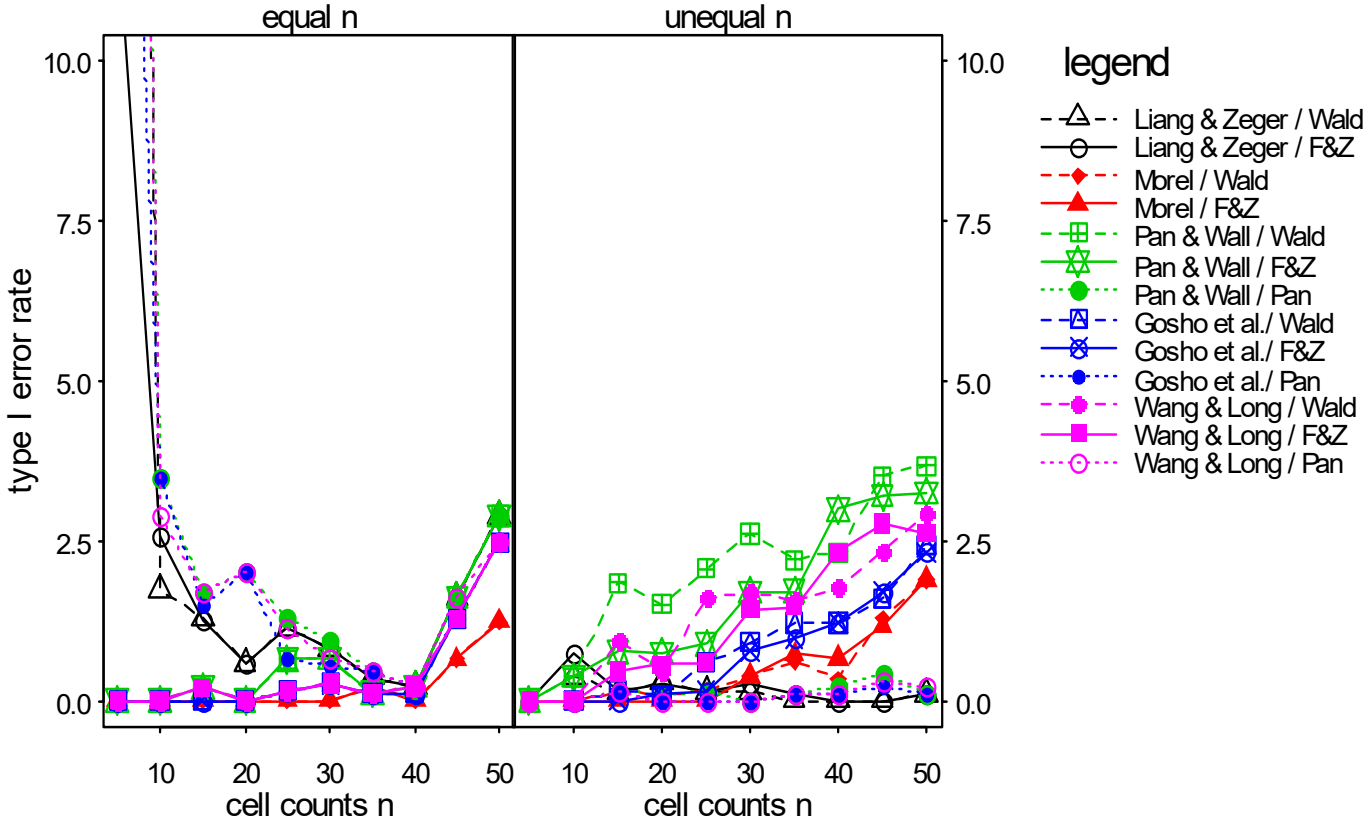
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	47.7	1.7	1.3	0.6	0.8	0.2	2.9		2.1	5.1	2.8	1.8	2.6	2.0
	Fan & Zhang	11.8	2.6	1.2	0.6	0.8	0.2	2.9	4.3	2.1	5.1	1.9	0.5	1.6	2.0
Morel et al.	Wald	0.0	0.0	0.0	0.0	0.0	0.0	1.2	2.1	21	1.7	0.9	0.9	1.0	0.5
	Fan & Zhang	0.0	0.0	0.0	0.0	0.0	0.0	1.2	2.1	2.1	1.7	0.9	0.0	0.5	1.3
Pan & Wall	Wald	0.0	0.0	0.2	0.0	0.7	0.2	2.9	2.1	2.1	3.4	3.7	2.3	2.3	2.0
	Fan & Zhang	0.0	0.0	0.2	0.0	0.7	0.2	2.9	2.1	2.1	1.7	0.9	0.5	1.3	2.0
	Pan	36.4	3.5	1.7	2.0	0.9	0.2	2.9	2.1	21	3.4	2.8	2.7	2.3	2.0
Gosho et al.	Wald	0.0	0.0	0.0	0.0	0.3	0.1	2.5		2.1	1.7	0.9	0.9	1.0	0.8
	Fan & Zhang	0.0	0.0	0.0	0.0	0.3	0.1	2.5		2.1	1.7	0.9	0.0	0.5	1.3
	Pan	20.5	3.5	1.5	2.0	0.5	0.2	2.5		2.1	1.7	0.9	2.3	1.8	1.7
Wang & Long	Wald	0.0	0.0	0.2	0.0	0.3	0.2	2.5	2.1	2.1	1.7	0.9	1.8	1.8	1.3
	Fan & Zhang	0.0	0.0	0.2	0.0	0.3	0.2	2.5	2.1	2.1	1.7	0.9	0.5	1.0	1.8
	Pan	40.9	2.9	1.7	2.0	0.7	0.2	2.5	4.3	2.1	3.4	1.9	2.7	2.1	1.5



9. 1. 2. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) ar1-structure assumed

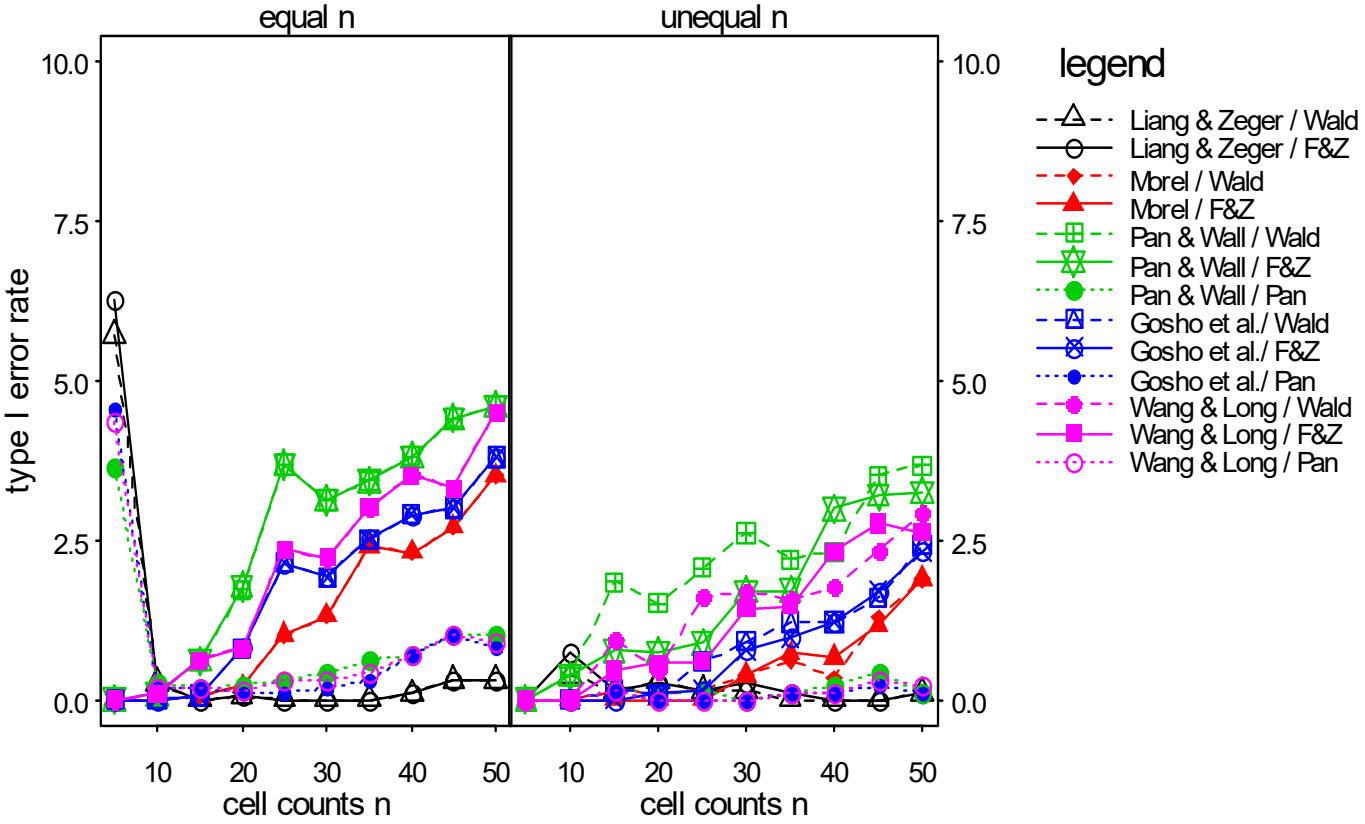
9. 1. 2. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	47.7	1.7	1.3	0.6	0.8	0.2	2.9		0.4	0.2	0.3	0.1	0.0	0.1
	Fan & Zhang	11.8	2.6	1.2	0.6	0.8	0.2	2.9	0.0	0.8	0.2	0.3	0.3	0.0	0.1
Morel et al.	Wald	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.2	0.1	0.4	0.3	1.9
	Fan & Zhang	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.4	0.7	1.9
Pan & Wall	Wald	0.0	0.0	0.2	0.0	0.7	0.2	2.9	0.0	0.4	1.8	1.5	2.6	2.3	3.7
	Fan & Zhang	0.0	0.0	0.2	0.0	0.7	0.2	2.9	0.0	0.4	0.8	0.7	1.7	3.0	3.3
	Pan	36.4	3.5	1.7	2.0	0.9	0.2	2.9	0.0	0.0	0.2	0.1	0.0	0.2	0.1
Gosho et al.	Wald	0.0	0.0	0.0	0.0	0.3	0.1	2.5		0.0	0.2	0.1	0.9	1.2	2.4
	Fan & Zhang	0.0	0.0	0.0	0.0	0.3	0.1	2.5		0.0	0.0	0.1	0.8	1.2	2.3
	Pan	20.5	3.5	1.5	2.0	0.5	0.2	2.5		0.0	0.2	0.0	0.0	0.1	0.1
Wang & Long	Wald	0.0	0.0	0.2	0.0	0.3	0.2	2.5	0.0	0.0	0.9	0.5	1.7	1.8	2.9
	Fan & Zhang	0.0	0.0	0.2	0.0	0.3	0.2	2.5	0.0	0.0	0.5	0.6	1.4	2.3	2.6
	Pan	40.9	2.9	1.7	2.0	0.7	0.2	2.5	0.0	0.0	0.2	0.0	0.0	0.1	0.2



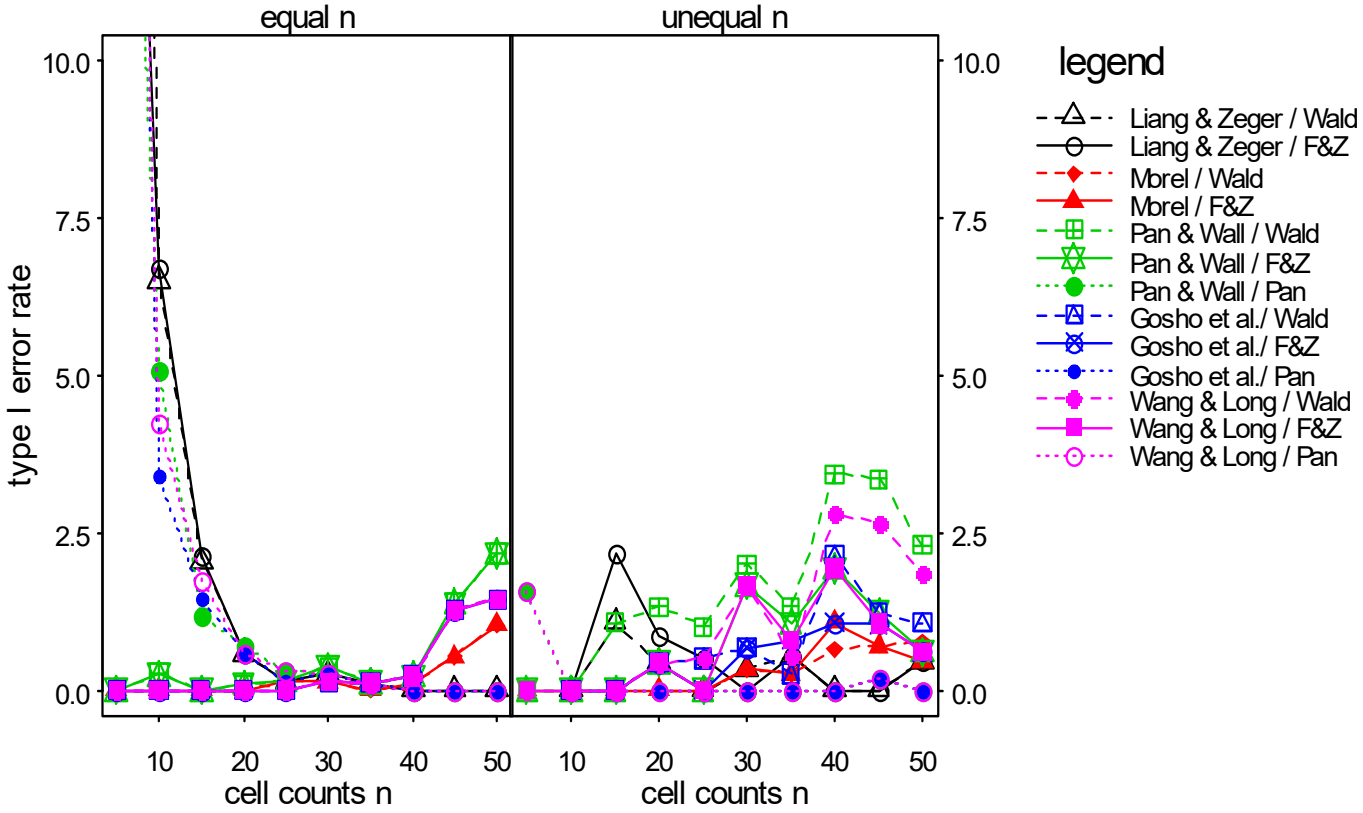
9. 1. 2. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	5.7	0.3	0.0	0.1	0.0	0.1	0.3		0.4	0.2	0.3	0.1	0.0	0.1
	Fan & Zhang	6.3	0.3	0.0	0.1	0.0	0.1	0.3	0.0	0.8	0.2	0.3	0.3	0.0	0.1
Morel et al.	Wald	0.0	0.0	0.1	0.2	1.3	2.3	3.5	0.0	0.0	0.2	0.1	0.4	0.3	1.9
	Fan & Zhang	0.0	0.0	0.1	0.2	1.3	2.3	3.5	0.0	0.0	0.0	0.0	0.4	0.7	1.9
Pan & Wall	Wald	0.0	0.1	0.6	1.7	3.1	3.8	4.6	0.0	0.4	1.8	1.5	2.6	2.3	3.7
	Fan & Zhang	0.0	0.1	0.6	1.8	3.1	3.8	4.6	0.0	0.4	0.8	0.7	1.7	3.0	3.3
	Pan	3.7	0.3	0.2	0.2	0.4	0.7	1.0	0.0	0.0	0.2	0.1	0.0	0.2	0.1
Gosho et al.	Wald	0.0	0.0	0.1	0.8	1.9	2.9	3.8		0.0	0.2	0.1	0.9	1.2	2.4
	Fan & Zhang	0.0	0.0	0.1	0.8	1.9	2.9	3.8		0.0	0.0	0.1	0.8	1.2	2.3
	Pan	4.6	0.2	0.2	0.1	0.2	0.7	0.8		0.0	0.2	0.0	0.0	0.1	0.1
Wang & Long	Wald	0.0	0.1	0.6	0.8	2.2	3.5	4.5	0.0	0.0	0.9	0.5	1.7	1.8	2.9
	Fan & Zhang	0.0	0.1	0.6	0.8	2.2	3.5	4.5	0.0	0.0	0.5	0.6	1.4	2.3	2.6
	Pan	4.3	0.2	0.2	0.2	0.3	0.7	0.9	0.0	0.0	0.2	0.0	0.0	0.1	0.2



9. 1. 2. 3 p = 0.9

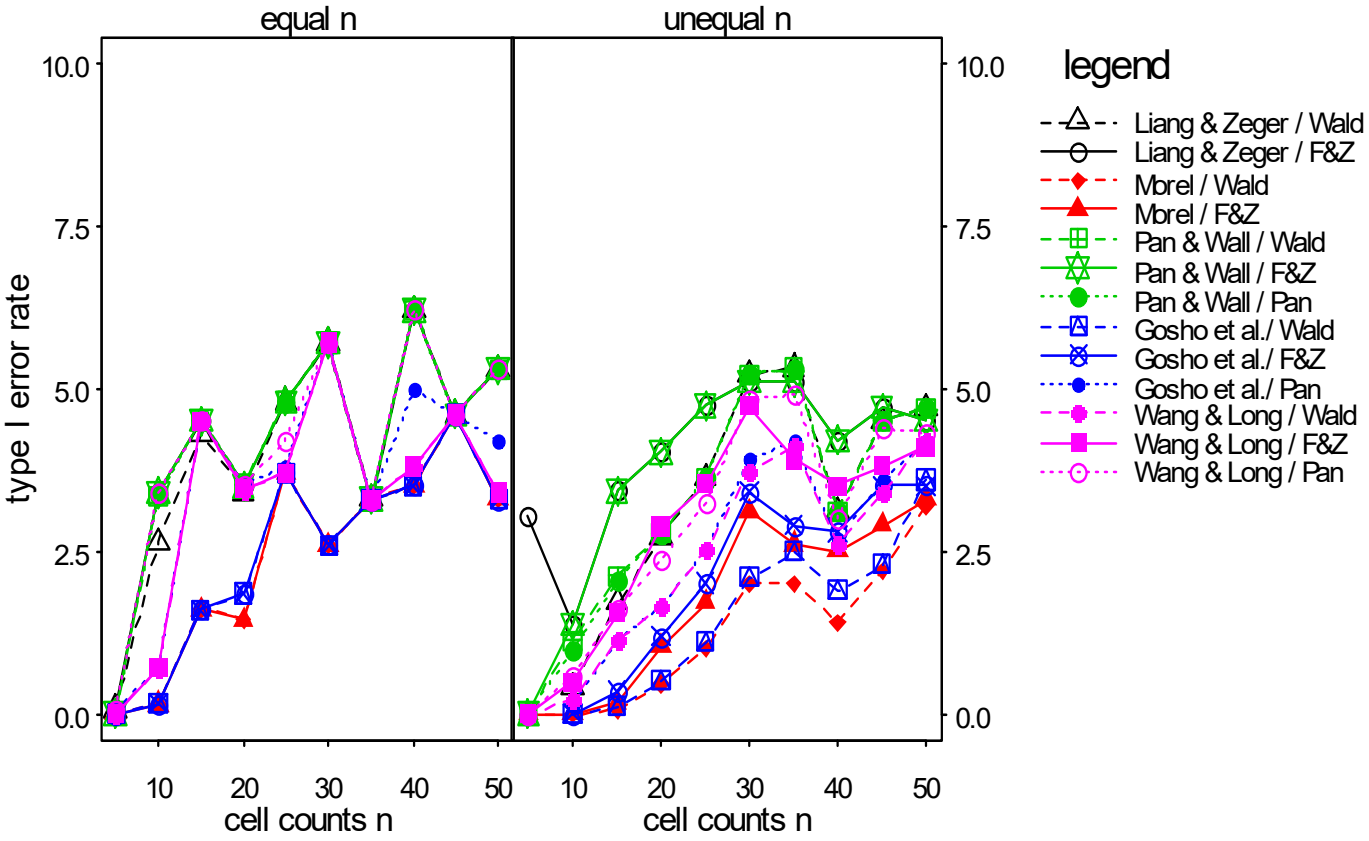
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	48.3	6.5	2.0	0.6	0.3	0.0	0.0		0.2	1.1	0.4	0.3	0.0	0.5
	Fan & Zhang	24.7	6.7	2.1	0.6	0.3	0.0	0.0		0.2	2.2	0.9	0.0	0.0	0.5
Morel et al.	Wald	0.0	0.0	0.0	0.0	0.1	0.1	1.0	0.0	0.0	0.0	0.0	0.3	0.6	0.8
	Fan & Zhang	0.0	0.0	0.0	0.0	0.1	0.1	1.0	0.0	0.0	0.0	0.0	0.3	1.1	0.5
Pan & Wall	Wald	0.0	0.3	0.0	0.1	0.4	0.2	2.2	0.0	0.2	1.1	1.3	2.0	3.4	2.3
	Fan & Zhang	0.0	0.2	0.0	0.1	0.4	0.2	2.2	0.0	0.0	0.0	0.4	1.7	1.9	0.6
	Pan	21.3	5.1	1.2	0.7	0.3	0.0	0.0	1.6	0.2	0.0	0.0	0.0	0.0	0.0
Gosho et al.	Wald	0.0	0.0	0.0	0.0	0.1	0.2	1.4		0.0	0.0	0.4	0.7	2.1	1.1
	Fan & Zhang	0.0	0.0	0.0	0.0	0.1	0.2	1.4		0.2	0.0	0.4	0.7	1.1	0.6
	Pan	30.0	3.4	1.5	0.6	0.3	0.0	0.0		0.2	0.0	0.0	0.0	0.0	0.0
Wang & Long	Wald	0.0	0.0	0.0	0.0	0.1	0.2	1.4	0.0	0.2	0.0	0.4	1.7	2.8	1.8
	Fan & Zhang	0.0	0.0	0.0	0.0	0.1	0.2	1.4	0.0	0.2	0.0	0.4	1.7	1.9	0.6
	Pan	32.4	4.2	1.7	0.6	0.3	0.0	0.0	1.6	0.2	0.0	0.0	0.0	0.0	0.0



9. 1. 3. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) exchangeable-structure assumed

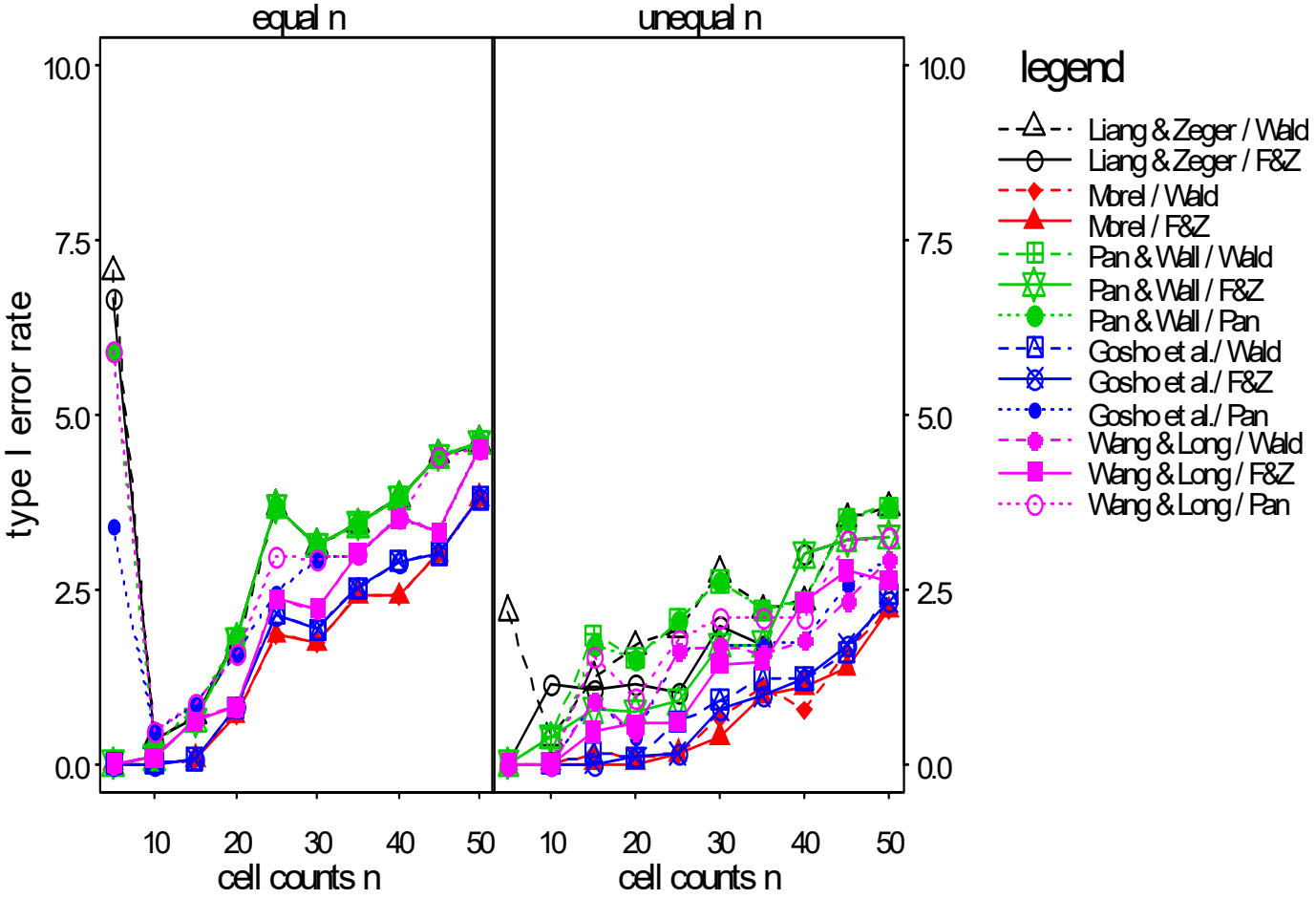
9. 1. 3. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	0.1	2.6	4.3	3.4	5.7	6.2	5.3		0.4	1.7	2.7	5.2	3.1	4.7
	Fan & Zhang	0.1	3.4	4.5	3.5	5.7	6.2	5.3	3.0	1.4	3.4	4.0	5.1	4.2	4.5
Morel et al.	Wald	0.0	0.2	1.6	1.4	2.6	3.5	3.3	0.0	0.0	0.1	0.5	2.0	1.4	3.2
	Fan & Zhang	0.0	0.2	1.6	1.4	2.6	3.5	3.3	0.0	0.0	0.2	1.0	3.1	2.5	3.3
Pan & Wall	Wald	0.0	3.4	4.5	3.5	5.7	6.2	5.3	0.0	1.1	2.1	2.8	5.2	3.1	4.7
	Fan & Zhang	0.0	3.4	4.5	3.5	5.7	6.2	5.3	0.0	1.4	3.4	4.0	5.1	4.2	4.5
	Pan	0.1	3.4	4.5	3.5	5.7	6.2	5.3	0.0	1.0	2.1	2.8	5.2	3.1	4.7
Gosho et al.	Wald	0.0	0.2	1.6	1.8	2.6	3.5	3.3		0.0	0.1	0.5	2.1	1.9	3.6
	Fan & Zhang	0.0	0.2	1.6	1.8	2.6	3.5	3.3		0.0	0.3	1.2	3.4	2.8	3.5
	Pan	0.1	0.7	4.5	3.5	5.7	5.0	4.2		0.2	1.1	1.6	3.9	2.7	4.2
Wang & Long	Wald	0.0	0.7	4.5	3.5	5.7	3.8	3.4	0.0	0.2	1.1	1.6	3.7	2.6	4.2
	Fan & Zhang	0.0	0.7	4.5	3.5	5.7	3.8	3.4	0.0	0.5	1.5	2.9	4.7	3.5	4.1
	Pan	0.1	3.4	4.5	3.5	5.7	6.2	5.3	0.0	0.6	1.6	2.4	4.8	3.0	4.3



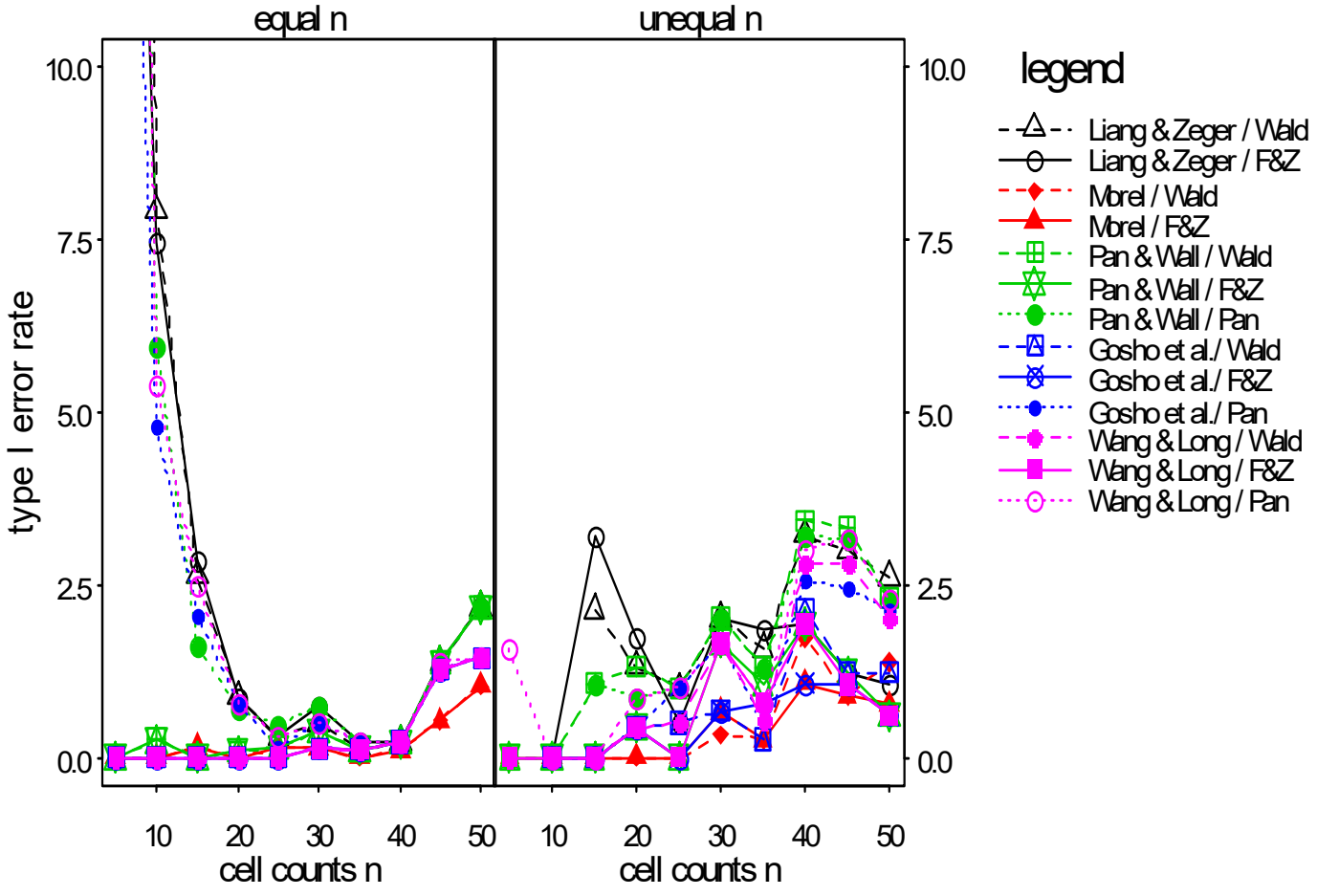
9. 1. 3. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	7.0	0.4	0.7	1.7	3.1	3.8	4.6	2.2	0.4	1.2	1.7	2.7	2.3	3.7
	Fan & Zhang	6.7	0.4	0.7	1.8	3.1	3.8	4.6	0.0	1.1	1.1	1.1	2.0	3.0	3.3
Morel et al.	Wald	0.0	0.0	0.1	0.7	1.7	2.4	3.8	0.0	0.0	0.2	0.1	0.7	0.8	2.2
	Fan & Zhang	0.0	0.0	0.1	0.7	1.7	2.4	3.8	0.0	0.0	0.0	0.0	0.4	1.1	2.2
Pan & Wall	Wald	0.0	0.1	0.6	1.8	3.1	3.8	4.6	0.0	0.4	1.8	1.5	2.6	2.3	3.7
	Fan & Zhang	0.0	0.1	0.6	1.8	3.1	3.8	4.6	0.0	0.4	0.8	0.7	1.7	3.0	3.3
	Pan	5.9	0.3	0.8	1.8	3.1	3.8	4.6	0.0	0.0	1.7	1.5	2.6	2.3	3.7
Gosho et al.	Wald	0.0	0.0	0.1	0.8	1.9	2.9	3.8		0.0	0.2	0.1	0.9	1.2	2.4
	Fan & Zhang	0.0	0.0	0.1	0.8	1.9	2.9	3.8		0.0	0.0	0.1	0.8	1.2	2.3
	Pan	3.4	0.4	0.9	1.6	2.9	3.5	4.5		0.0	0.9	0.4	1.7	1.8	2.9
Wang & Long	Wald	0.0	0.1	0.6	0.8	2.2	3.5	4.5	0.0	0.0	0.9	0.5	1.7	1.8	2.9
	Fan & Zhang	0.0	0.1	0.6	0.8	2.2	3.5	4.5	0.0	0.0	0.5	0.6	1.4	2.3	2.6
	Pan	5.9	0.4	0.9	1.6	2.9	3.5	4.5	0.0	0.0	1.5	0.9	2.1	2.1	3.3



9. 1. 3. 3 p = 0.9

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	58.0	7.9	2.6	0.9	0.5	0.2	2.2		0.0	2.1	1.3	2.0	3.2	2.6
	Fan & Zhang	24.9	7.4	2.8	0.9	0.8	0.2	2.2		0.0	3.2	1.7	2.0	1.9	1.1
Morel et al.	Wald	0.0	0.0	0.1	0.0	0.1	0.1	1.0	0.0	0.0	0.0	0.0	0.3	1.7	1.4
	Fan & Zhang	0.0	0.0	0.1	0.0	0.1	0.1	1.0	0.0	0.0	0.0	0.0	0.7	1.1	0.8
Pan & Wall	Wald	0.0	0.3	0.0	0.1	0.4	0.2	2.2	0.0	0.0	1.1	1.3	2.0	3.4	2.3
	Fan & Zhang	0.0	0.2	0.0	0.1	0.4	0.2	2.2	0.0	0.0	0.0	0.4	1.7	1.9	0.6
	Pan	42.0	5.9	1.6	0.7	0.8	0.2	2.2	0.0	0.0	1.1	0.9	2.0	3.2	2.3
Gosho et al.	Wald	0.0	0.0	0.0	0.0	0.1	0.2	1.4		0.0	0.0	0.4	0.7	2.1	1.2
	Fan & Zhang	0.0	0.0	0.0	0.0	0.1	0.2	1.4		0.0	0.0	0.4	0.7	1.1	0.6
	Pan	22.7	4.8	2.0	0.8	0.5	0.2	1.4		0.0	0.0	0.4	1.7	2.6	2.1
Wang & Long	Wald	0.0	0.0	0.0	0.0	0.1	0.2	1.4	0.0	0.0	0.0	0.4	1.7	2.8	2.0
	Fan & Zhang	0.0	0.0	0.0	0.0	0.1	0.2	1.4	0.0	0.0	0.0	0.4	1.7	1.9	0.6
	Pan	38.2	5.4	2.5	0.8	0.5	0.2	1.4	1.6	0.0	0.0	0.9	1.7	3.0	2.3

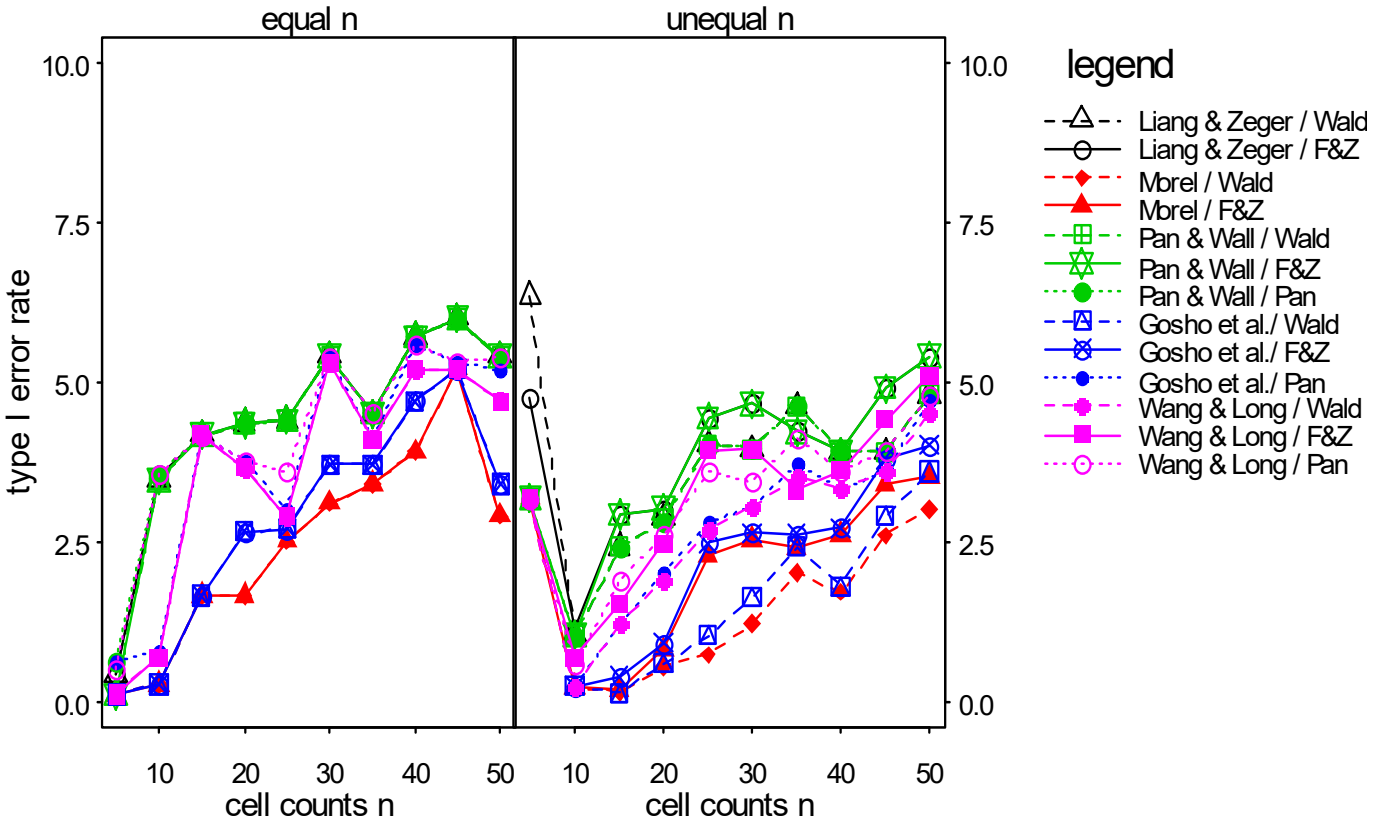


9. 2. Main effect A - B significant (effects b_i = 0.4*s)

9. 2. 1. equal correlations on B (r=0.3)

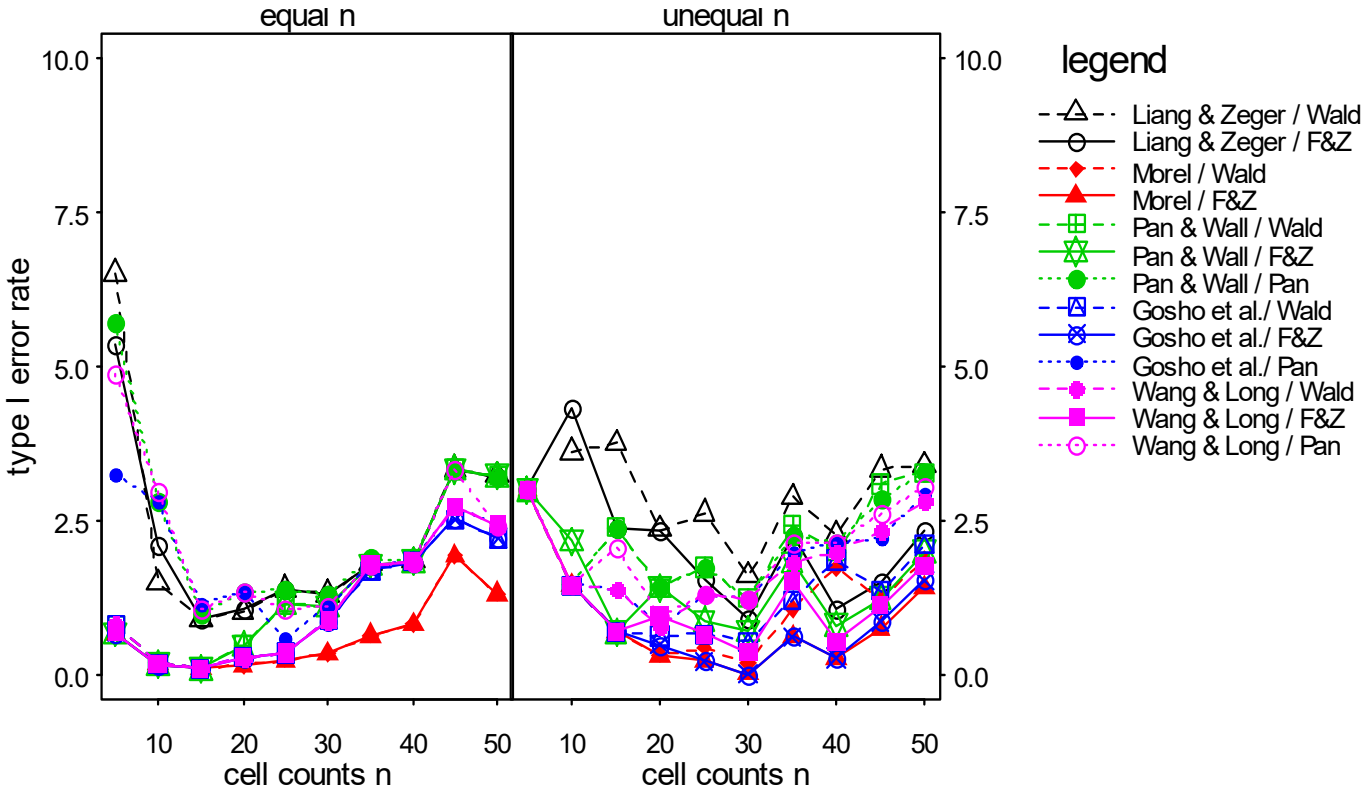
9. 2. 1. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	0.4	3.5	4.2	4.4	5.4	5.7	5.4	6.3	1.0	2.4	2.9	3.9	3.9	4.8
	Fan & Zhang	0.4	3.5	4.2	4.4	5.4	5.7	5.4	4.8	1.2	2.9	3.0	4.7	3.9	5.4
Morel et al.	Wald	0.1	0.3	1.7	1.7	3.1	3.9	2.9	3.2	0.2	0.1	0.5	1.2	1.7	3.0
	Fan & Zhang	0.1	0.3	1.7	1.7	3.1	3.9	2.9	3.2	0.2	0.2	0.8	2.5	2.6	3.5
Pan & Wall	Wald	0.1	3.5	4.2	4.4	5.4	5.7	5.4	3.2	1.0	2.4	2.9	3.9	3.9	4.8
	Fan & Zhang	0.1	3.5	4.2	4.4	5.4	5.7	5.4	3.2	1.0	2.9	3.0	4.7	3.9	5.4
	Pan	0.6	3.6	4.2	4.4	5.4	5.7	5.4	3.2	1.0	2.4	2.8	3.9	3.9	4.8
Gosho et al.	Wald	0.1	0.3	1.7	2.7	3.7	4.7	3.4		0.2	0.1	0.6	1.6	1.8	3.6
	Fan & Zhang	0.1	0.3	1.7	2.7	3.7	4.7	3.4		0.2	0.4	0.9	2.6	2.7	4.0
	Pan	0.6	0.8	4.2	3.8	5.4	5.6	5.2		0.2	1.2	2.0	3.0	3.3	4.7
Wang & Long	Wald	0.1	0.7	4.2	3.7	5.3	5.2	4.7	3.2	0.2	1.2	1.9	3.0	3.3	4.5
	Fan & Zhang	0.1	0.7	4.2	3.7	5.3	5.2	4.7	3.2	0.7	1.5	2.5	3.9	3.6	5.1
	Pan	0.5	3.6	4.2	3.8	5.4	5.6	5.4	3.2	0.6	1.9	2.6	3.4	3.6	4.8



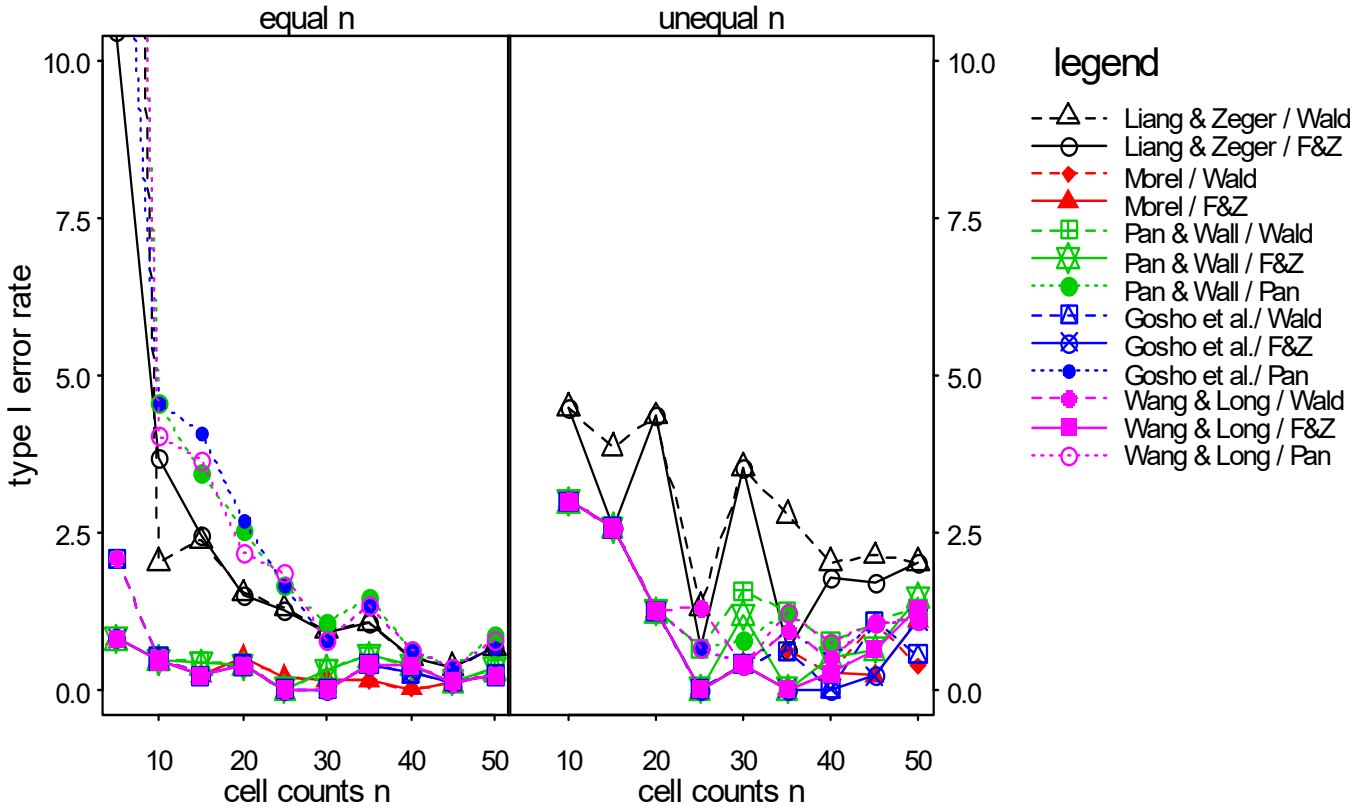
9. 2. 1. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	6.5	1.5	0.9	1.0	1.3	1.8	3.2		3.6	3.7	2.3	1.6	2.2	3.4
	Fan & Zhang	5.3	2.1	0.9	1.1	1.3	1.8	3.2	3.0	4.3	2.4	2.3	0.9	1.1	2.3
Morel et al.	Wald	0.8	0.2	0.1	0.1	0.3	0.8	1.3	3.0	1.4	0.7	0.3	0.2	1.7	1.9
	Fan & Zhang	0.7	0.2	0.1	0.1	0.3	0.8	1.3	3.0	1.4	0.7	0.3	0.0	0.3	1.4
Pan & Wall	Wald	0.8	0.2	0.1	0.5	1.1	1.8	3.2	3.0	1.4	2.4	1.4	1.2	2.0	3.3
	Fan & Zhang	0.7	0.2	0.1	0.5	1.1	1.8	3.2	3.0	2.2	0.7	1.4	0.7	0.8	2.0
	Pan	5.7	2.8	1.0	1.3	1.3	1.8	3.2	3.0	1.4	2.4	1.4	1.2	2.1	3.3
Gosho et al.	Wald	0.8	0.2	0.1	0.3	0.9	1.8	2.2		1.4	0.7	0.6	0.5	1.8	2.1
	Fan & Zhang	0.7	0.2	0.1	0.3	0.9	1.8	2.2		1.4	0.7	0.5	0.0	0.3	1.5
	Pan	3.3	2.8	1.2	1.3	1.1	1.8	2.4		1.4	1.4	0.8	1.2	2.1	2.9
Wang & Long	Wald	0.8	0.2	0.1	0.3	0.9	1.8	2.4	3.0	1.4	1.4	0.8	1.2	2.0	2.8
	Fan & Zhang	0.7	0.2	0.1	0.3	0.9	1.8	2.4	3.0	1.4	0.7	0.9	0.4	0.5	1.8
	Pan	4.9	3.0	1.1	1.3	1.1	1.8	2.4	3.0	1.4	2.0	0.9	1.2	2.1	3.0



9. 2. 1. 3 p = 0.9

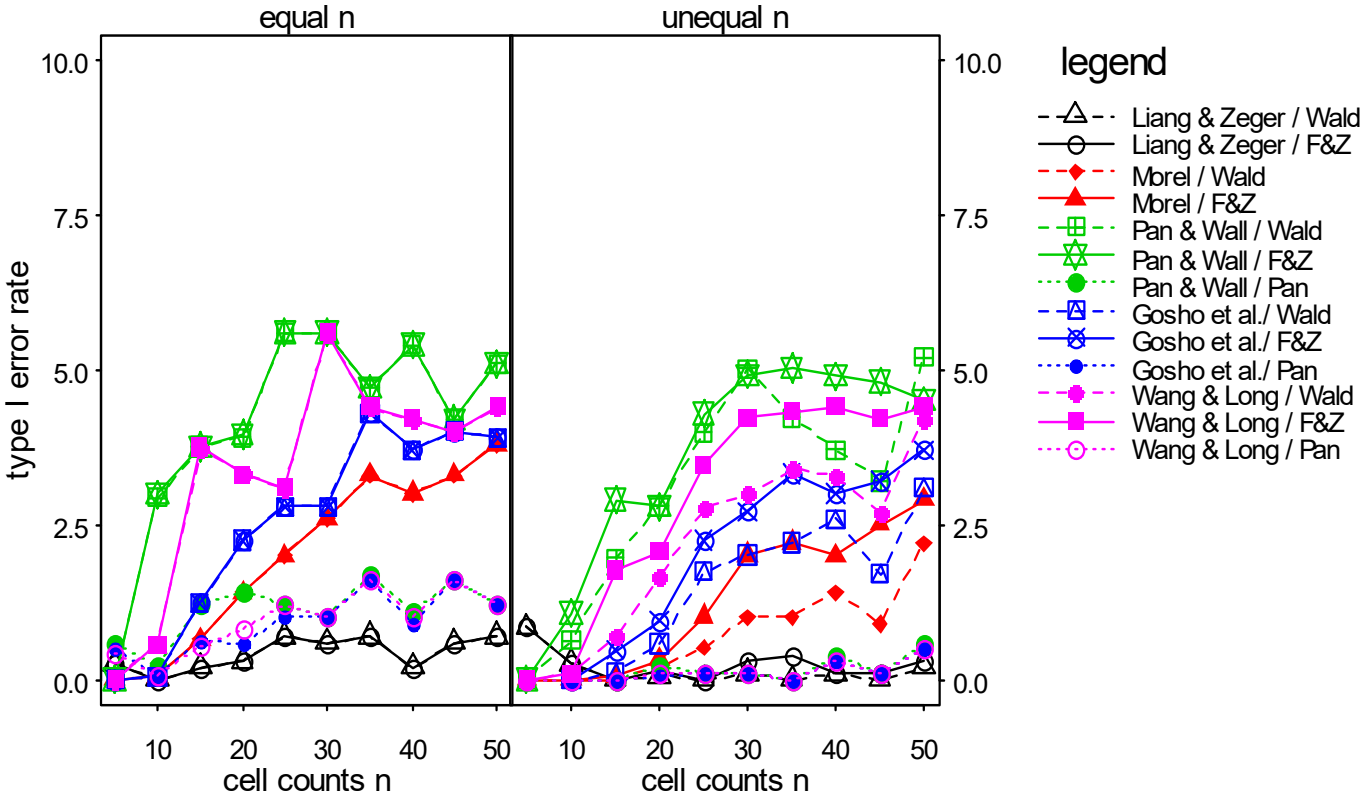
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	27.1	2.0	2.4	1.5	0.9	0.5	0.7		4.5	3.8	4.3	3.5	2.0	2.0
	Fan & Zhang	10.5	3.7	2.4	1.5	0.9	0.5	0.7		4.5	2.6	4.3	3.5	1.8	2.0
Morel et al.	Wald	2.1	0.5	0.2	0.5	0.2	0.0	0.2		3.0	2.6	1.2	0.4	0.3	0.4
	Fan & Zhang	0.8	0.5	0.2	0.5	0.2	0.0	0.2		3.0	2.6	1.2	0.4	0.3	1.1
Pan & Wall	Wald	2.1	0.5	0.4	0.4	0.3	0.4	0.3		3.0	2.6	1.2	1.6	0.8	1.3
	Fan & Zhang	0.8	0.5	0.4	0.4	0.3	0.4	0.3		3.0	2.6	1.2	1.2	0.5	1.5
	Pan	25.0	4.5	3.4	2.5	1.1	0.6	0.9		3.0	2.6	1.2	0.8	0.8	1.1
Gosho et al.	Wald	2.1	0.5	0.2	0.4	0.0	0.2	0.2		3.0	2.6	1.2	0.4	0.0	0.5
	Fan & Zhang	0.8	0.5	0.2	0.4	0.0	0.2	0.2		3.0	2.6	1.2	0.4	0.0	1.1
	Pan	14.6	4.5	4.1	2.7	0.8	0.6	0.7		3.0	2.6	1.2	0.4	0.5	1.1
Wang & Long	Wald	2.1	0.5	0.2	0.4	0.0	0.4	0.2		3.0	2.6	1.2	0.4	0.5	1.1
	Fan & Zhang	0.8	0.5	0.2	0.4	0.0	0.4	0.2		3.0	2.6	1.2	0.4	0.3	1.3
	Pan	27.1	4.0	3.6	2.2	0.8	0.6	0.8		3.0	2.6	1.2	0.4	0.8	1.1



9. 2. 2. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) ar1-structure assumed

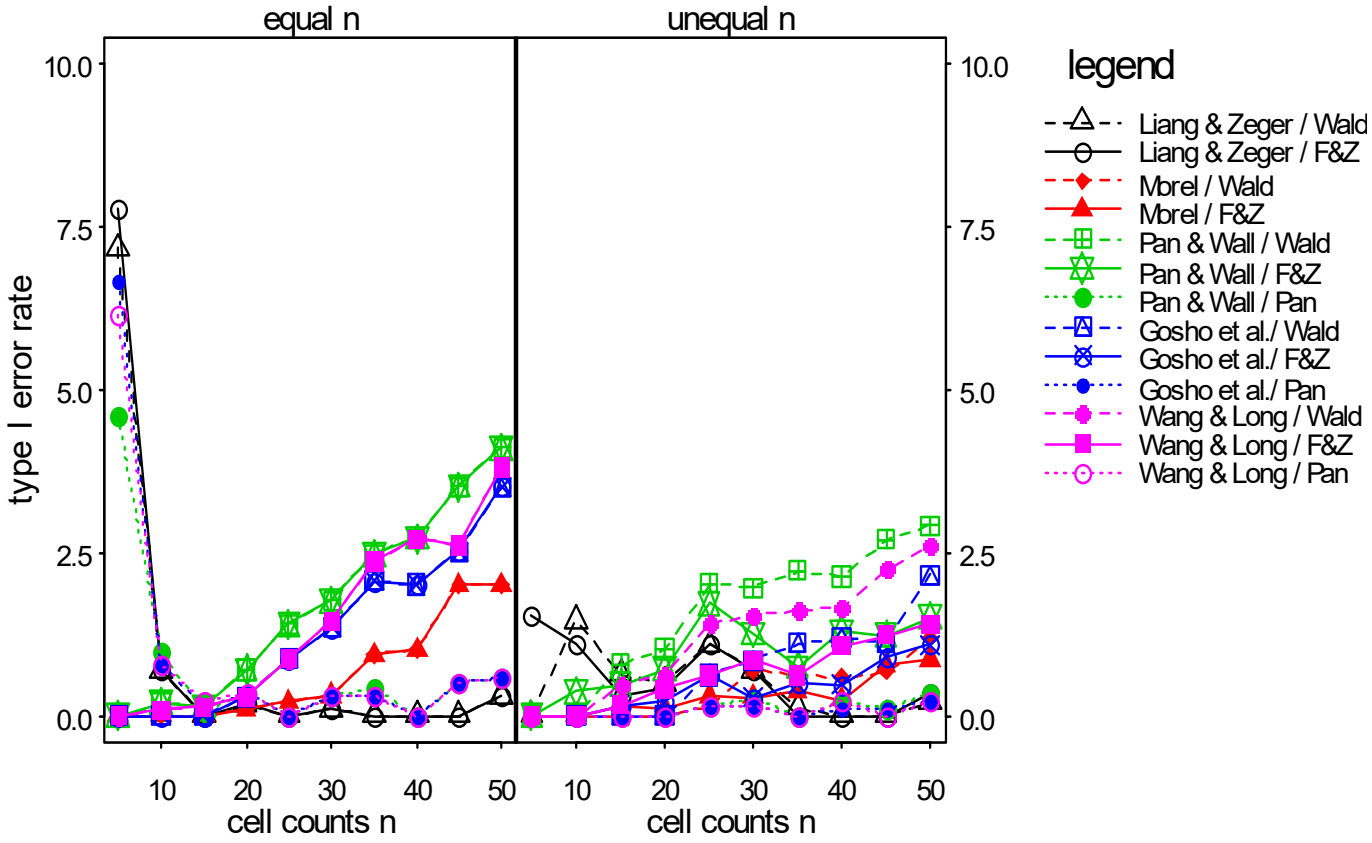
9. 2. 2. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	0.2	0.0	0.2	0.3	0.6	0.2	0.7	0.8	0.3	0.0	0.1	0.1	0.1	0.2
	Fan & Zhang	0.2	0.0	0.2	0.3	0.6	0.2	0.7	0.8	0.3	0.0	0.2	0.3	0.1	0.3
Morel et al.	Wald	0.0	0.1	0.7	1.4	2.6	3.0	3.8	0.0	0.0	0.0	0.2	1.0	1.4	2.2
	Fan & Zhang	0.0	0.1	0.7	1.4	2.6	3.0	3.8	0.0	0.0	0.1	0.3	2.0	2.0	2.9
Pan & Wall	Wald	0.0	2.9	3.8	3.9	5.6	5.4	5.1	0.0	0.6	2.0	2.8	5.0	3.7	5.2
	Fan & Zhang	0.0	3.0	3.8	4.0	5.6	5.4	5.1	0.0	1.1	2.9	2.8	4.9	4.9	4.5
	Pan	0.6	0.2	1.2	1.4	1.0	1.1	1.2	0.0	0.0	0.0	0.2	0.1	0.4	0.6
Gosho et al.	Wald	0.0	0.1	1.3	2.3	2.8	3.7	3.9		0.0	0.1	0.6	2.0	2.6	3.1
	Fan & Zhang	0.0	0.1	1.3	2.3	2.8	3.7	3.9		0.0	0.5	0.9	2.7	3.0	3.7
	Pan	0.5	0.1	0.6	0.6	1.0	0.9	1.2		0.0	0.0	0.1	0.1	0.3	0.5
Wang & Long	Wald	0.0	0.6	3.7	3.3	5.6	4.2	4.4	0.0	0.1	0.7	1.6	3.0	3.3	4.2
	Fan & Zhang	0.0	0.6	3.8	3.3	5.6	4.2	4.4	0.0	0.1	1.8	2.1	4.2	4.4	4.4
	Pan	0.4	0.1	0.6	0.8	1.0	1.0	1.2	0.0	0.0	0.0	0.1	0.1	0.3	0.5



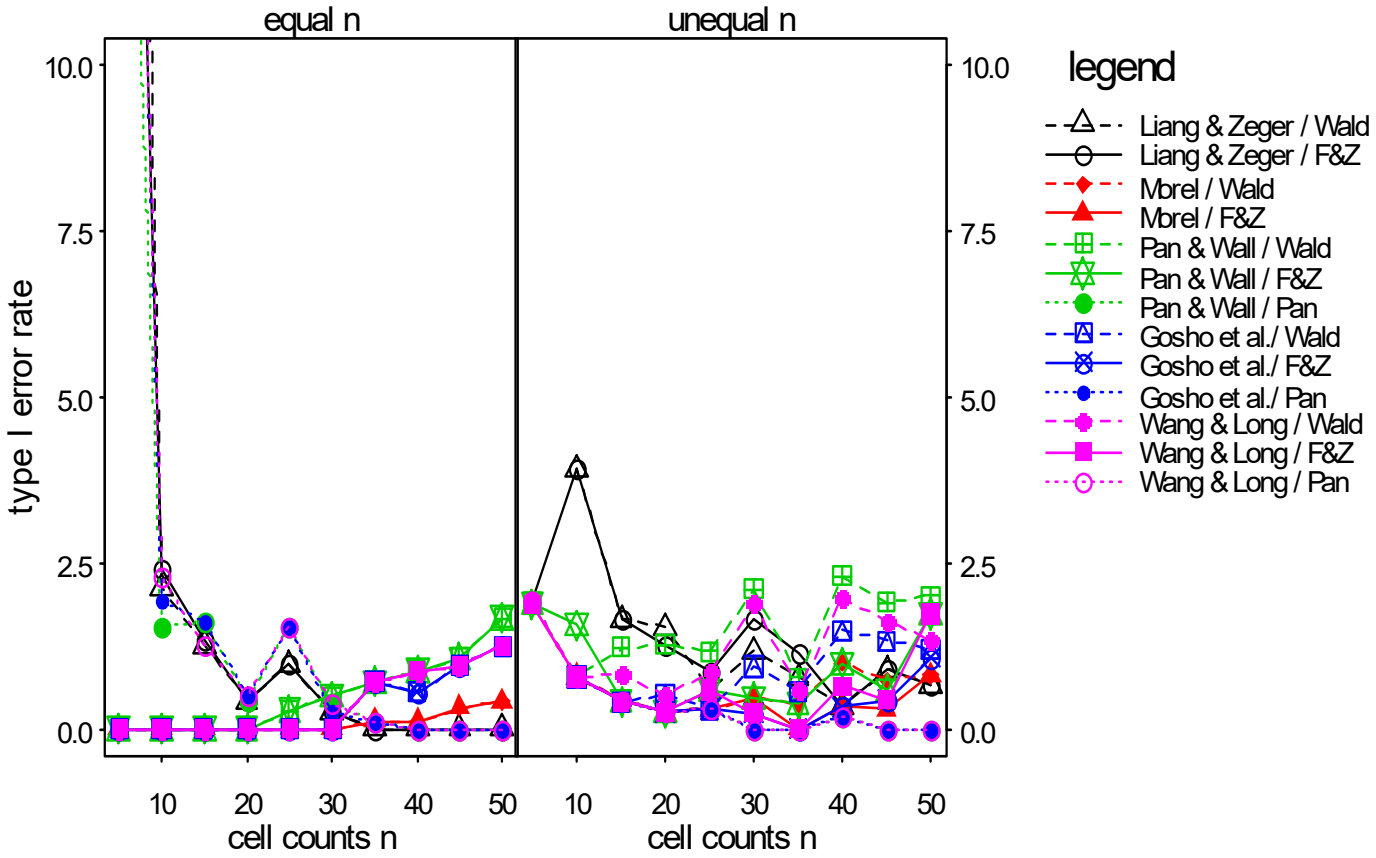
9. 2. 2. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	7.2	0.7	0.0	0.2	0.1	0.0	0.3	0.0	1.5	0.6	0.5	0.7	0.0	0.2
	Fan & Zhang	7.8	0.7	0.0	0.2	0.1	0.0	0.3	1.5	1.1	0.3	0.4	0.7	0.0	0.3
Morel et al.	Wald	0.0	0.0	0.0	0.1	0.3	1.0	2.0	0.0	0.0	0.0	0.0	0.7	0.6	1.2
	Fan & Zhang	0.0	0.0	0.0	0.1	0.3	1.0	2.0	0.0	0.0	0.2	0.1	0.3	0.2	0.9
Pan & Wall	Wald	0.0	0.2	0.1	0.7	1.8	2.7	4.1	0.0	0.0	0.8	1.0	2.0	2.1	2.9
	Fan & Zhang	0.0	0.2	0.1	0.7	1.8	2.7	4.1	0.0	0.4	0.5	0.7	1.3	1.3	1.5
	Pan	4.6	1.0	0.1	0.3	0.3	0.0	0.6	0.0	0.0	0.0	0.0	0.3	0.2	0.3
Gosho et al.	Wald	0.0	0.0	0.0	0.3	1.3	2.0	3.5		0.0	0.0	0.0	0.8	1.2	2.2
	Fan & Zhang	0.0	0.0	0.0	0.3	1.3	2.0	3.5		0.0	0.2	0.2	0.3	0.5	1.1
	Pan	6.6	0.8	0.1	0.3	0.3	0.0	0.6		0.0	0.0	0.0	0.1	0.1	0.2
Wang & Long	Wald	0.0	0.1	0.1	0.3	1.4	2.7	3.8	0.0	0.0	0.5	0.6	1.5	1.7	2.6
	Fan & Zhang	0.0	0.1	0.1	0.3	1.4	2.7	3.8	0.0	0.0	0.2	0.4	0.8	1.1	1.4
	Pan	6.1	0.8	0.2	0.3	0.3	0.0	0.6	0.0	0.0	0.0	0.0	0.1	0.2	0.2



9. 2. 2. 3 p = 0.9

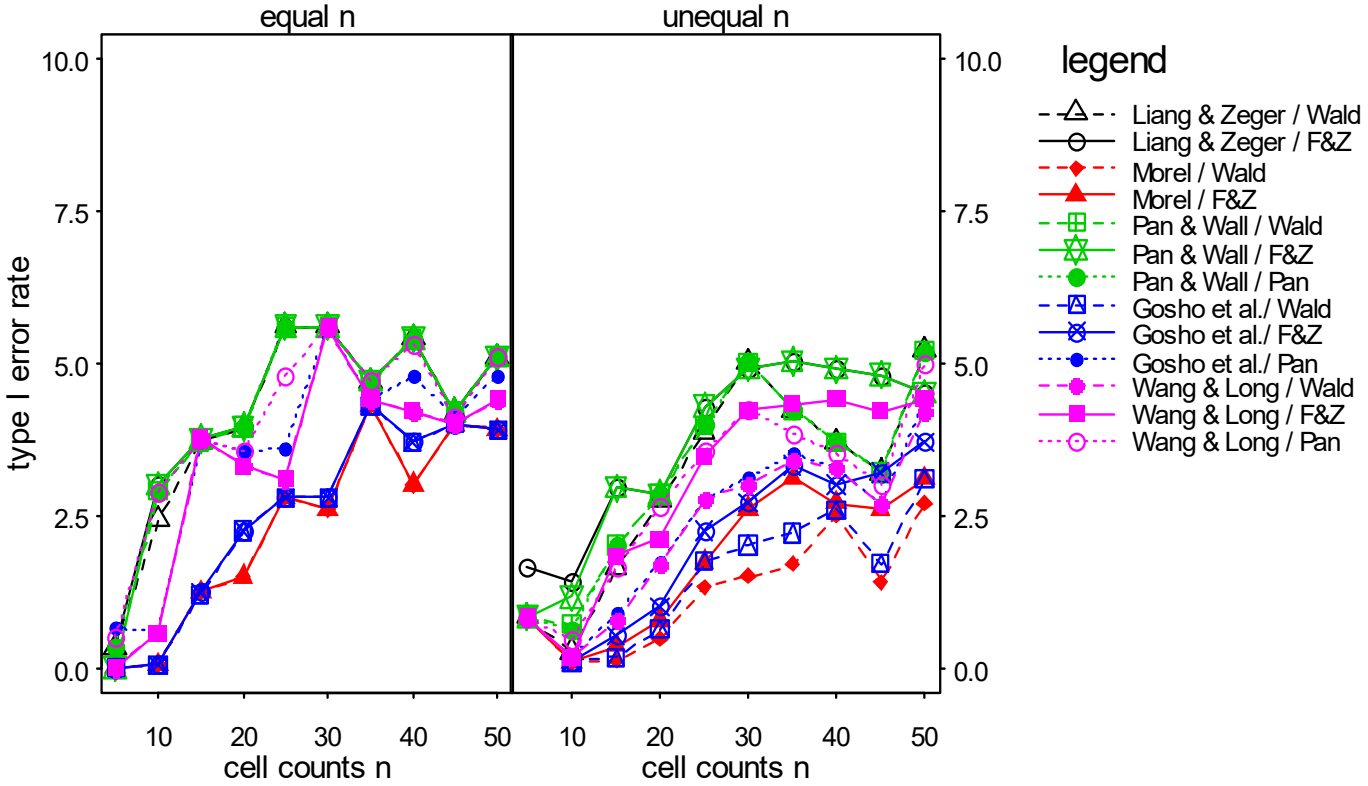
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	33.3	2.1	1.3	0.4	0.2	0.0	0.0		3.9	1.6	1.5	1.2	0.3	0.7
	Fan & Zhang	25.3	2.4	1.4	0.4	0.2	0.0	0.0	1.9	3.9	1.6	1.3	1.6	0.3	0.7
Morel et al.	Wald	0.0	0.0	0.0	0.0	0.0	0.1	0.4	1.9	0.8	0.4	0.3	0.5	1.0	0.8
	Fan & Zhang	0.0	0.0	0.0	0.0	0.0	0.1	0.4	1.9	0.8	0.4	0.3	0.5	0.3	0.8
Pan & Wall	Wald	0.0	0.0	0.0	0.0	0.5	0.9	1.7	1.9	0.8	1.2	1.3	2.1	2.3	2.0
	Fan & Zhang	0.0	0.0	0.0	0.0	0.5	0.9	1.7	1.9	1.6	0.4	0.3	0.5	1.0	1.7
	Pan	20.5	1.5	1.6	0.4	0.4	0.0	0.0	1.9	0.8	0.4	0.3	0.0	0.2	0.0
Gosho et al.	Wald	0.0	0.0	0.0	0.0	0.0	0.5	1.2		0.8	0.4	0.5	0.9	1.5	1.2
	Fan & Zhang	0.0	0.0	0.0	0.0	0.0	0.5	1.2		0.8	0.4	0.3	0.2	0.3	1.1
	Pan	25.3	1.9	1.6	0.5	0.2	0.0	0.0		0.8	0.4	0.3	0.0	0.2	0.0
Wang & Long	Wald	0.0	0.0	0.0	0.0	0.0	0.9	1.2	1.9	0.8	0.8	0.5	1.9	2.0	1.3
	Fan & Zhang	0.0	0.0	0.0	0.0	0.0	0.9	1.2	1.9	0.8	0.4	0.3	0.2	0.7	1.7
	Pan	26.5	2.3	1.3	0.5	0.4	0.0	0.0	1.9	0.8	0.4	0.3	0.0	0.2	0.0



9. 2. 3. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) exchangeable-structure assumed

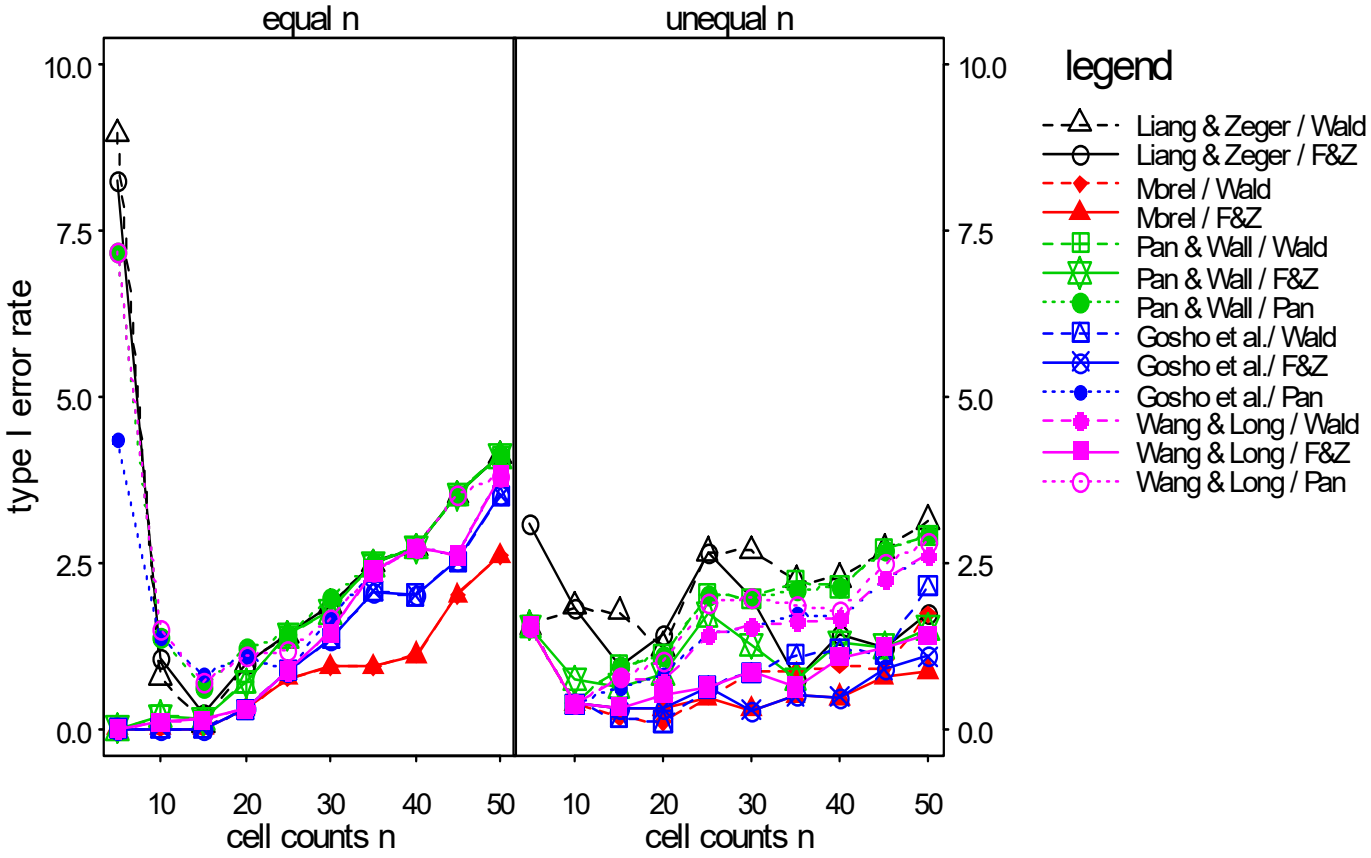
9. 2. 3. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	0.3	2.4	3.7	3.9	5.6	5.4	5.1	0.8	0.3	1.7	2.7	5.0	3.7	5.2
	Fan & Zhang	0.3	3.0	3.8	4.0	5.6	5.4	5.1	1.7	1.4	3.0	2.8	4.9	4.9	4.5
Morel et al.	Wald	0.0	0.1	1.3	1.5	2.6	3.0	3.9	0.8	0.1	0.1	0.5	1.5	2.5	2.7
	Fan & Zhang	0.0	0.1	1.3	1.5	2.6	3.0	3.9	0.8	0.1	0.4	0.8	2.6	2.7	3.1
Pan & Wall	Wald	0.0	2.9	3.7	4.0	5.6	5.4	5.1	0.8	0.7	2.0	2.8	5.0	3.7	5.2
	Fan & Zhang	0.0	3.0	3.8	4.0	5.6	5.4	5.1	0.8	1.2	3.0	2.8	4.9	4.9	4.5
	Pan	0.3	2.9	3.7	4.0	5.6	5.4	5.1	0.8	0.6	2.0	2.8	5.0	3.7	5.2
Gosho et al.	Wald	0.0	0.1	1.2	2.3	2.8	3.7	3.9		0.1	0.2	0.6	2.0	2.6	3.1
	Fan & Zhang	0.0	0.1	1.3	2.3	2.8	3.7	3.9		0.1	0.5	1.0	2.7	3.0	3.7
	Pan	0.7	0.6	3.7	3.6	5.6	4.8	4.8		0.2	0.9	1.7	3.1	3.3	4.4
Wang & Long	Wald	0.0	0.6	3.8	3.3	5.6	4.2	4.4	0.8	0.2	0.8	1.7	3.0	3.3	4.2
	Fan & Zhang	0.0	0.6	3.8	3.3	5.6	4.2	4.4	0.8	0.2	1.8	2.1	4.2	4.4	4.4
	Pan	0.5	2.9	3.8	3.6	5.6	5.3	5.1	0.8	0.4	1.7	2.6	4.2	3.5	5.0



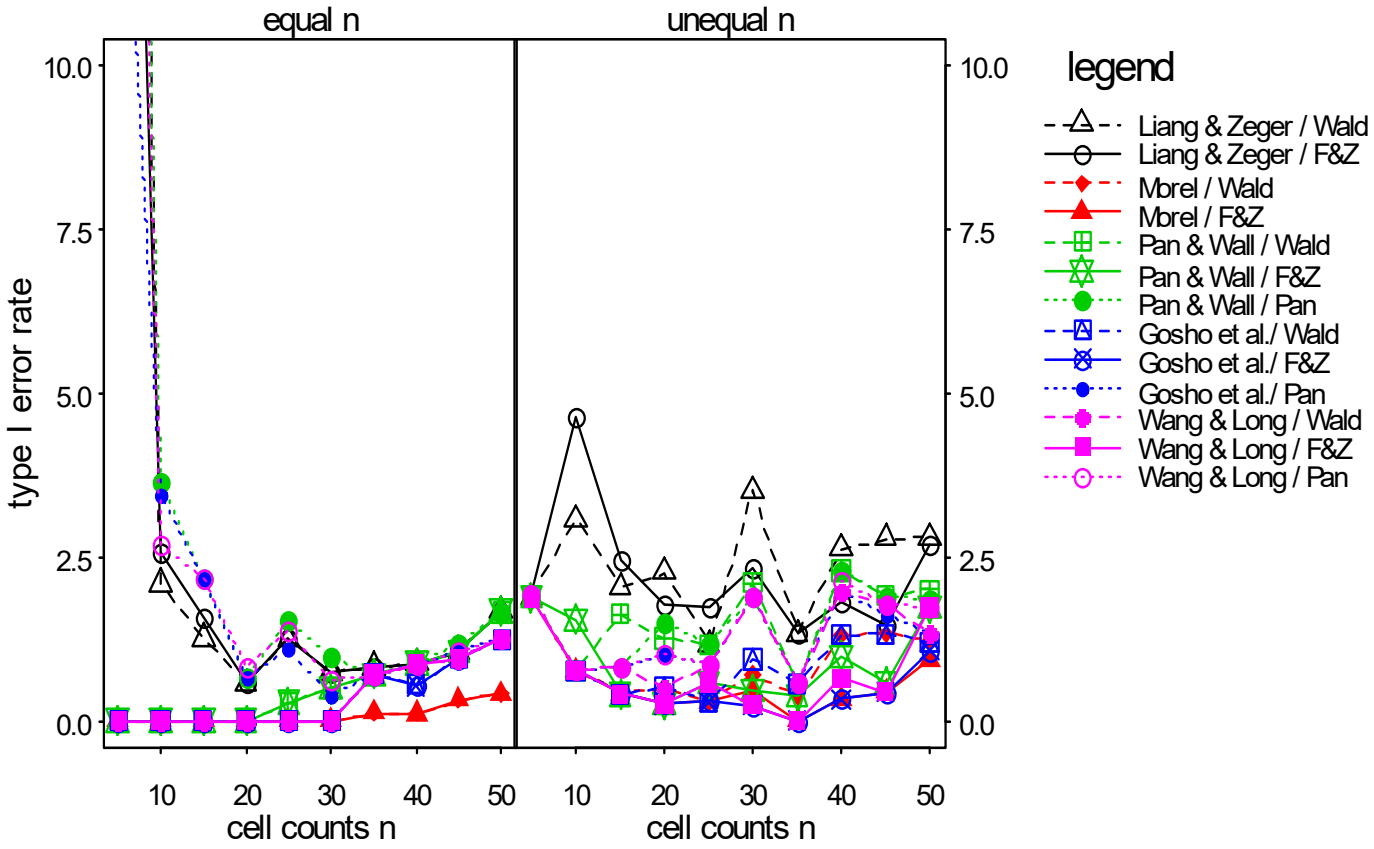
9. 2. 3. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	9.0	0.8	0.1	1.0	1.9	2.7	4.1	1.5	1.8	1.7	1.2	2.7	2.2	3.1
	Fan & Zhang	8.2	1.1	0.2	1.0	1.9	2.7	4.1	3.1	1.8	1.0	1.4	2.0	1.4	1.7
Morel et al.	Wald	0.0	0.0	0.0	0.3	0.9	1.1	2.6	1.5	0.4	0.2	0.1	0.8	0.9	1.7
	Fan & Zhang	0.0	0.0	0.0	0.3	0.9	1.1	2.6	1.5	0.4	0.3	0.3	0.3	0.5	0.9
Pan & Wall	Wald	0.0	0.2	0.1	0.7	1.8	2.7	4.1	1.5	0.4	1.0	1.1	2.0	2.1	2.9
	Fan & Zhang	0.0	0.2	0.1	0.7	1.8	2.7	4.1	1.5	0.7	0.6	0.8	1.3	1.3	1.5
	Pan	7.2	1.4	0.6	1.2	2.0	2.7	4.1	1.5	0.4	1.0	1.1	2.0	2.1	2.9
Gosho et al.	Wald	0.0	0.0	0.0	0.3	1.3	2.0	3.5		0.4	0.2	0.1	0.8	1.2	2.2
	Fan & Zhang	0.0	0.0	0.0	0.3	1.3	2.0	3.5		0.4	0.3	0.3	0.3	0.5	1.1
	Pan	4.3	1.4	0.8	1.1	1.7	2.7	3.8		0.4	0.6	0.8	1.5	1.7	2.6
Wang & Long	Wald	0.0	0.1	0.1	0.3	1.4	2.7	3.8	1.5	0.4	0.8	0.7	1.5	1.7	2.6
	Fan & Zhang	0.0	0.1	0.1	0.3	1.4	2.7	3.8	1.5	0.4	0.3	0.5	0.8	1.1	1.4
	Pan	7.2	1.5	0.7	1.1	1.7	2.7	3.8	1.5	0.4	0.8	1.0	2.0	1.8	2.8



9. 2. 3. 3 p = 0.9

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	38.2	2.1	1.3	0.6	0.7	0.9	1.7	1.9	3.1	2.0	2.3	3.5	2.6	2.8
	Fan & Zhang	24.9	2.6	1.6	0.6	0.7	0.9	1.7	1.9	4.6	2.4	1.8	2.3	1.8	2.7
Morel et al.	Wald	0.0	0.0	0.0	0.0	0.0	0.1	0.4	1.9	0.8	0.4	0.5	0.7	1.3	1.2
	Fan & Zhang	0.0	0.0	0.0	0.0	0.0	0.1	0.4	1.9	0.8	0.4	0.3	0.5	0.3	0.9
Pan & Wall	Wald	0.0	0.0	0.0	0.0	0.5	0.9	1.7	1.9	0.8	1.6	1.3	2.1	2.3	2.0
	Fan & Zhang	0.0	0.0	0.0	0.0	0.5	0.9	1.7	1.9	1.5	0.4	0.3	0.5	1.0	1.7
	Pan	29.5	3.6	2.2	0.7	1.0	0.9	1.7	1.9	0.8	0.8	1.5	1.9	2.3	1.9
Gosho et al.	Wald	0.0	0.0	0.0	0.0	0.0	0.5	1.2		0.8	0.4	0.5	0.9	1.3	1.2
	Fan & Zhang	0.0	0.0	0.0	0.0	0.0	0.5	1.2		0.8	0.4	0.3	0.2	0.3	1.1
	Pan	15.9	3.4	2.2	0.7	0.4	0.9	1.2		0.8	0.8	1.0	1.9	2.0	1.3
Wang & Long	Wald	0.0	0.0	0.0	0.0	0.0	0.9	1.2	1.9	0.8	0.8	0.5	1.9	2.0	1.3
	Fan & Zhang	0.0	0.0	0.0	0.0	0.0	0.9	1.2	1.9	0.8	0.4	0.3	0.2	0.7	1.7
	Pan	29.9	2.7	2.2	0.8	0.6	0.9	1.2	1.9	0.8	0.8	1.0	1.9	2.1	1.7

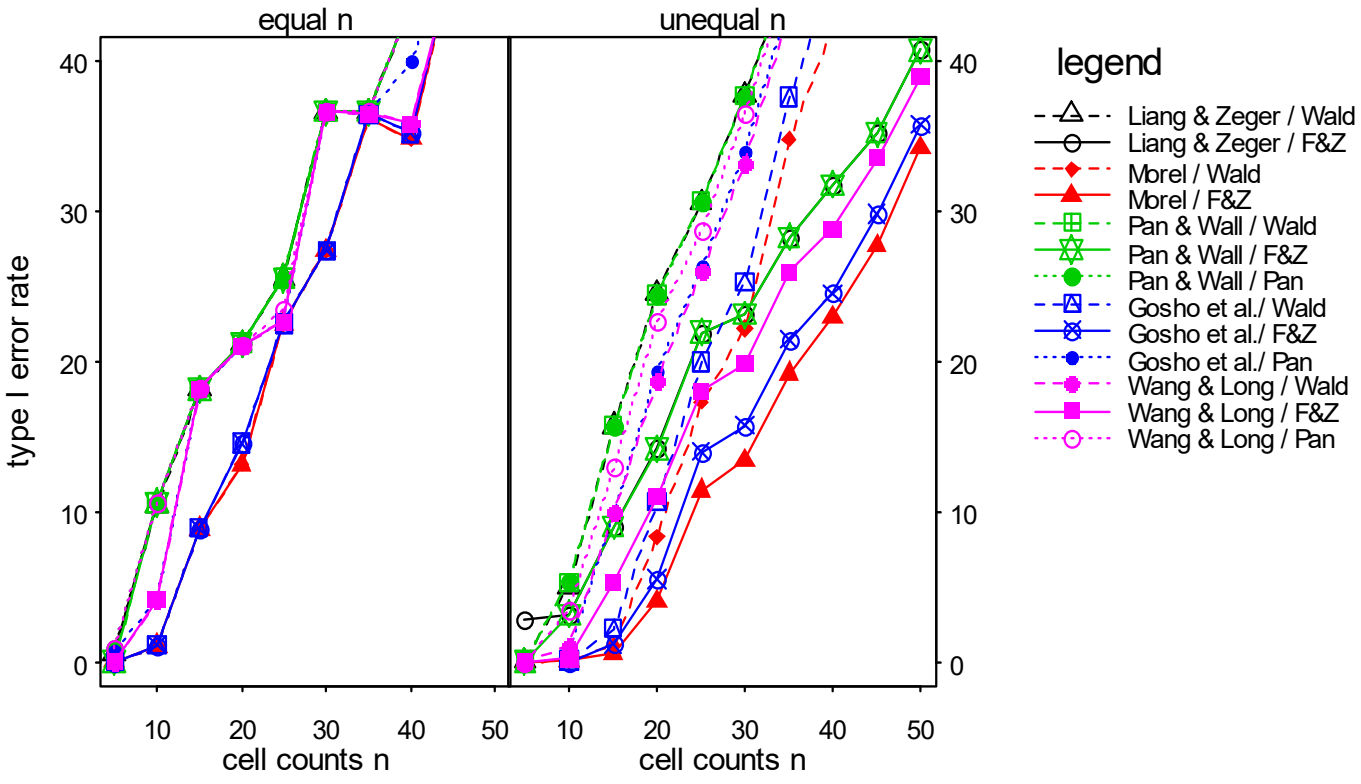


9. 3. Main effect A - Interaction significant (effects b_i = 0.4*s)

9. 3. 1. equal correlations on B (r=0.3)

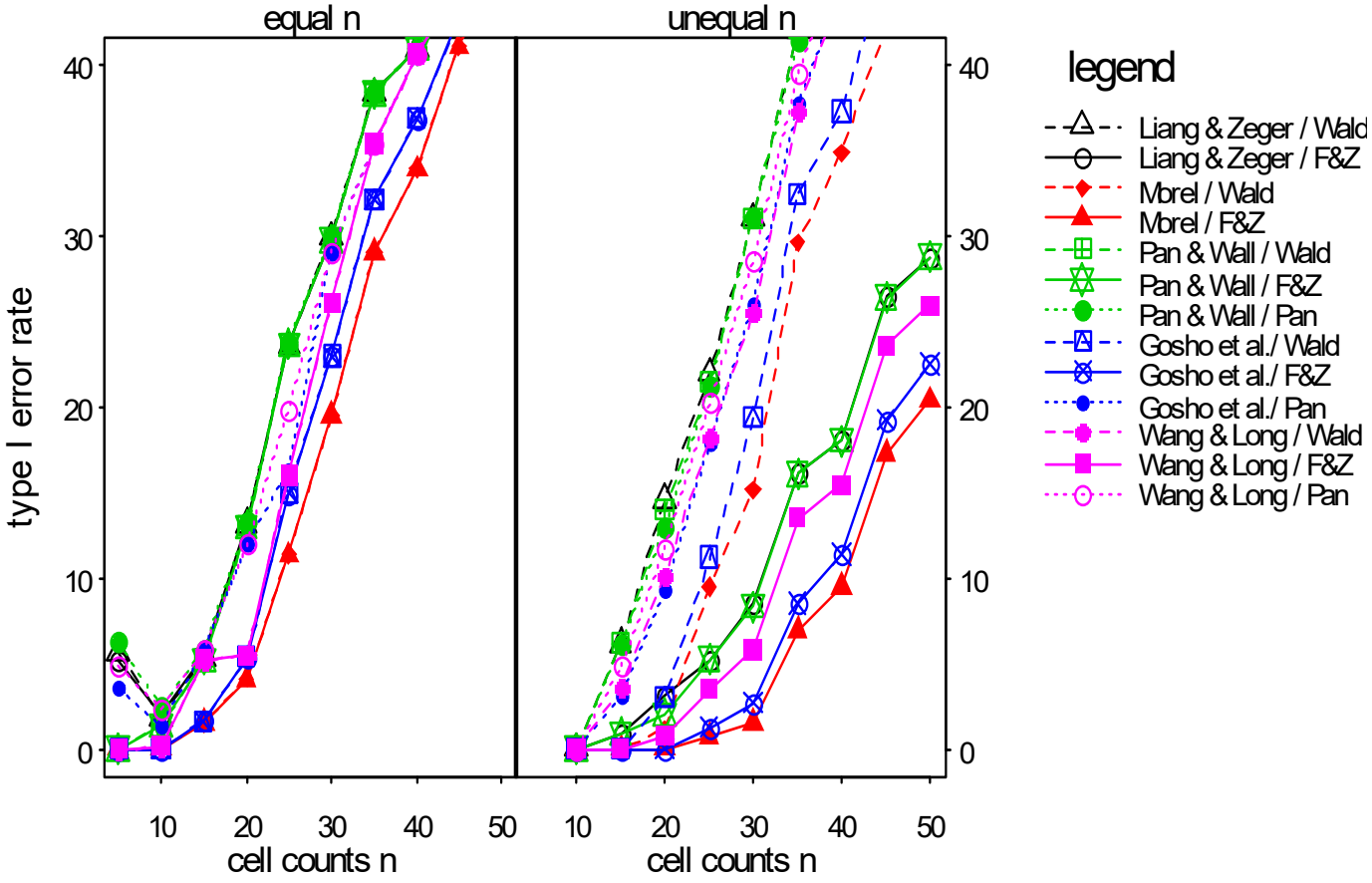
9. 3. 1. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	0.5	10.3	18.1	21.2	36.6	43.7	54.7	0.0	5.0	15.7	24.5	37.7	52.9	66.9
	Fan & Zhang	0.5	10.6	18.1	21.2	36.6	43.7	54.7	2.8	3.2	9.0	14.2	23.1	31.7	40.7
Morel et al.	Wald	0.0	1.1	8.9	13.2	27.4	34.8	47.3	0.0	0.1	1.1	8.3	22.2	42.2	57.1
	Fan & Zhang	0.0	1.1	8.9	13.2	27.4	34.8	47.3	0.0	0.1	0.6	4.0	13.4	22.9	34.2
Pan & Wall	Wald	0.0	10.6	18.1	21.2	36.6	43.7	54.7	0.0	5.3	15.7	24.4	37.7	52.9	66.9
	Fan & Zhang	0.0	10.6	18.1	21.2	36.6	43.7	54.7	0.0	3.2	9.0	14.1	23.1	31.7	40.7
	Pan	0.9	10.6	18.1	21.2	36.6	43.7	54.7	0.0	5.3	15.6	24.4	37.6	52.9	66.9
Gosho et al.	Wald	0.0	1.1	8.9	14.6	27.4	35.2	47.5		0.1	2.2	10.6	25.3	45.4	59.9
	Fan & Zhang	0.0	1.1	8.9	14.6	27.4	35.2	47.5		0.0	1.2	5.5	15.7	24.5	35.7
	Pan	0.8	4.1	18.1	21.1	36.6	40.0	50.8		0.8	9.9	19.3	34.0	49.8	64.9
Wang & Long	Wald	0.0	4.1	18.1	21.0	36.6	35.8	48.3	0.0	1.0	9.9	18.7	33.2	49.6	64.4
	Fan & Zhang	0.0	4.1	18.1	21.0	36.6	35.8	48.3	0.0	0.2	5.3	11.0	19.9	28.8	38.9
	Pan	0.9	10.6	18.1	21.1	36.6	43.7	54.7	0.0	3.4	13.0	22.6	36.4	51.8	66.1



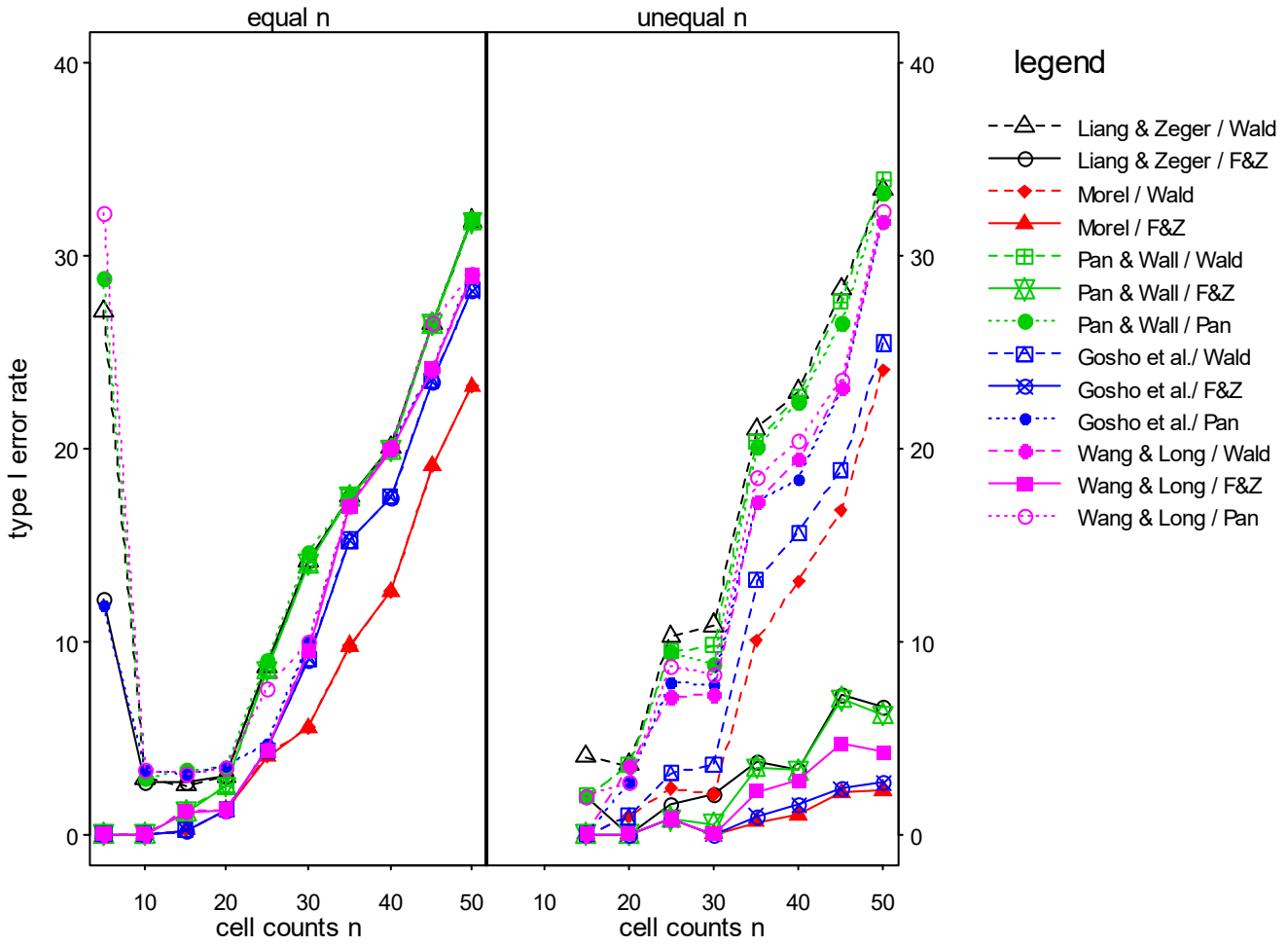
9. 3. 1. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	5.6	1.8	5.3	13.1	29.9	40.9	50.0		0.0	6.2	14.5	31.0	48.2	63.2
	Fan & Zhang	5.1	2.0	5.5	13.3	29.8	40.9	50.0		0.0	0.9	3.2	8.5	18.0	28.8
Morel et al.	Wald	0.0	0.0	1.5	4.1	19.5	33.9	45.9		0.0	0.0	1.2	15.1	34.8	52.1
	Fan & Zhang	0.0	0.0	1.5	4.1	19.5	33.9	45.9		0.0	0.0	0.0	1.6	9.5	20.4
Pan & Wall	Wald	0.0	1.3	5.2	13.0	29.8	40.9	50.0		0.0	6.2	13.9	31.0	48.2	63.1
	Fan & Zhang	0.0	1.3	5.2	13.0	29.7	40.9	50.0		0.0	0.9	2.0	8.3	18.0	28.8
	Pan	6.3	2.5	5.8	13.3	29.9	40.9	50.0		0.0	6.2	12.9	31.0	48.0	62.5
Gosho et al.	Wald	0.0	0.0	1.6	5.4	23.0	36.9	45.9		0.0	0.0	3.0	19.4	37.3	54.2
	Fan & Zhang	0.0	0.0	1.6	5.4	23.0	36.9	45.9		0.0	0.0	0.0	2.7	11.4	22.5
	Pan	3.5	1.3	5.9	12.0	29.0	40.6	49.5		0.0	3.1	9.4	26.0	44.4	59.5
Wang & Long	Wald	0.0	0.2	5.2	5.5	26.1	40.6	49.1		0.0	3.5	10.2	25.6	44.9	59.3
	Fan & Zhang	0.0	0.2	5.2	5.4	26.1	40.6	49.1		0.0	0.0	0.8	5.8	15.4	25.9
	Pan	4.9	2.3	5.9	12.0	29.0	40.6	49.5		0.0	4.8	11.8	28.5	46.3	60.5



9. 3. 1. 3 p = 0.9

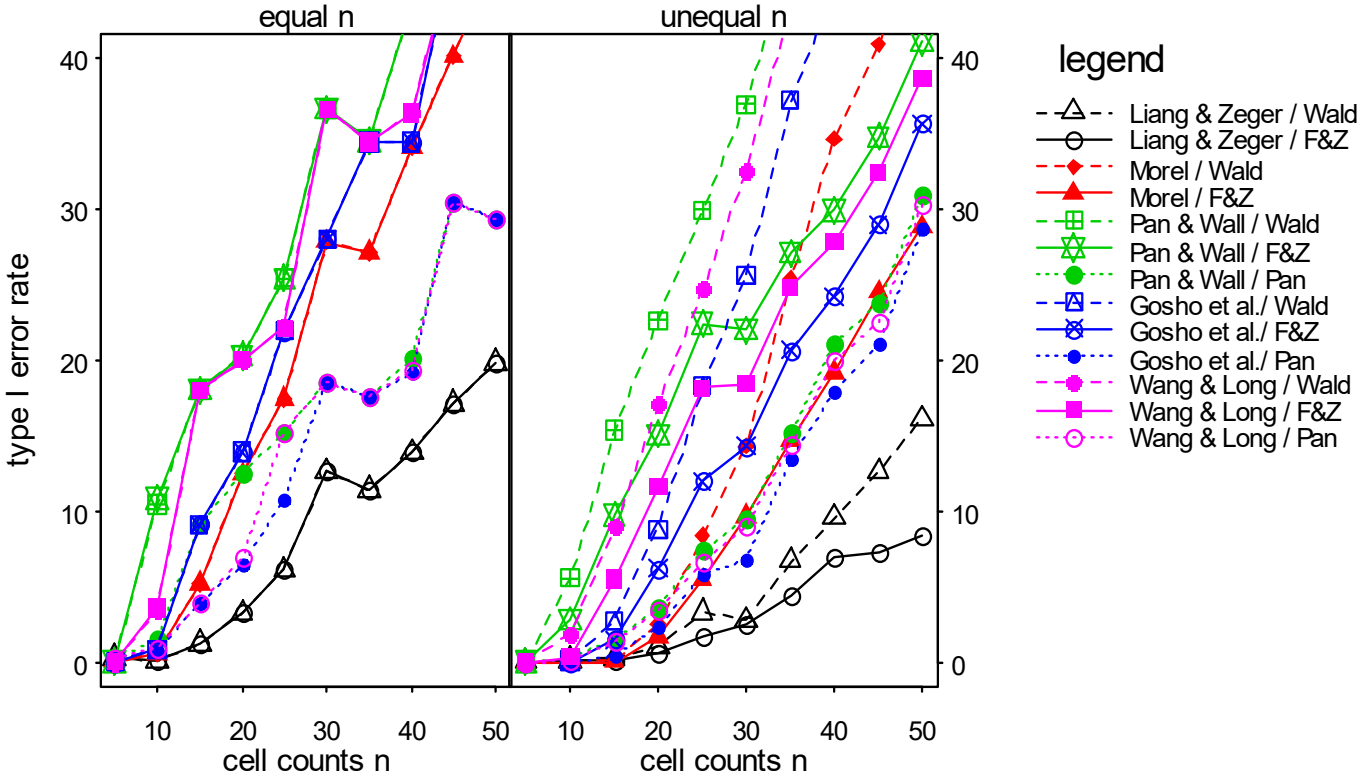
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	27.1	2.9	2.5	3.0	14.2	20.0	31.8			4	3.6	10.8	22.9	33.4
	Fan & Zhang	12.1	2.7	2.7	3.1	14.1	20.0	31.9			2	0.0	2.1	3.3	6.5
Morel et al.	Wald	0.0	0.0	0.2	1.3	5.5	12.6	23.2			0	0.9	2.1	13.1	24.0
	Fan & Zhang	0.0	0.0	0.2	1.2	5.5	12.6	23.2			0	0.0	0.0	1.0	2.3
Pan & Wall	Wald	0.0	0.0	1.2	2.5	14.0	19.9	31.8			2	3.6	9.8	22.7	33.9
	Fan & Zhang	0.0	0.0	1.1	2.5	14.0	19.9	31.7			0	0.0	0.5	3.3	6.2
	Pan	28.8	2.9	3.3	3.4	14.6	20.0	31.9			2	3.6	8.8	22.4	33.2
Gosho et al.	Wald	0.0	0.0	0.2	1.3	9.1	17.5	28.2			0	0.9	3.6	15.6	25.4
	Fan & Zhang	0.0	0.0	0.2	1.2	9.1	17.5	28.2			0	0.0	0.0	1.5	2.7
	Pan	11.9	3.3	3.1	3.5	9.9	20.0	29.1			0	2.7	7.7	18.4	31.6
Wang & Long	Wald	0.0	0.0	1.2	1.3	9.5	19.9	29.0			0	3.6	7.2	19.4	31.8
	Fan & Zhang	0.0	0.0	1.1	1.2	9.5	19.9	28.9			0	0.0	0.0	2.8	4.2
	Pan	32.2	3.3	3.1	3.4	9.9	20.0	29.1			2	2.7	8.2	20.4	32.3



9. 3. 2. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) ar1-structure assumed

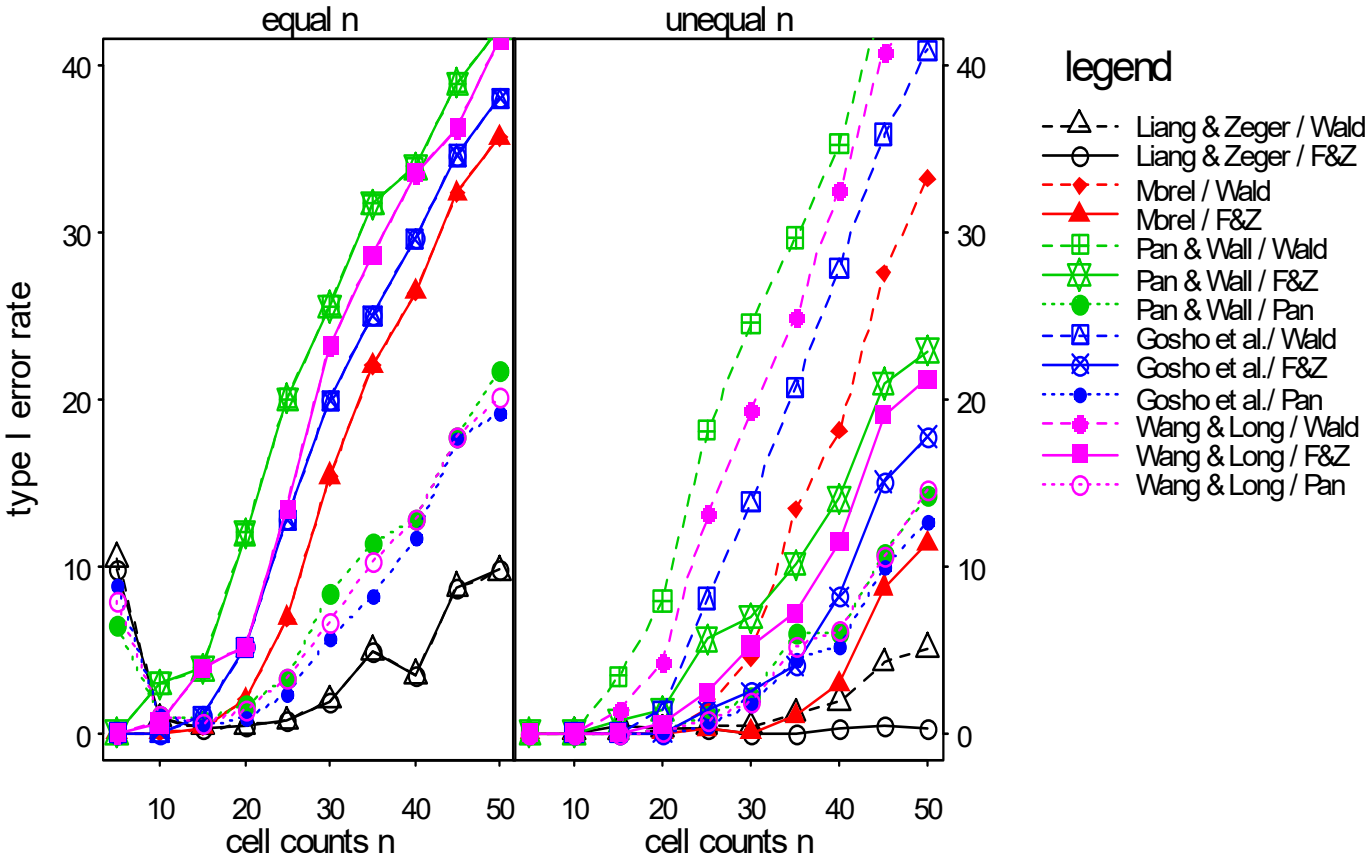
9. 3. 2. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	0.3	0.1	1.2	3.3	12.6	13.9	19.8		0.1	0.2	1.0	2.7	9.5	16.1
	Fan & Zhang	0.3	0.1	1.3	3.3	12.6	13.9	19.8		0.1	0.1	0.6	2.4	6.9	8.3
Morel et al.	Wald	0.0	0.5	5.2	12.5	27.8	34.1	46.6		0.0	0.1	2.5	14.3	34.6	50.9
	Fan & Zhang	0.0	0.5	5.2	12.5	27.8	34.1	46.6		0.0	0.0	1.7	9.6	19.2	28.8
Pan & Wall	Wald	0.0	10.4	18.0	20.3	36.6	43.6	53.8		5.5	15.4	22.6	36.9	53.1	65.4
	Fan & Zhang	0.0	10.8	18.0	20.3	36.6	43.6	53.8		2.8	9.7	15.0	22.0	29.9	41.0
	Pan	0.2	1.5	9.1	12.5	18.6	20.1	29.3		0.2	1.6	3.7	9.5	21.1	30.9
Gosho et al.	Wald	0.0	0.8	9.0	13.9	28.0	34.4	46.6		0.1	2.7	8.8	25.6	44.6	58.6
	Fan & Zhang	0.0	0.8	9.1	13.9	28.0	34.4	46.6		0.0	1.5	6.2	14.3	24.2	35.6
	Pan	0.3	0.8	3.9	6.5	18.6	19.1	29.3		0.0	0.4	2.3	6.8	17.9	28.6
Wang & Long	Wald	0.0	3.4	18.0	20.0	36.6	36.3	47.5		1.8	9.1	17.1	32.4	49.6	62.4
	Fan & Zhang	0.0	3.6	18.0	20.0	36.6	36.3	47.5		0.3	5.5	11.6	18.4	27.8	38.6
	Pan	0.3	0.8	3.9	7.0	18.6	19.3	29.3		0.1	1.3	3.4	8.9	20.0	30.2



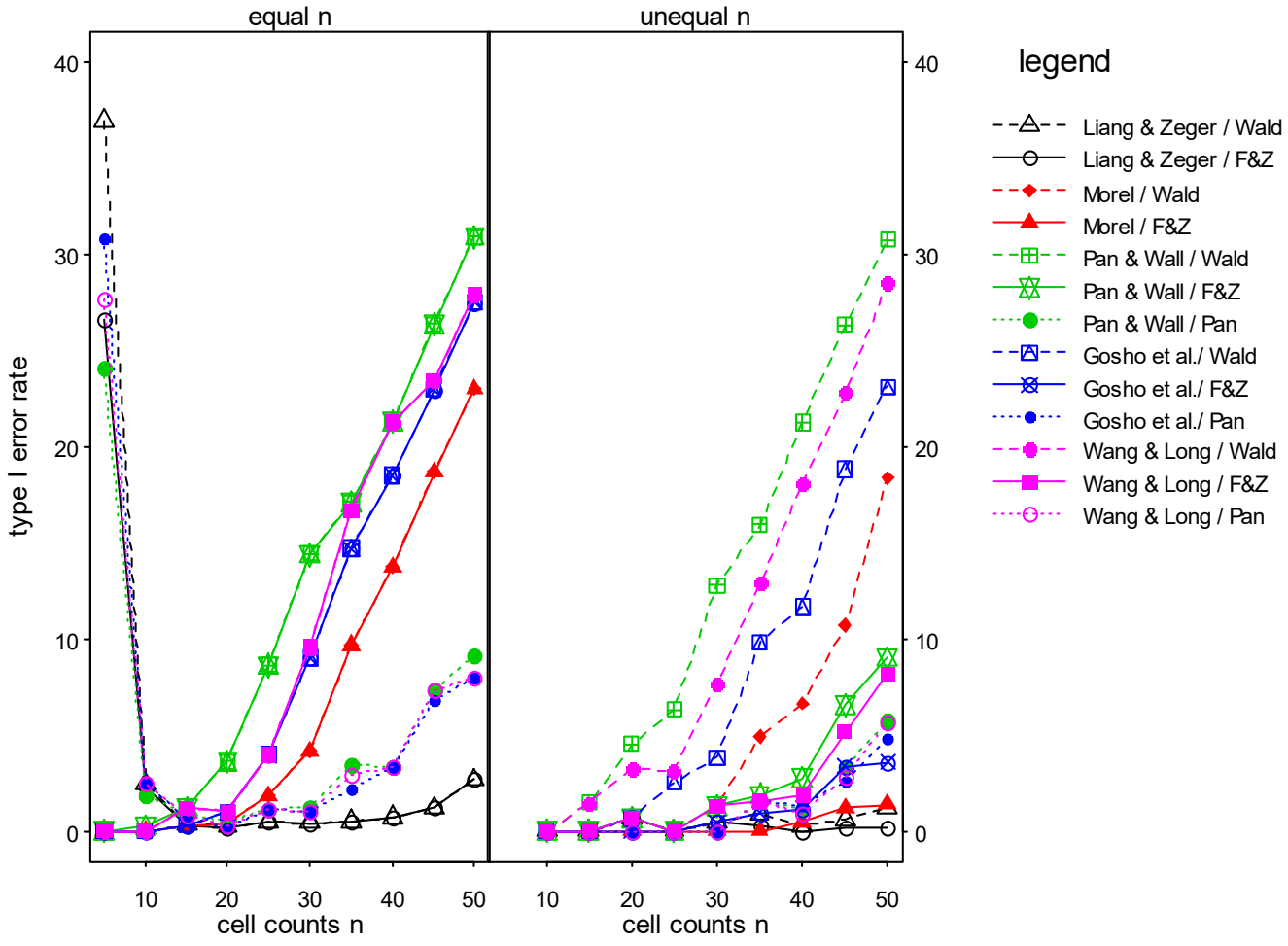
9. 3. 2. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	10.4	0.8	0.3	0.4	1.9	3.4	9.6			0.0	0.2	0.3	1.8	5.0
	Fan & Zhang	9.8	0.8	0.3	0.4	1.9	3.4	9.7			0.3	0.3	0.0	0.3	0.2
Morel et al.	Wald	0.0	0.0	0.3	1.9	15.4	26.4	35.6			0.0	0.0	4.5	18.1	33.2
	Fan & Zhang	0.0	0.0	0.3	1.9	15.3	26.4	35.6			0.0	0.0	0.0	2.9	11.3
Pan & Wall	Wald	0.0	2.9	3.9	11.9	25.5	33.9	42.2			3.4	7.9	24.5	35.3	46.8
	Fan & Zhang	0.0	2.9	3.9	11.9	25.5	33.9	42.2			0.7	1.3	6.9	14.0	22.9
	Pan	6.5	1.1	0.8	1.6	8.4	12.9	21.8			0.0	0.2	2.2	5.9	14.2
Gosho et al.	Wald	0.0	0.0	1.0	5.2	19.9	29.6	38.0			0.0	1.3	13.8	27.8	40.8
	Fan & Zhang	0.0	0.0	1.0	5.1	19.9	29.6	38.0			0.0	0.0	2.4	8.1	17.7
	Pan	8.8	1.1	0.5	0.8	5.6	11.8	19.2			0.0	0.0	1.7	5.2	12.6
Wang & Long	Wald	0.0	0.6	3.9	5.2	23.2	33.5	41.5			1.4	4.2	19.3	32.5	43.7
	Fan & Zhang	0.0	0.6	3.9	5.1	23.2	33.5	41.5			0.0	0.5	5.2	11.4	21.2
	Pan	7.8	1.1	0.6	1.3	6.6	12.9	20.1			0.0	0.2	1.9	6.2	14.5



9. 3. 2. 3 p = 0.9

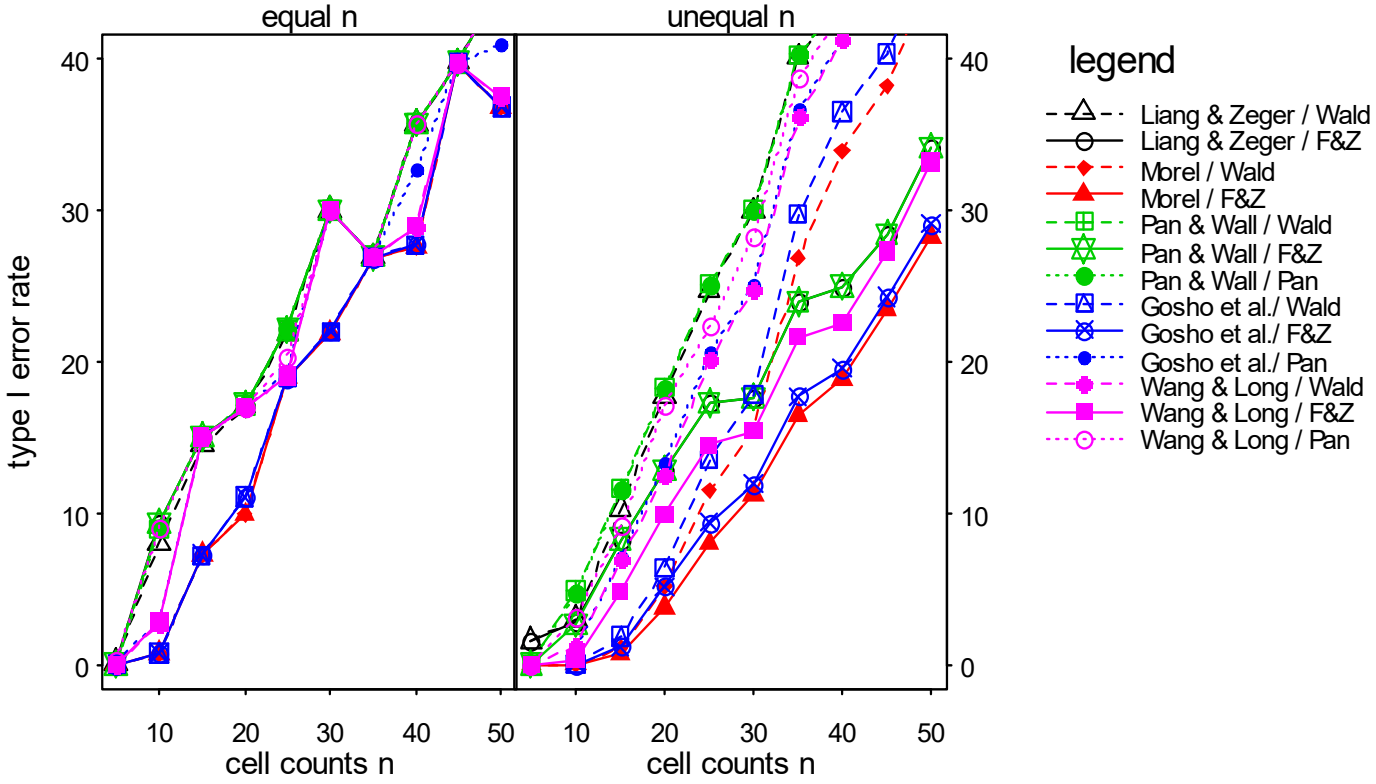
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	36.9	2.4	0.3	0.2	0.4	0.7	2.7		0.0	0.0	0.6	0.4	0.2	1.2
	Fan & Zhang	26.6	2.3	0.3	0.2	0.4	0.7	2.7		0.0	0.0	0.6	0.4	0.0	0.2
Morel et al.	Wald	0.0	0.0	0.3	0.4	4.2	13.7	23.0		0.0	0.0	0.0	1.3	6.6	18.3
	Fan & Zhang	0.0	0.0	0.3	0.4	4.1	13.7	23.0		0.0	0.0	0.0	0.0	0.5	1.4
Pan & Wall	Wald	0.0	0.0	1.2	3.6	14.4	21.3	30.9		0.0	1.4	4.5	12.8	21.2	30.7
	Fan & Zhang	0.0	0.3	1.2	3.6	14.4	21.3	30.9		0.0	0.0	0.6	1.3	2.7	9.0
	Pan	24.1	1.9	0.9	0.5	1.2	3.4	9.1		0.0	0.0	0.0	0.0	1.1	5.8
Gosho et al.	Wald	0.0	0.0	0.3	1.0	9.0	18.5	27.5		0.0	0.0	0.6	3.8	11.6	23.1
	Fan & Zhang	0.0	0.0	0.3	1.0	9.0	18.5	27.5		0.0	0.0	0.0	0.4	1.1	3.6
	Pan	30.8	2.4	0.6	0.2	1.0	3.4	7.9		0.0	0.0	0.0	0.0	1.4	4.8
Wang & Long	Wald	0.0	0.0	1.2	1.0	9.6	21.3	27.9		0.0	1.4	3.2	7.7	18.0	28.5
	Fan & Zhang	0.0	0.0	1.2	1.0	9.5	21.3	27.9		0.0	0.0	0.6	1.3	1.8	8.1
	Pan	27.7	2.4	0.8	0.3	1.0	3.4	7.9		0.0	0.0	0.0	0.0	0.9	5.6



9. 3. 3. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) exchangeable-structure assumed

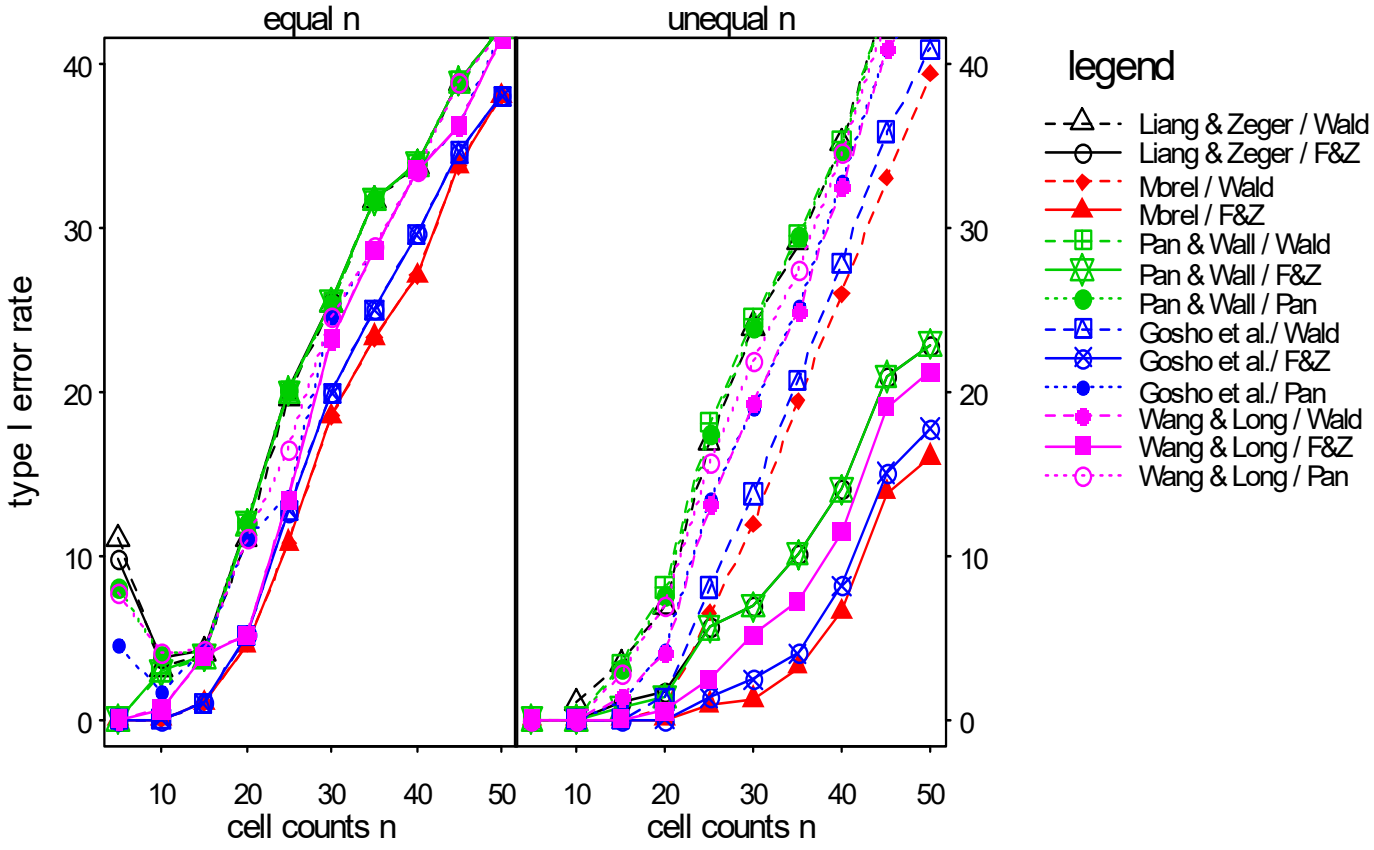
9. 3. 3. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	0.1	8.0	14.5	17.0	30.0	35.7	45.0	1.6	3.0	10.3	17.7	29.9	43.6	55.1
	Fan & Zhang	0.1	9.3	15.0	17.2	30.0	35.7	45.0	1.6	2.8	8.3	12.8	17.6	24.9	34.1
Morel et al.	Wald	0.0	0.7	7.3	9.9	21.9	27.5	36.8	0.0	0.0	1.0	5.2	15.5	33.9	45.7
	Fan & Zhang	0.0	0.7	7.3	9.9	21.9	27.5	36.8	0.0	0.0	0.7	3.8	11.2	18.8	28.2
Pan & Wall	Wald	0.0	8.9	15.0	17.2	30.0	35.7	45.0	0.0	4.9	11.6	18.3	30.0	43.6	55.1
	Fan & Zhang	0.0	9.3	15.0	17.2	30.0	35.7	45.0	0.0	2.7	8.3	12.8	17.6	24.9	34.1
	Pan	0.2	8.9	15.0	17.2	30.0	35.7	45.0	0.0	4.8	11.6	18.3	30.0	43.6	55.1
Gosho et al.	Wald	0.0	0.7	7.2	11.1	22.0	27.7	36.8		0.0	1.8	6.3	17.8	36.5	47.5
	Fan & Zhang	0.0	0.7	7.3	11.1	22.0	27.7	36.8		0.0	1.2	5.2	11.9	19.5	29.0
	Pan	0.3	2.7	15.0	17.0	30.0	32.7	40.9		1.0	7.1	13.3	25.0	41.2	52.1
Wang & Long	Wald	0.0	2.7	15.0	17.0	30.0	28.9	37.5	0.0	1.3	7.0	12.6	24.7	41.2	51.8
	Fan & Zhang	0.0	2.8	15.0	17.0	30.0	28.9	37.5	0.0	0.3	4.8	9.9	15.4	22.5	33.1
	Pan	0.3	9.0	15.0	17.0	30.0	35.7	45.0	0.0	3.1	9.2	17.0	28.2	43.0	54.5



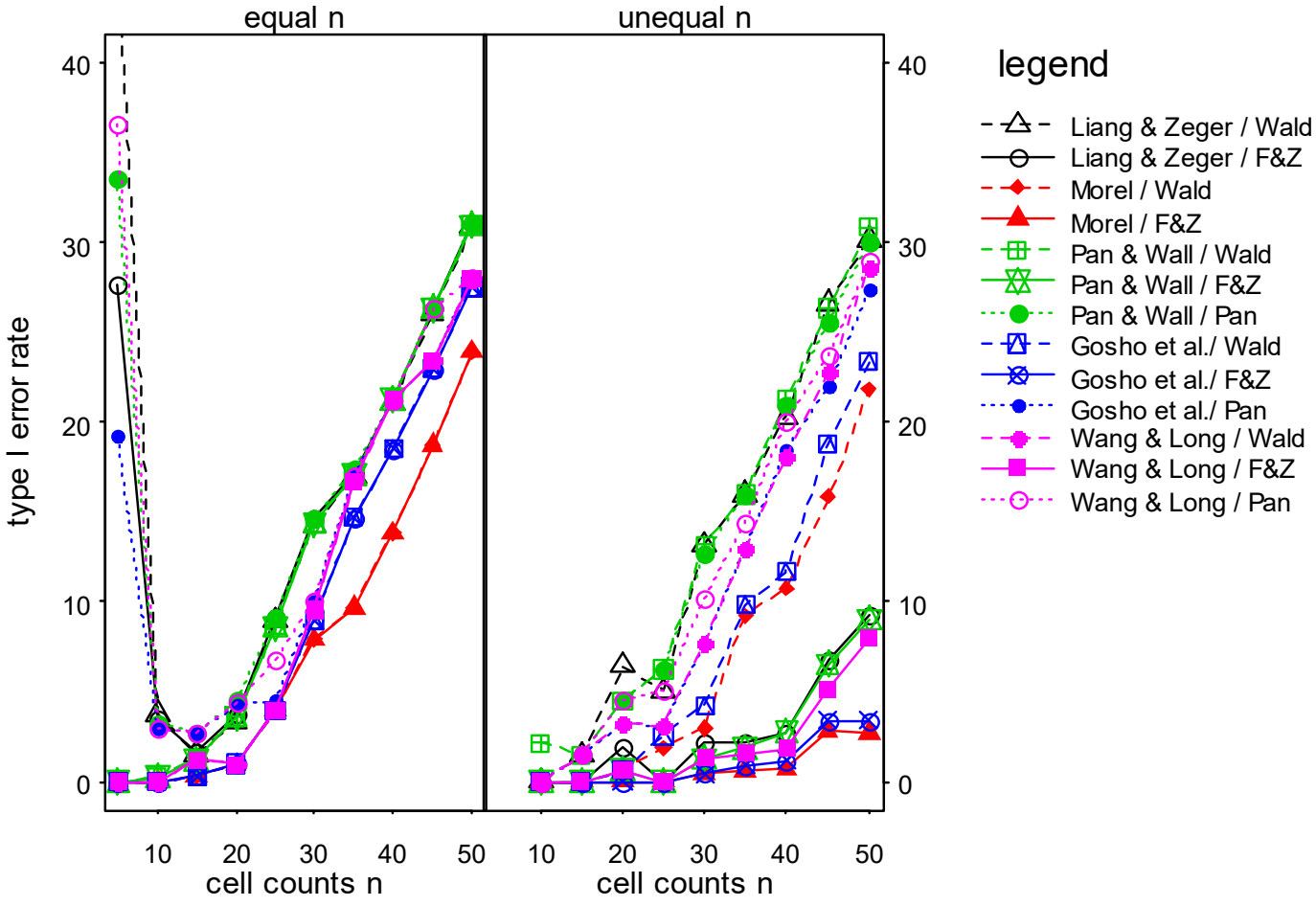
9. 3. 3. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	11.0	3.1	4.1	11.0	25.3	33.8	42.2		1.0	3.4	6.9	23.9	35.1	46.7
	Fan & Zhang	9.7	3.8	4.2	12.0	25.5	33.9	42.2		0.0	1.0	1.7	6.9	14.0	22.9
Morel et al.	Wald	0.0	0.0	1.0	4.6	18.5	27.1	38.0		0.0	0.0	0.5	11.9	26.0	39.4
	Fan & Zhang	0.0	0.0	1.0	4.6	18.5	27.1	38.0		0.0	0.0	0.0	1.2	6.6	16.0
Pan & Wall	Wald	0.0	2.8	3.9	11.9	25.4	33.9	42.2		0.0	3.4	8.0	24.4	35.3	46.8
	Fan & Zhang	0.0	2.9	3.9	11.9	25.5	33.9	42.2		0.0	0.7	1.3	6.9	14.0	22.9
	Pan	8.1	3.9	4.2	12.1	25.4	33.9	42.2		0.0	3.1	7.5	23.9	34.7	46.6
Gosho et al.	Wald	0.0	0.0	1.0	5.2	19.9	29.6	38.0		0.0	0.0	1.3	13.8	27.8	40.8
	Fan & Zhang	0.0	0.0	1.0	5.1	19.9	29.6	38.0		0.0	0.0	0.0	2.4	8.1	17.7
	Pan	4.5	1.6	4.2	11.0	24.6	33.5	41.9		0.0	1.0	4.2	18.9	32.8	43.8
Wang & Long	Wald	0.0	0.6	3.9	5.2	23.2	33.5	41.5		0.0	1.4	4.0	19.3	32.5	43.7
	Fan & Zhang	0.0	0.6	3.9	5.1	23.2	33.5	41.5		0.0	0.0	0.5	5.2	11.4	21.2
	Pan	7.8	4.0	4.3	11.0	24.6	33.5	41.9		0.0	2.7	6.9	21.9	34.6	44.7



9. 3. 3. 3 p = 0.9

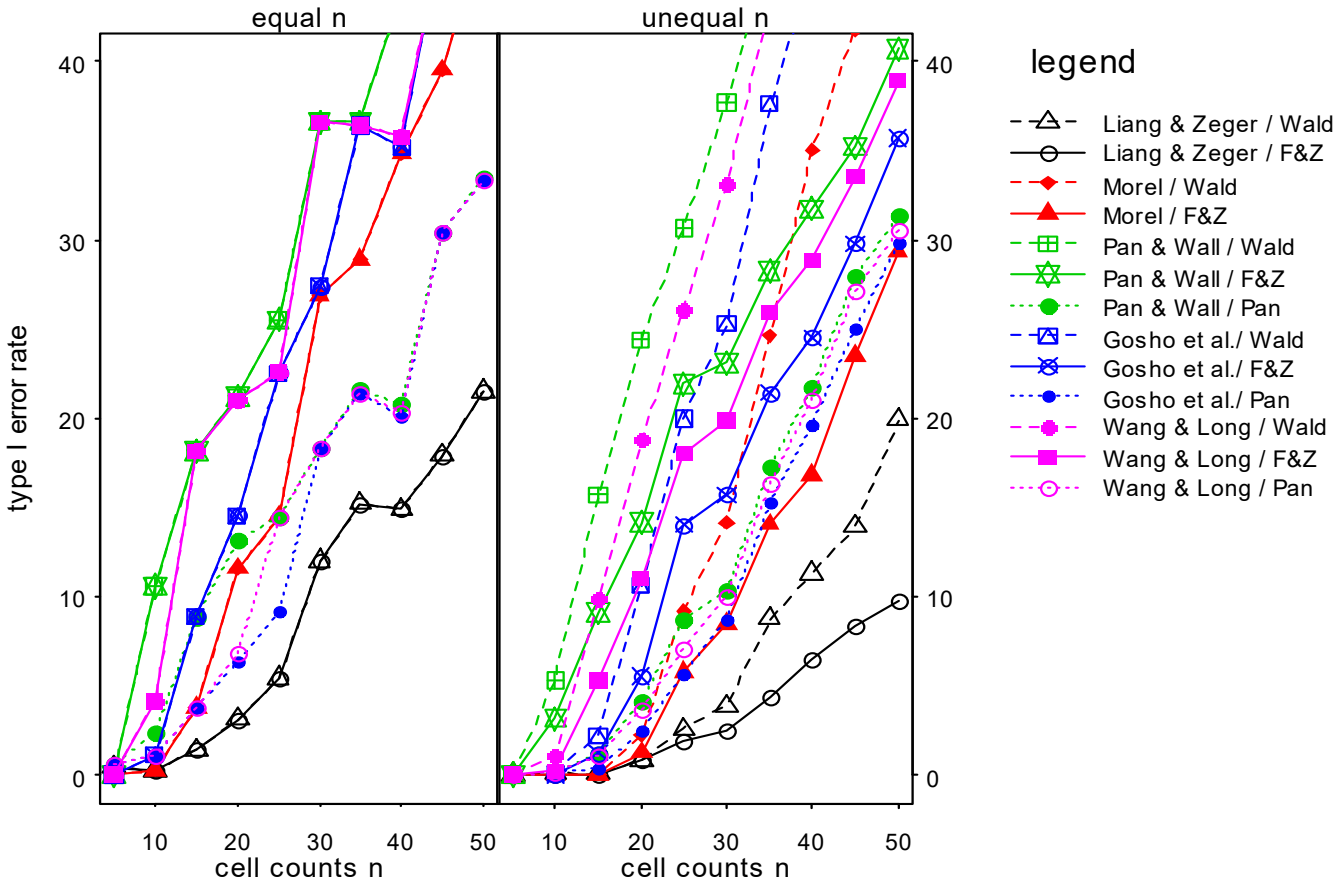
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	45.2	3.8	1.5	3.3	14.2	21.0	30.8		0.0	1.4	6.4	13.1	20.3	30.2
	Fan & Zhang	27.6	3.5	1.6	3.8	14.6	21.3	31.0		0.0	0.0	1.9	2.1	2.7	9.2
Morel et al.	Wald	0.0	0.0	0.3	1.0	7.9	13.8	23.9		0.0	0.0	0.6	3.0	10.7	21.8
	Fan & Zhang	0.0	0.0	0.3	1.0	7.9	13.8	23.9		0.0	0.0	0.0	0.4	0.7	2.7
Pan & Wall	Wald	0.0	0.3	1.2	3.6	14.4	21.3	30.9		2.1	1.4	4.5	13.1	21.2	30.8
	Fan & Zhang	0.0	0.3	1.2	3.6	14.3	21.3	30.9		0.0	0.0	0.6	1.3	2.7	9.0
	Pan	33.5	3.2	2.7	4.5	14.7	21.3	31.0		0.0	1.4	4.5	12.7	21.0	30.0
Gosho et al.	Wald	0.0	0.0	0.3	1.0	9.0	18.5	27.5		0.0	0.0	0.6	4.2	11.6	23.3
	Fan & Zhang	0.0	0.0	0.3	1.0	9.0	18.5	27.5		0.0	0.0	0.0	0.4	1.1	3.4
	Pan	19.3	3.0	2.7	4.3	10.1	21.3	28.1		0.0	1.4	3.2	7.6	18.5	27.4
Wang & Long	Wald	0.0	0.0	1.2	1.0	9.5	21.3	27.9		0.0	1.4	3.2	7.6	18.0	28.6
	Fan & Zhang	0.0	0.0	1.2	1.0	9.5	21.3	27.9		0.0	0.0	0.6	1.3	1.8	8.0
	Pan	36.5	3.0	2.7	4.4	10.1	21.3	28.1		0.0	1.4	4.5	10.2	20.1	29.0



9. 3. 4. equal correlations on B (r=0.3) ar1-structure assumed

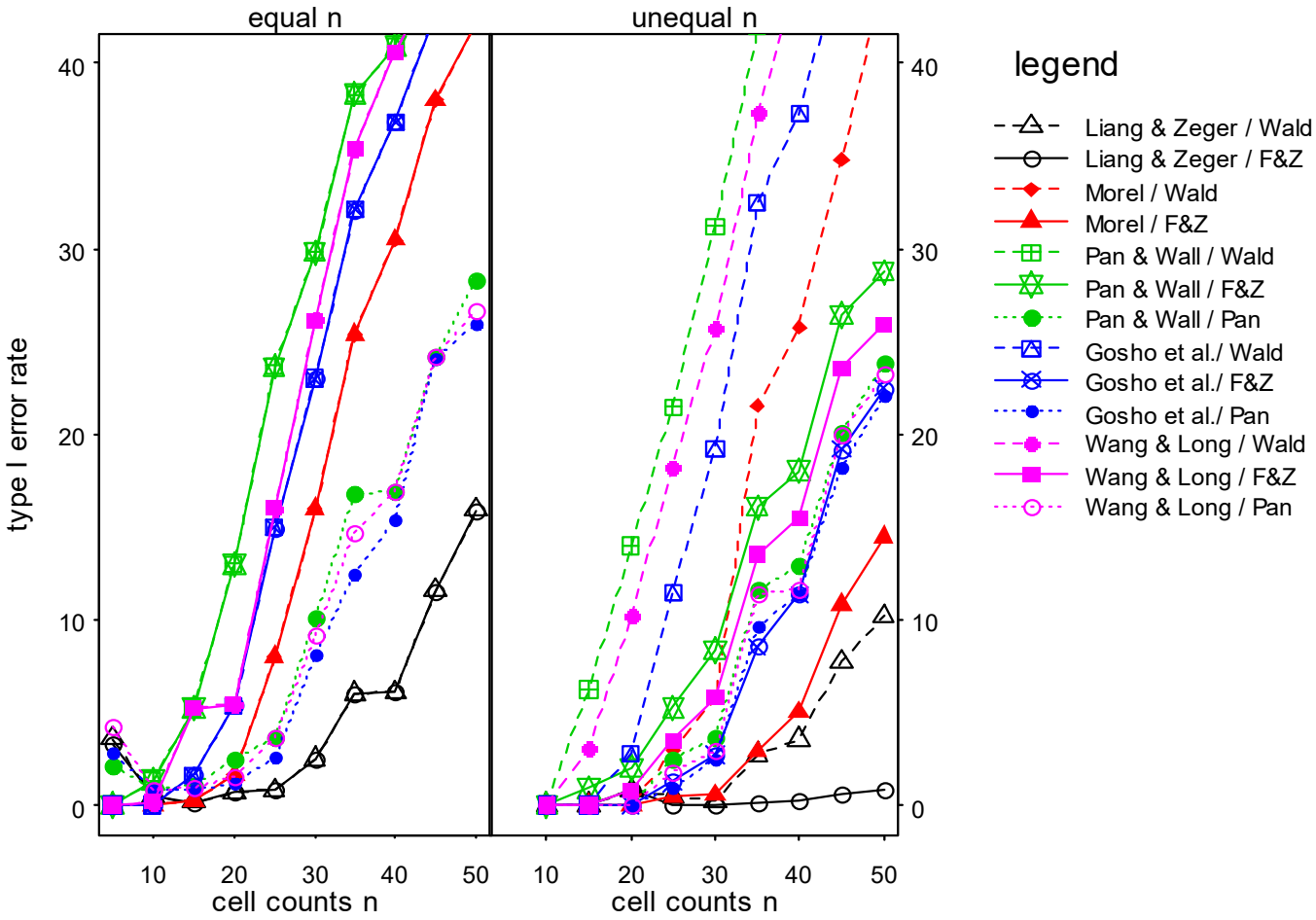
9. 3. 4. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	0.4	0.3	1.4	3.1	12.0	14.9	21.5		0.1	0.1	0.8	3.8	11.3	19.9
	Fan & Zhang	0.4	0.3	1.4	3.1	12.0	14.9	21.5		0.0	0.0	0.9	2.4	6.5	9.7
Morel et al.	Wald	0.0	0.3	3.8	11.6	26.9	34.8	47.2		0.0	0.1	2.2	14.1	35.0	50.9
	Fan & Zhang	0.0	0.3	3.8	11.6	26.9	34.8	47.2		0.0	0.0	1.2	8.5	16.8	29.3
Pan & Wall	Wald	0.0	10.6	18.1	21.2	36.6	43.7	54.7		5.3	15.7	24.4	37.7	52.9	66.9
	Fan & Zhang	0.0	10.6	18.1	21.2	36.6	43.7	54.7		3.2	9.1	14.1	23.1	31.7	40.7
	Pan	0.6	2.4	8.8	13.1	18.3	20.8	33.5		0.1	1.2	4.1	10.3	21.7	31.3
Gosho et al.	Wald	0.0	1.1	8.9	14.6	27.4	35.2	47.5		0.1	2.2	10.6	25.3	45.4	59.9
	Fan & Zhang	0.0	1.1	8.9	14.6	27.4	35.2	47.5		0.0	1.2	5.5	15.7	24.5	35.7
	Pan	0.6	1.1	3.8	6.3	18.3	20.1	33.4		0.1	0.4	2.5	8.7	19.6	29.8
Wang & Long	Wald	0.0	4.1	18.1	21.0	36.6	35.8	48.3		1.0	9.9	18.7	33.2	49.6	64.4
	Fan & Zhang	0.0	4.1	18.1	21.0	36.6	35.8	48.3		0.2	5.3	11.0	19.9	28.8	38.9
	Pan	0.6	1.1	3.8	6.8	18.3	20.3	33.4		0.1	1.0	3.6	10.0	21.0	30.5



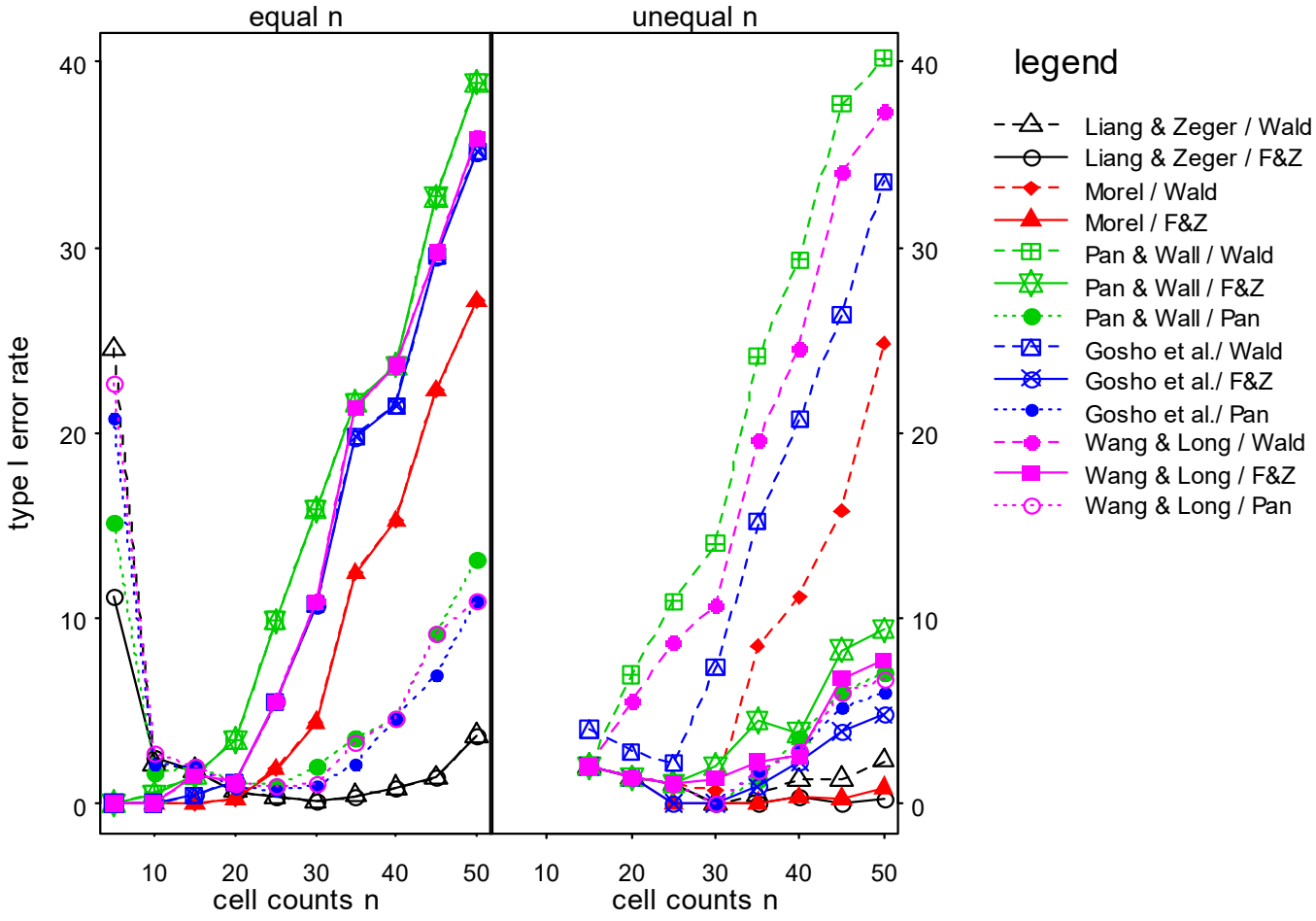
9. 3. 4. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	3.6	0.5	0.2	0.7	2.5	6.1	15.9		0	0.0	0.8	0.2	3.5	10.2
	Fan & Zhang	3.2	0.5	0.2	0.7	2.5	6.1	15.9		0	0.0	0.8	0.0	0.3	0.8
Morel et al.	Wald	0.0	0.0	0.3	1.6	16.0	30.5	42.2		0	0.0	0.0	5.8	25.7	44.6
	Fan & Zhang	0.0	0.0	0.3	1.6	16.0	30.5	42.2		0	0.0	0.0	0.6	5.0	14.4
Pan & Wall	Wald	0.0	1.3	5.2	13.0	29.8	40.9	50.0		0	6.2	14.0	31.2	48.2	63.1
	Fan & Zhang	0.0	1.3	5.2	13.0	29.8	40.9	50.0		0	0.9	2.0	8.3	18.0	28.8
	Pan	2.1	0.8	1.1	2.5	10.2	17.0	28.3		0	0.0	0.0	3.7	12.9	23.8
Gosho et al.	Wald	0.0	0.0	1.6	5.4	23.0	36.9	45.9		0	0.0	2.8	19.2	37.3	54.2
	Fan & Zhang	0.0	0.0	1.6	5.4	23.0	36.9	45.9		0	0.0	0.0	2.7	11.4	22.5
	Pan	2.9	0.8	0.8	1.1	8.1	15.4	26.0		0	0.0	0.0	2.5	11.4	22.1
Wang & Long	Wald	0.0	0.2	5.2	5.5	26.2	40.6	49.1		0	3.1	10.2	25.8	44.9	59.3
	Fan & Zhang	0.0	0.2	5.2	5.5	26.1	40.6	49.1		0	0.0	0.8	5.8	15.4	25.9
	Pan	4.3	0.8	0.9	1.6	9.2	17.0	26.7		0	0.0	0.0	2.9	11.7	23.2



9. 3. 4. 3 p = 0.9

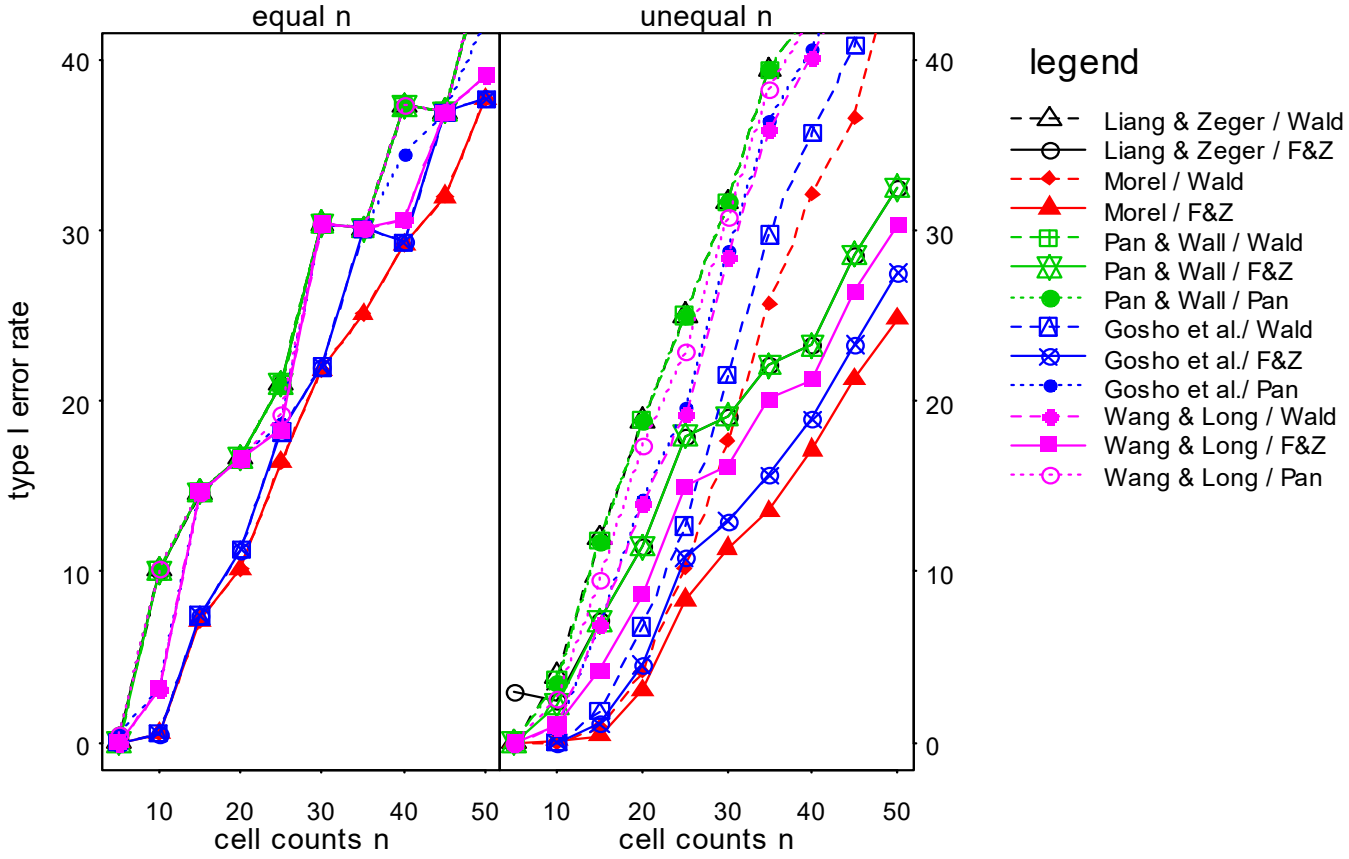
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	24.5	2.2	1.8	0.6	0.2	0.9	3.6			2.0	1.4	0.0	1.3	2.3
	Fan & Zhang	11.1	2.5	1.7	0.6	0.2	0.9	3.6			2.0	1.4	0.0	0.3	0.2
Morel et al.	Wald	0.0	0.0	0.0	0.3	4.4	15.2	27.1			2.0	1.4	0.7	11.1	24.8
	Fan & Zhang	0.0	0.0	0.0	0.3	4.4	15.2	27.1			2.0	1.4	0.0	0.3	0.8
Pan & Wall	Wald	0.0	0.5	1.5	3.4	15.9	23.7	38.9			2.0	6.9	14.0	29.3	40.2
	Fan & Zhang	0.0	0.5	1.5	3.4	15.9	23.6	38.9			2.0	1.4	2.0	3.8	9.4
	Pan	15.1	1.6	2.0	1.1	2.0	4.6	13.1			2.0	1.4	0.0	3.5	7.1
Gosho et al.	Wald	0.0	0.0	0.4	1.1	10.8	21.5	35.2			2.0	2.8	7.3	20.7	33.5
	Fan & Zhang	0.0	0.0	0.4	1.1	10.7	21.4	35.1			2.0	1.4	0.0	2.2	4.8
	Pan	20.8	2.2	2.0	0.9	0.9	4.6	10.9			2.0	1.4	0.0	2.9	6.0
Wang & Long	Wald	0.0	0.0	1.5	1.1	10.9	23.7	35.9			2.0	5.6	10.7	24.5	37.3
	Fan & Zhang	0.0	0.0	1.5	1.1	10.9	23.6	35.9			2.0	1.4	1.3	2.5	7.7
	Pan	22.6	2.7	2.0	1.0	1.1	4.6	10.9			2.0	1.4	0.0	2.9	6.7



9. 3. 5. equal correlations on B (r=0)

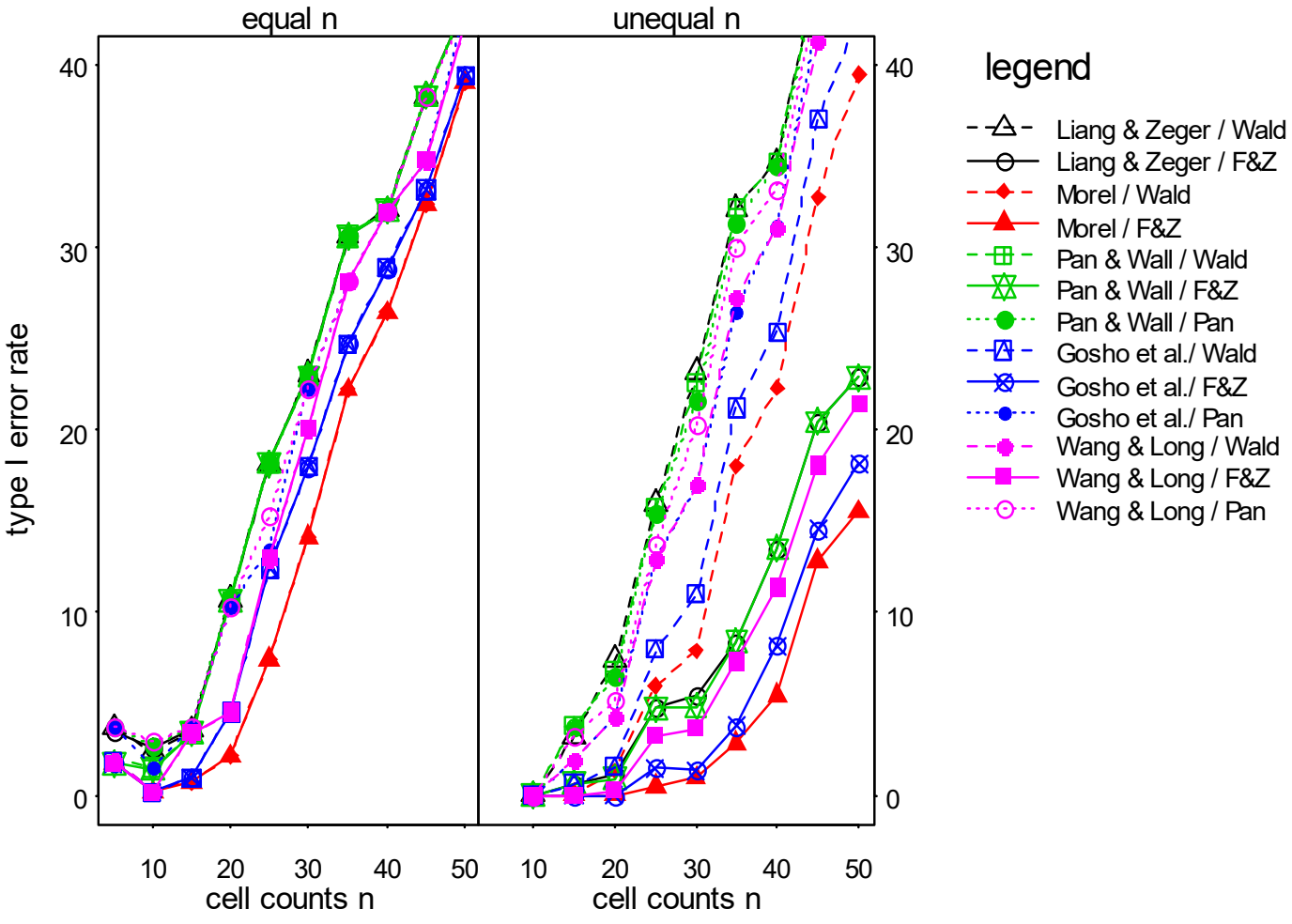
9. 3. 5. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	0.1	10.1	14.7	16.7	30.4	37.3	46.1	0.0	3.9	11.9	18.9	31.7	43.0	56.4
	Fan & Zhang	0.2	10.1	14.7	16.7	30.4	37.3	46.1	2.9	2.4	7.2	11.5	19.1	23.2	32.5
Morel et al.	Wald	0.0	0.5	7.1	10.2	21.8	29.2	37.7	0.0	0.0	0.9	4.2	17.7	32.2	46.3
	Fan & Zhang	0.0	0.5	7.1	10.2	21.8	29.2	37.7	0.0	0.1	0.4	3.1	11.4	17.1	24.8
Pan & Wall	Wald	0.0	10.0	14.7	16.7	30.4	37.3	46.1	0.0	3.7	11.9	18.9	31.7	43.0	56.4
	Fan & Zhang	0.0	10.0	14.7	16.7	30.4	37.3	46.1	0.0	2.2	7.1	11.5	19.1	23.2	32.5
	Pan	0.4	10.1	14.7	16.7	30.4	37.3	46.1	0.0	3.5	11.7	18.8	31.7	43.0	56.4
Gosho et al.	Wald	0.0	0.5	7.4	11.2	22.0	29.3	37.7		0.0	1.8	6.8	21.5	35.7	49.8
	Fan & Zhang	0.0	0.5	7.4	11.2	22.0	29.3	37.7		0.0	1.1	4.5	13.0	18.9	27.5
	Pan	0.5	3.2	14.7	16.6	30.4	34.5	42.3		0.8	6.9	14.3	28.9	40.7	53.9
Wang & Long	Wald	0.0	3.1	14.7	16.6	30.4	30.6	39.1	0.0	0.9	6.8	14.0	28.4	40.2	53.7
	Fan & Zhang	0.0	3.1	14.7	16.6	30.4	30.6	39.1	0.0	1.0	4.2	8.7	16.2	21.2	30.3
	Pan	0.4	10.1	14.7	16.6	30.4	37.3	46.1	0.0	2.5	9.5	17.4	30.8	42.5	55.2



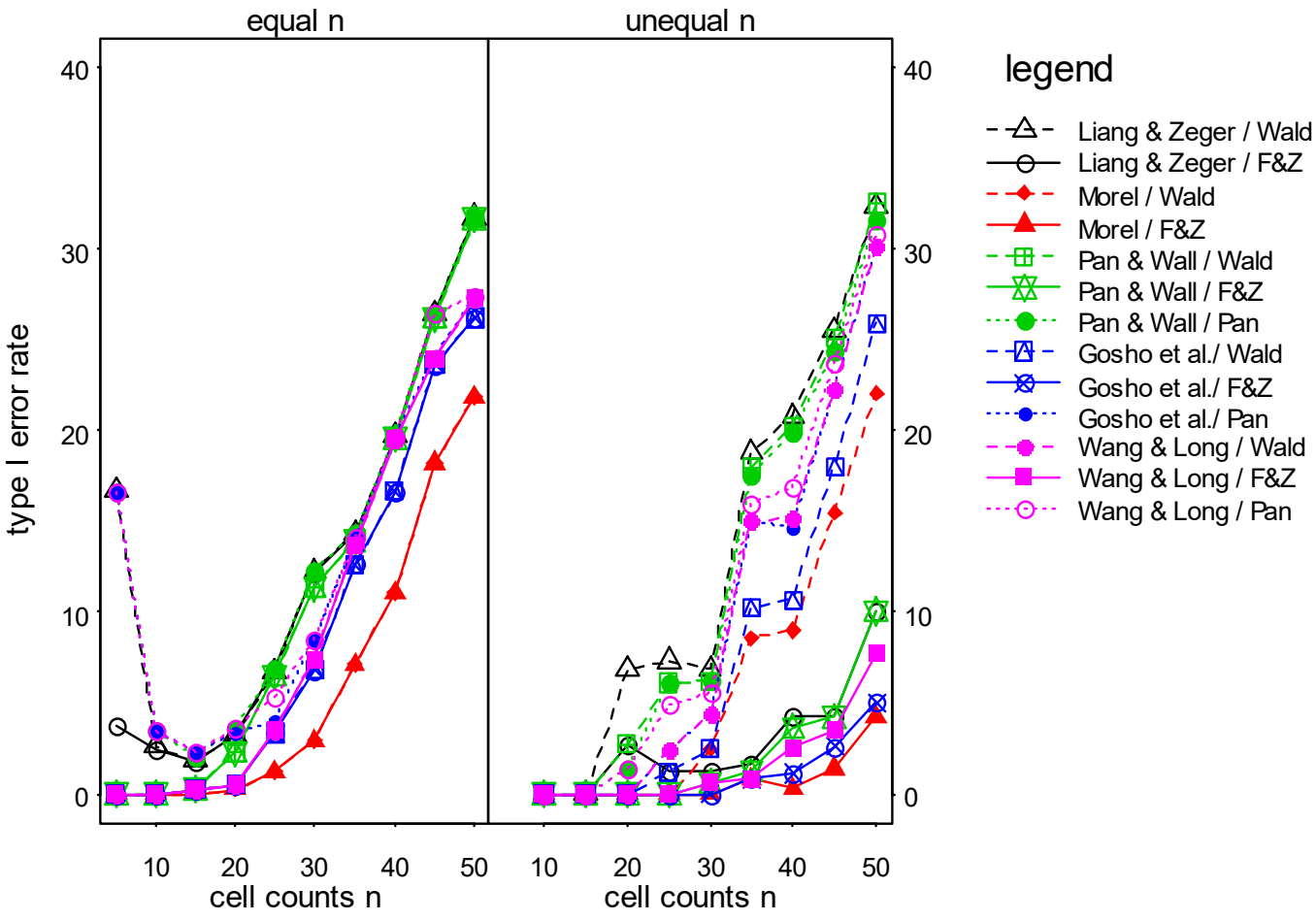
9. 3. 5. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	3.7	2.4	3.6	10.7	23.1	32.0	43.2		0.0	3.2	7.4	23.2	34.7	50.8
	Fan & Zhang	3.4	2.5	3.7	10.7	23.1	32.0	43.2		0.0	0.6	1.1	5.4	13.5	22.9
Morel et al.	Wald	1.9	0.2	0.7	2.1	14.1	26.5	39.0		0.0	0.0	1.4	7.9	22.3	39.5
	Fan & Zhang	1.7	0.2	0.7	2.1	14.1	26.4	39.0		0.0	0.0	0.0	1.0	5.5	15.5
Pan & Wall	Wald	1.9	1.5	3.4	10.7	23.0	32.0	43.2		0.0	3.8	6.8	22.6	34.7	50.8
	Fan & Zhang	1.7	1.4	3.4	10.7	23.0	32.0	43.2		0.0	0.6	0.9	4.8	13.5	22.9
	Pan	3.7	2.7	3.8	10.8	23.1	32.0	43.2		0.0	3.8	6.5	21.6	34.4	50.7
Gosho et al.	Wald	1.9	0.2	0.9	4.5	18.0	28.9	39.4		0.0	0.6	1.6	11.0	25.4	42.7
	Fan & Zhang	1.7	0.2	0.9	4.5	18.0	28.9	39.4		0.0	0.0	0.0	1.4	8.1	18.1
	Pan	3.7	1.5	3.8	10.3	22.3	31.9	42.9		0.0	1.9	4.3	17.0	31.2	47.5
Wang & Long	Wald	1.9	0.2	3.4	4.5	20.1	31.9	42.2		0.0	1.9	4.3	17.0	31.1	47.6
	Fan & Zhang	1.7	0.2	3.4	4.5	20.1	31.9	42.2		0.0	0.0	0.2	3.7	11.3	21.4
	Pan	3.7	2.9	3.8	10.3	22.3	31.9	42.9		0.0	3.2	5.2	20.3	33.1	49.4



9. 3. 5. 3 p = 0.9

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	16.7	2.6	1.8	3.2	12.2	19.7	31.7			0.0	6.8	6.8	20.8	32.3
	Fan & Zhang	3.7	2.4	1.8	3.3	12.2	19.7	31.7			0.0	2.7	1.2	4.2	10.1
Morel et al.	Wald	0.0	0.0	0.0	0.3	2.9	11.1	21.8			0.0	0.0	2.5	9.0	22.1
	Fan & Zhang	0.0	0.0	0.0	0.3	2.9	11.1	21.8		0.0	0.0	0.0	0.0	0.3	4.3
Pan & Wall	Wald	0.0	0.0	0.3	2.3	11.4	19.6	31.6		0.0	0.0	2.7	6.2	20.2	32.5
	Fan & Zhang	0.0	0.0	0.3	2.3	11.3	19.6	31.6		0.0	0.0	0.0	0.6	3.7	10.1
	Pan	16.7	3.5	2.1	3.5	12.2	19.8	31.7		0.0	0.0	1.4	6.2	19.9	31.5
Gosho et al.	Wald	0.0	0.0	0.3	0.5	6.8	16.6	26.2		0.0	0.0	0.0	2.5	10.7	25.9
	Fan & Zhang	0.0	0.0	0.3	0.5	6.8	16.6	26.2		0.0	0.0	0.0	0.0	1.1	5.0
	Pan	16.7	3.5	2.4	3.3	8.4	19.7	27.4		0.0	0.0	0.0	4.3	14.6	30.2
Wang & Long	Wald	0.0	0.0	0.3	0.5	7.4	19.6	27.3		0.0	0.0	0.0	4.3	15.2	30.2
	Fan & Zhang	0.0	0.0	0.3	0.5	7.4	19.6	27.3		0.0	0.0	0.0	0.6	2.5	7.7
	Pan	16.7	3.5	2.4	3.5	8.4	19.7	27.4		0.0	0.0	1.4	5.6	16.9	30.8

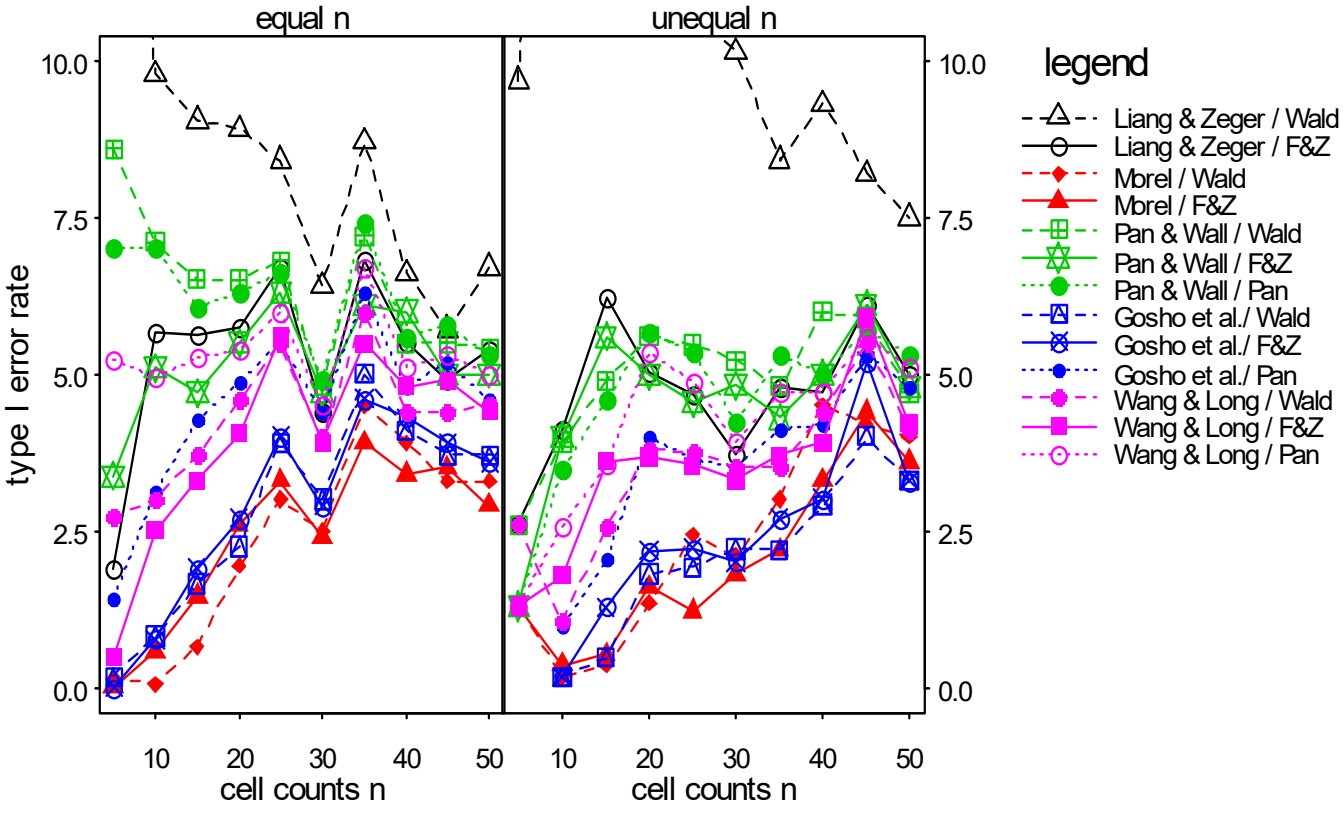


9. 4. Main effect B - null model

9. 4. 1. equal correlations on B (r=0.3)

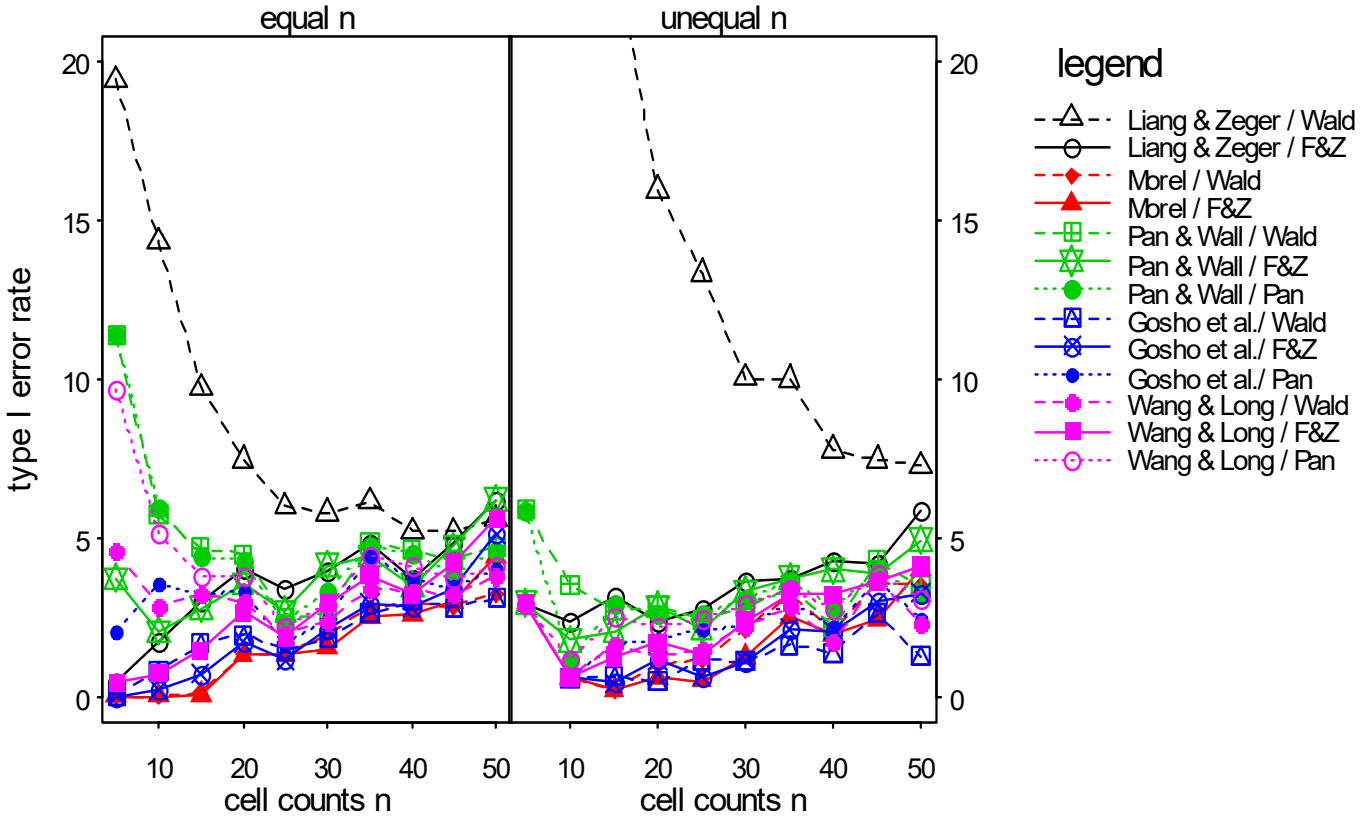
9. 4. 1. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	18.5	9.8	9.0	8.9	6.4	6.6	6.7	9.7	21.6	14.5	12.9	10.1	9.3	7.5
	Fan & Zhang	1.9	5.7	5.6	5.8	4.4	5.5	5.4	2.6	4.1	6.2	5.0	3.7	4.7	5.0
Morel et al.	Wald	0.2	0.1	0.7	2.0	2.5	3.9	3.3	1.3	0.2	0.3	1.3	2.1	4.5	4.0
	Fan & Zhang	0.0	0.6	1.5	2.6	2.4	3.4	2.9	1.3	0.4	0.5	1.6	1.8	3.3	3.6
Pan & Wall	Wald	8.6	7.1	6.5	6.5	4.8	5.5	5.4	2.6	3.9	4.9	5.6	5.2	6.0	4.7
	Fan & Zhang	3.4	5.1	4.7	5.5	4.7	6.0	5.0	1.3	4.0	5.6	5.0	4.8	5.0	4.8
	Pan	7.0	7.0	6.1	6.3	4.9	5.6	5.3	1.3	3.5	4.6	5.7	4.2	5.0	5.3
Gosho et al.	Wald	0.2	0.8	1.7	2.2	3.0	4.1	3.7		0.2	0.5	1.8	2.2	2.9	3.3
	Fan & Zhang	0.0	0.8	1.9	2.7	2.9	4.3	3.6		0.2	1.3	2.2	2.0	3.0	3.3
	Pan	1.4	3.1	4.3	4.8	4.4	4.8	4.6		1.0	2.0	4.0	3.5	4.2	4.8
Wang & Long	Wald	2.7	3.0	3.7	4.6	4.0	4.4	4.5	2.6	1.1	2.6	3.8	3.5	4.4	4.1
	Fan & Zhang	0.5	2.5	3.3	4.0	3.9	4.8	4.4	1.3	1.8	3.6	3.7	3.3	3.9	4.2
	Pan	5.2	5.0	5.3	5.4	4.5	5.1	5.0	1.3	2.6	3.6	5.3	3.9	4.7	5.1



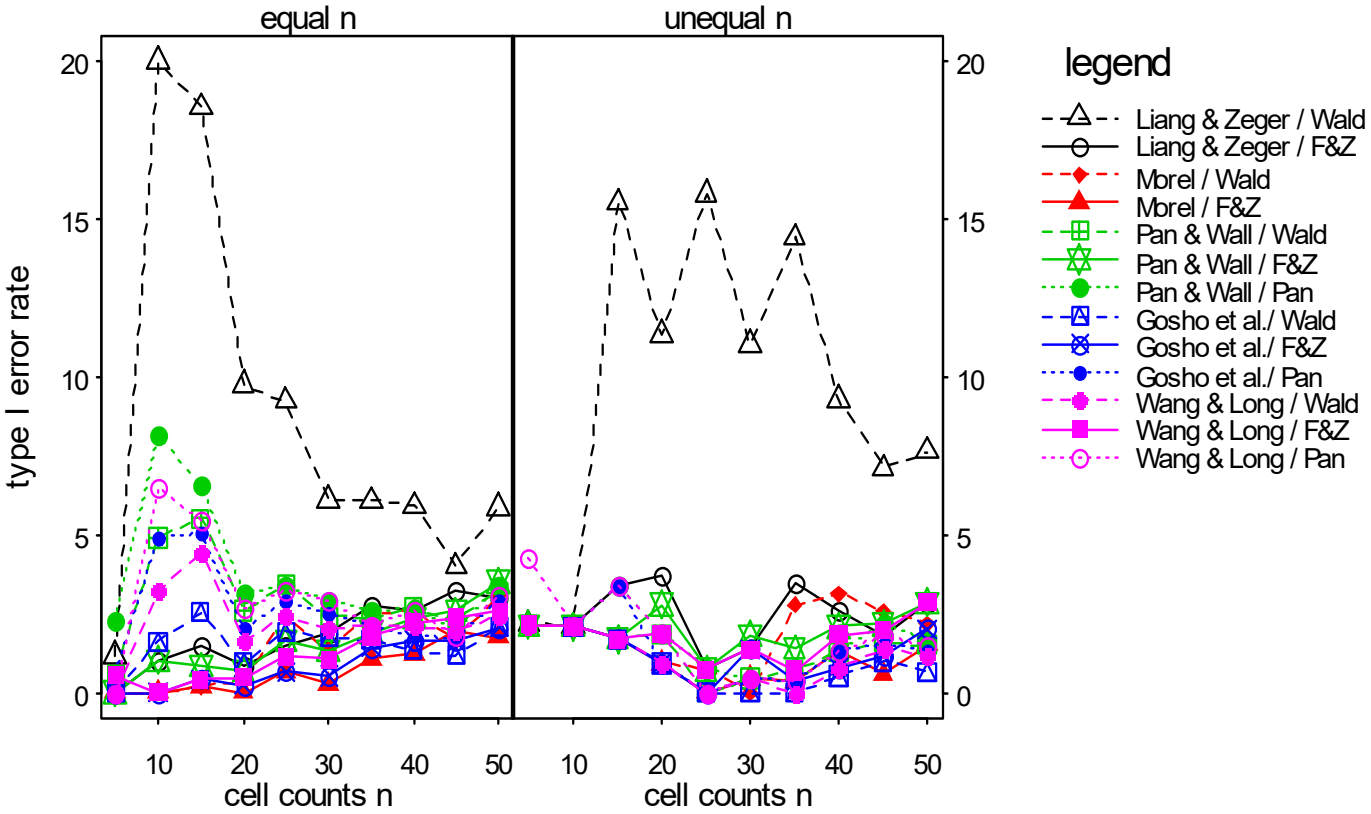
9. 4. 1. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	19.4	14.3	9.7	7.5	5.8	5.2	5.6	0.1	27.9	23.7	15.9	10.0	7.8	7.2
	Fan & Zhang	0.4	1.7	3.0	4.0	3.9	3.7	6.2	2.9	2.4	3.1	2.4	3.6	4.2	5.9
Morel et al.	Wald	0.0	0.0	0.1	1.3	1.9	2.9	3.2	2.9	0.6	0.2	1.0	2.1	2.1	3.5
	Fan & Zhang	0.0	0.0	0.1	1.3	1.5	2.6	4.4	2.9	0.6	0.2	0.6	1.2	1.9	4.0
Pan & Wall	Wald	11.4	5.7	4.7	4.5	2.6	4.6	4.7	5.9	3.5	2.7	2.8	2.8	2.2	3.5
	Fan & Zhang	3.7	2.0	2.8	3.5	4.1	3.5	6.2	2.9	1.8	2.1	2.8	3.3	4.0	4.9
	Pan	11.4	5.9	4.4	4.2	3.3	4.5	4.6	5.9	1.2	2.9	2.6	3.1	2.9	3.3
Gosho et al.	Wald	0.0	0.8	1.6	1.9	1.8	3.0	3.1		0.6	0.6	0.5	1.1	1.4	1.3
	Fan & Zhang	0.0	0.2	0.7	1.7	2.1	2.8	5.1		0.6	0.4	1.1	1.1	2.1	3.3
	Pan	2.0	3.5	3.2	3.3	2.4	3.7	4.0		0.6	1.7	1.8	2.2	2.2	2.4
Wang & Long	Wald	4.6	2.8	3.2	3.0	2.3	3.3	3.8	2.9	0.6	1.7	1.3	2.2	1.7	2.3
	Fan & Zhang	0.4	0.7	1.5	2.6	2.9	3.2	5.6	2.9	0.6	1.2	1.7	2.4	3.2	4.1
	Pan	9.6	5.1	3.8	3.8	2.9	4.1	4.1	2.9	1.2	2.5	2.2	2.9	2.7	3.0



9. 4. 1. 3 p = 0.9

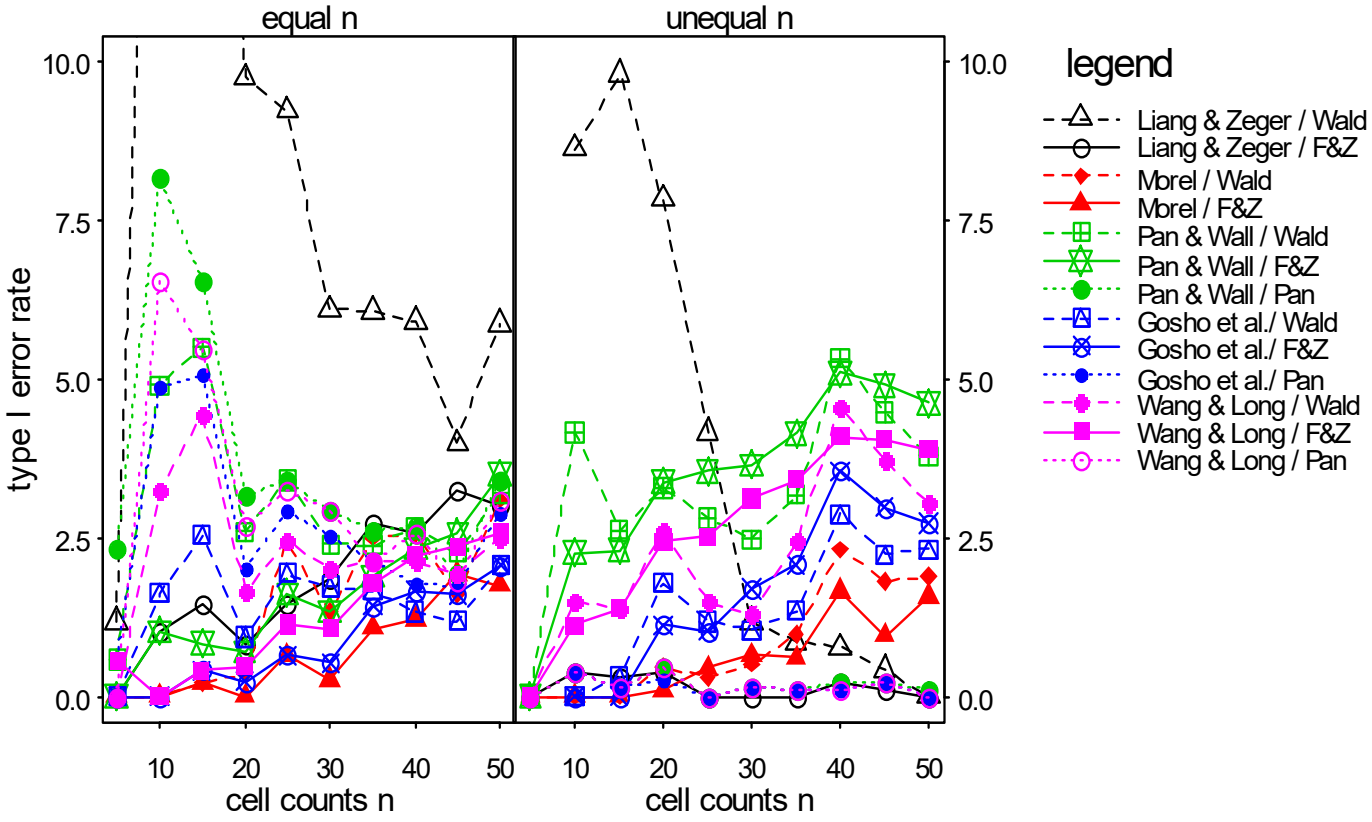
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	1.2	20.0	18.5	9.7	6.1	5.9	5.9	2.2	2.1	15.5	11.3	11.0	9.3	7.6
	Fan & Zhang	0.0	1.0	1.5	0.8	1.9	2.6	3.0	2.1	2.1	3.4	3.7	1.4	2.6	2.8
Morel et al.	Wald	0.0	0.0	0.2	0.4	1.3	2.6	3.1	2.1	2.1	1.7	0.9	0.0	3.1	2.2
	Fan & Zhang	0.0	0.0	0.2	0.0	0.3	1.2	1.7	2.1	2.1	1.7	0.9	0.5	1.3	1.5
Pan & Wall	Wald	0.6	4.9	5.5	2.6	2.4	2.7	3.2	2.1	2.1	1.7	1.9	0.5	1.3	1.5
	Fan & Zhang	0.0	1.0	0.8	0.7	1.3	2.3	3.5	2.1	2.1	1.7	2.8	1.8	2.1	2.8
	Pan	2.3	8.2	6.6	3.2	2.9	2.7	3.4	2.1	2.1	3.4	1.9	0.5	1.3	1.7
Gosho et al.	Wald	0.0	1.6	2.5	0.9	1.7	1.3	2.1		2.1	1.7	0.9	0.0	0.5	0.7
	Fan & Zhang	0.0	0.0	0.4	0.2	0.5	1.7	2.1		2.1	1.7	0.9	1.4	0.8	2.0
	Pan	0.6	4.9	5.1	2.0	2.5	1.8	2.9		2.1	3.4	0.9	0.5	1.3	1.3
Wang & Long	Wald	0.0	3.3	4.4	1.6	2.0	2.1	2.5	2.1	2.1	1.7	0.9	0.5	0.8	1.2
	Fan & Zhang	0.6	0.0	0.4	0.5	1.1	2.2	2.6	2.1	2.1	1.7	1.9	1.4	1.8	2.8
	Pan	0.0	6.5	5.5	2.7	2.9	2.6	3.1	4.3	2.1	3.4	1.9	0.5	1.3	1.5



9. 4. 2. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) ar1-structure assumed

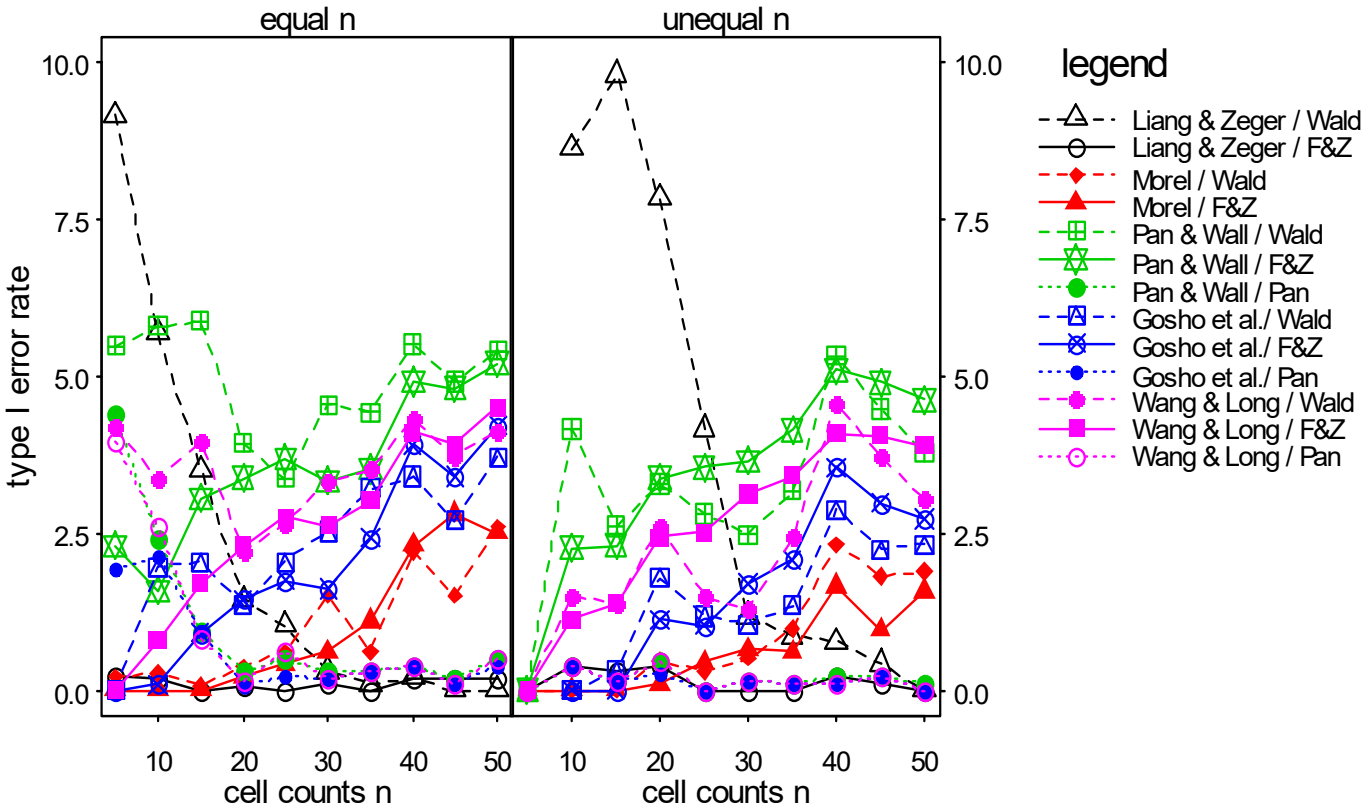
9. 4. 2. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	1.2	20.0	18.5	9.7	6.1	5.9	5.9	0.0	8.6	9.8	7.8	1.2	0.8	0.0
	Fan & Zhang	0.0	1.0	1.5	0.8	1.9	2.6	3.0	0.0	0.4	0.3	0.4	0.0	0.2	0.0
Morel et al.	Wald	0.0	0.0	0.2	0.4	1.3	2.6	3.1	0.0	0.0	0.0	0.5	0.5	2.3	1.9
	Fan & Zhang	0.0	0.0	0.2	0.0	0.3	1.2	1.7	0.0	0.0	0.0	0.1	0.7	1.7	1.6
Pan & Wall	Wald	0.6	4.9	5.5	2.6	2.4	2.7	3.2	0.0	4.2	2.6	3.3	2.5	5.3	3.8
	Fan & Zhang	0.0	1.0	0.8	0.7	1.3	2.3	3.5	0.0	2.3	2.3	3.4	3.6	5.1	4.6
	Pan	2.3	8.2	6.6	3.2	2.9	2.7	3.4	0.0	0.4	0.2	0.5	0.1	0.2	0.1
Gosho et al.	Wald	0.0	1.6	2.5	0.9	1.7	1.3	2.1		0.0	0.3	1.8	1.0	2.9	2.3
	Fan & Zhang	0.0	0.0	0.4	0.2	0.5	1.7	2.1		0.0	0.0	1.1	1.7	3.5	2.7
	Pan	0.6	4.9	5.1	2.0	2.5	1.8	2.9		0.4	0.2	0.3	0.1	0.1	0.0
Wang & Long	Wald	0.0	3.3	4.4	1.6	2.0	2.1	2.5	0.0	1.5	1.4	2.6	1.3	4.5	3.0
	Fan & Zhang	0.6	0.0	0.4	0.5	1.1	2.2	2.6	0.0	1.1	1.4	2.4	3.1	4.1	3.9
	Pan	0.0	6.5	5.5	2.7	2.9	2.6	3.1	0.0	0.4	0.2	0.5	0.1	0.1	0.0



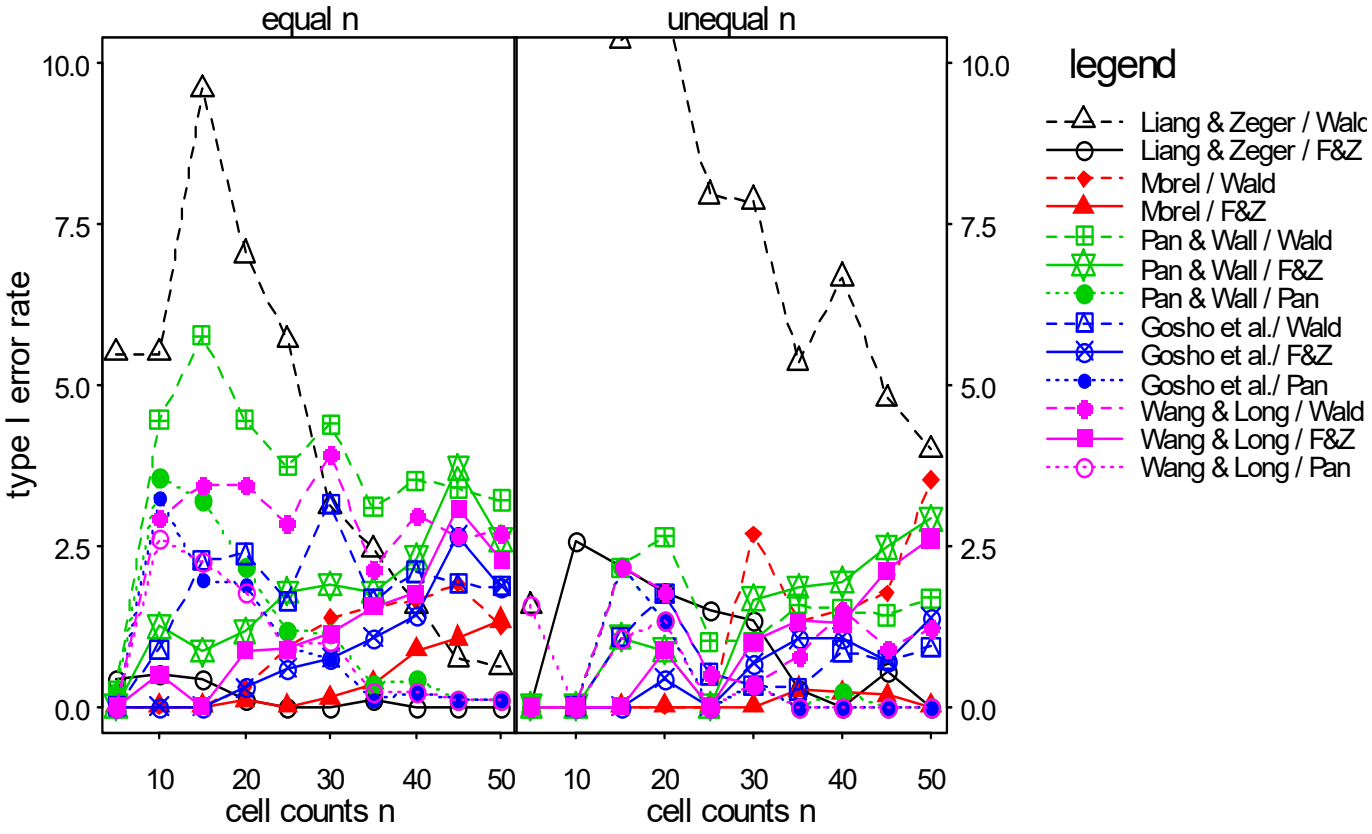
9. 4. 2. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	9.1	5.7	3.5	1.4	0.3	0.2	0.0	0.0	8.6	9.8	7.8	1.2	0.8	0.0
	Fan & Zhang	0.2	0.2	0.0	0.1	0.1	0.2	0.2	0.0	0.4	0.3	0.4	0.0	0.2	0.0
Morel et al.	Wald	0.2	0.3	0.1	0.4	1.5	2.2	2.6	0.0	0.0	0.0	0.5	0.5	2.3	1.9
	Fan & Zhang	0.0	0.0	0.0	0.2	0.6	2.3	2.5	0.0	0.0	0.0	0.1	0.7	1.7	1.6
Pan & Wall	Wald	5.5	5.8	5.9	3.9	4.5	5.5	5.4	0.0	4.2	2.6	3.3	2.5	5.3	3.8
	Fan & Zhang	2.3	1.6	3.1	3.4	3.3	4.9	5.2	0.0	2.3	2.3	3.4	3.6	5.1	4.6
	Pan	4.4	2.4	0.9	0.3	0.3	0.4	0.5	0.0	0.4	0.2	0.5	0.1	0.2	0.1
Gosho et al.	Wald	0.0	2.0	2.0	1.3	2.5	3.4	3.7		0.0	0.3	1.8	1.0	2.9	2.3
	Fan & Zhang	0.0	0.1	0.9	1.4	1.6	3.9	4.2		0.0	0.0	1.1	1.7	3.5	2.7
	Pan	1.9	2.1	0.9	0.1	0.2	0.4	0.4		0.4	0.2	0.3	0.1	0.1	0.0
Wang & Long	Wald	4.2	3.3	4.0	2.2	3.3	4.3	4.1	0.0	1.5	1.4	2.6	1.3	4.5	3.0
	Fan & Zhang	0.0	0.8	1.7	2.3	2.6	4.1	4.5	0.0	1.1	1.4	2.4	3.1	4.1	3.9
	Pan	3.9	2.6	0.8	0.2	0.2	0.4	0.5	0.0	0.4	0.2	0.5	0.1	0.1	0.0



9. 4. 2. 3 p = 0.9

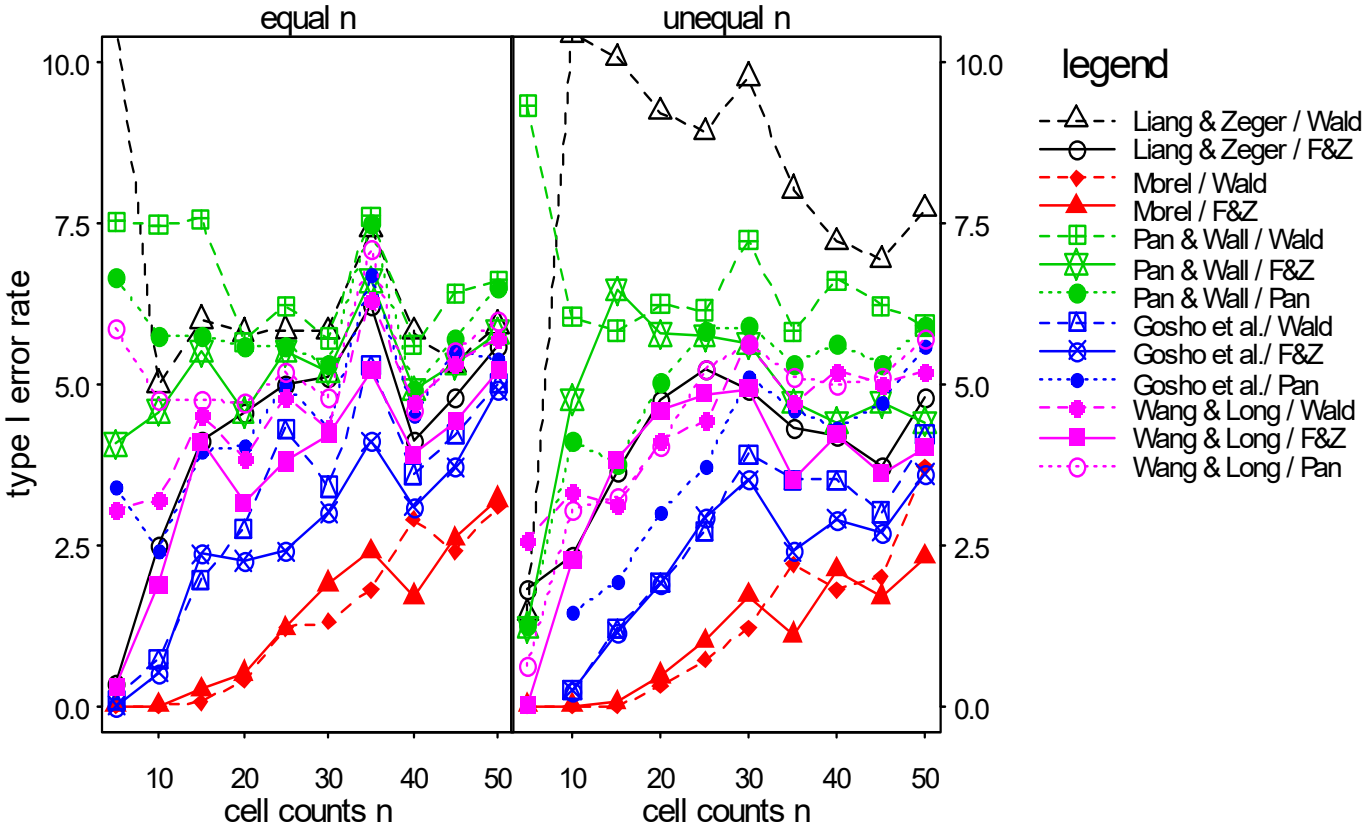
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	5.5	5.5	9.6	7.0	3.1	1.6	0.6	1.6	0.1	10.3	10.8	7.8	6.7	4.0
	Fan & Zhang	0.4	0.5	0.4	0.1	0.0	0.0	0.0	0.0	2.6	2.2	1.8	1.3	0.0	0.0
Morel et al.	Wald	0.0	0.0	0.0	0.3	1.4	1.6	1.2	0.0	0.0	0.0	0.0	2.7	1.5	3.5
	Fan & Zhang	0.0	0.0	0.0	0.1	0.1	0.9	1.3	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Pan & Wall	Wald	0.2	4.5	5.8	4.4	4.4	3.5	3.2	0.0	0.0	2.2	2.6	1.0	1.5	1.7
	Fan & Zhang	0.0	1.2	0.8	1.2	1.9	2.3	2.6	0.0	0.0	1.1	0.9	1.7	1.9	2.9
	Pan	0.2	3.6	3.2	2.2	1.1	0.4	0.1	0.0	0.0	2.2	1.3	0.3	0.2	0.0
Gosho et al.	Wald	0.0	0.9	2.3	2.4	3.1	2.1	1.9		0.0	1.1	1.8	0.3	0.9	0.9
	Fan & Zhang	0.0	0.0	0.0	0.3	0.8	1.4	1.9		0.0	0.0	0.4	0.7	1.1	1.4
	Pan	0.0	3.2	2.0	1.9	0.8	0.2	0.1		0.0	2.2	1.3	0.3	0.0	0.0
Wang & Long	Wald	0.0	2.9	3.5	3.5	3.9	3.0	2.7	0.0	0.0	2.2	1.8	0.3	1.5	1.2
	Fan & Zhang	0.0	0.5	0.0	0.9	1.1	1.8	2.3	0.0	0.0	0.0	0.9	1.0	1.3	2.6
	Pan	0.0	2.6	2.3	1.8	1.0	0.2	0.1	1.6	0.0	1.1	1.3	0.3	0.0	0.0



9. 4. 3. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) exchangeable structure assumed

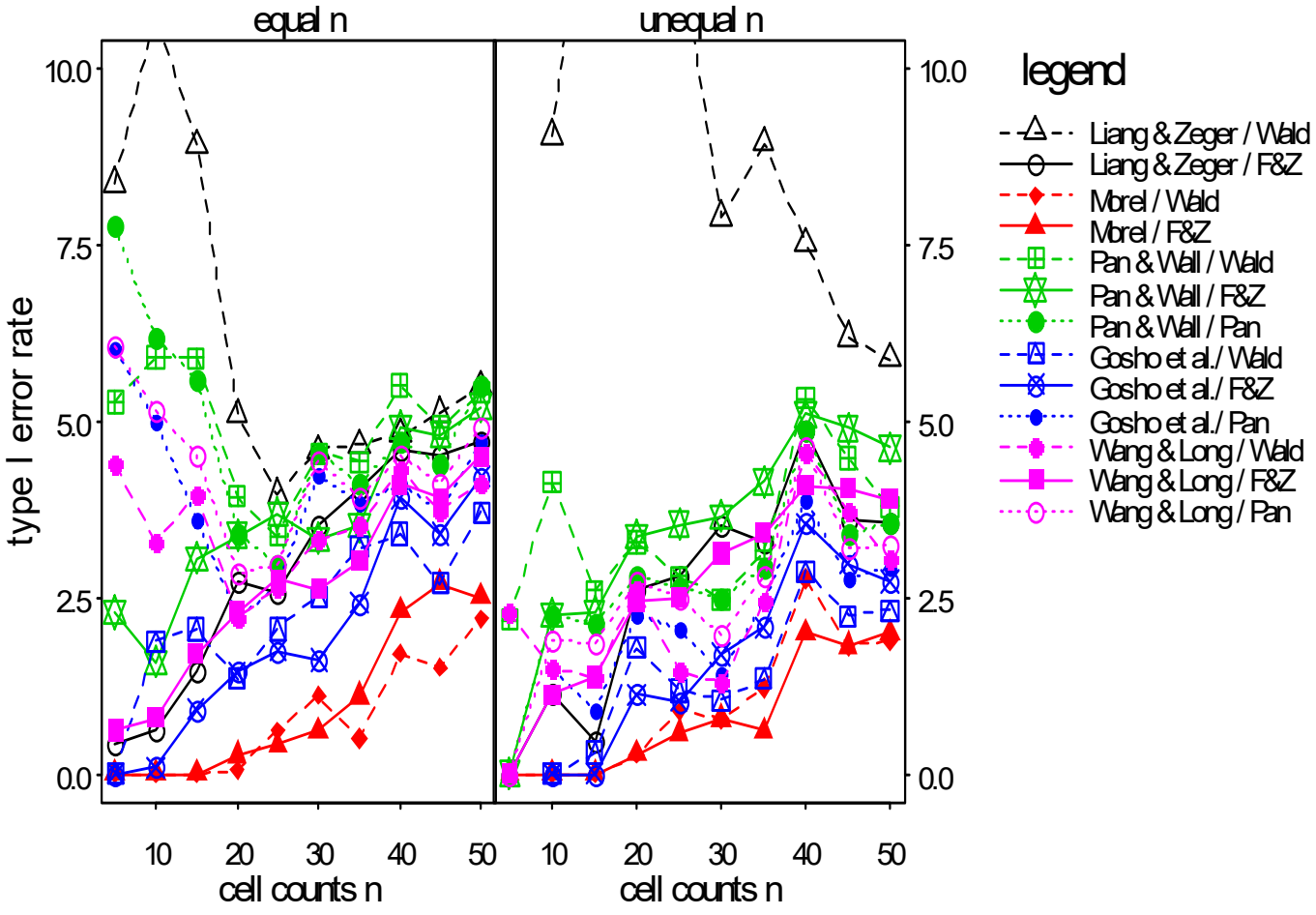
9. 4. 3. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	10.7	5.0	6.0	5.8	5.8	5.8	5.9	1.4	10.4	10.1	9.2	9.8	7.2	7.7
	Fan & Zhang	0.4	2.5	4.1	4.5	5.1	4.1	5.6	1.8	2.3	3.7	4.7	4.9	4.2	4.8
Morel et al.	Wald	0.0	0.0	0.1	0.4	1.3	2.9	3.1	0.0	0.0	0.0	0.3	1.2	1.8	3.7
	Fan & Zhang	0.0	0.0	0.3	0.5	1.9	1.7	3.2	0.0	0.0	0.1	0.5	1.7	2.1	2.3
Pan & Wall	Wald	7.5	7.5	7.6	5.7	5.7	5.6	6.6	9.3	6.0	5.8	6.2	7.2	6.6	5.9
	Fan & Zhang	4.1	4.6	5.5	4.5	5.2	4.9	5.8	1.2	4.8	6.4	5.8	5.6	4.4	4.4
	Pan	6.6	5.8	5.8	5.6	5.3	4.9	6.5	1.2	4.1	3.8	5.0	5.9	5.6	5.9
Gosho et al.	Wald	0.1	0.7	2.0	2.8	3.4	3.6	5.0		0.2	1.2	1.9	3.9	3.5	4.2
	Fan & Zhang	0.0	0.5	2.4	2.2	3.0	3.1	4.9		0.2	1.1	1.9	3.5	2.9	3.6
	Pan	3.4	2.4	4.0	4.0	4.3	4.5	5.4		1.4	1.9	3.0	5.1	4.3	5.6
Wang & Long	Wald	3.1	3.2	4.5	3.8	4.3	4.7	5.7	2.5	3.3	3.1	4.1	5.6	5.2	5.2
	Fan & Zhang	0.3	1.9	4.1	3.1	4.2	3.9	5.2	0.0	2.3	3.8	4.6	4.9	4.2	4.0
	Pan	5.9	4.7	4.8	4.7	4.8	4.6	6.0	0.6	3.1	3.3	4.0	5.6	5.0	5.7



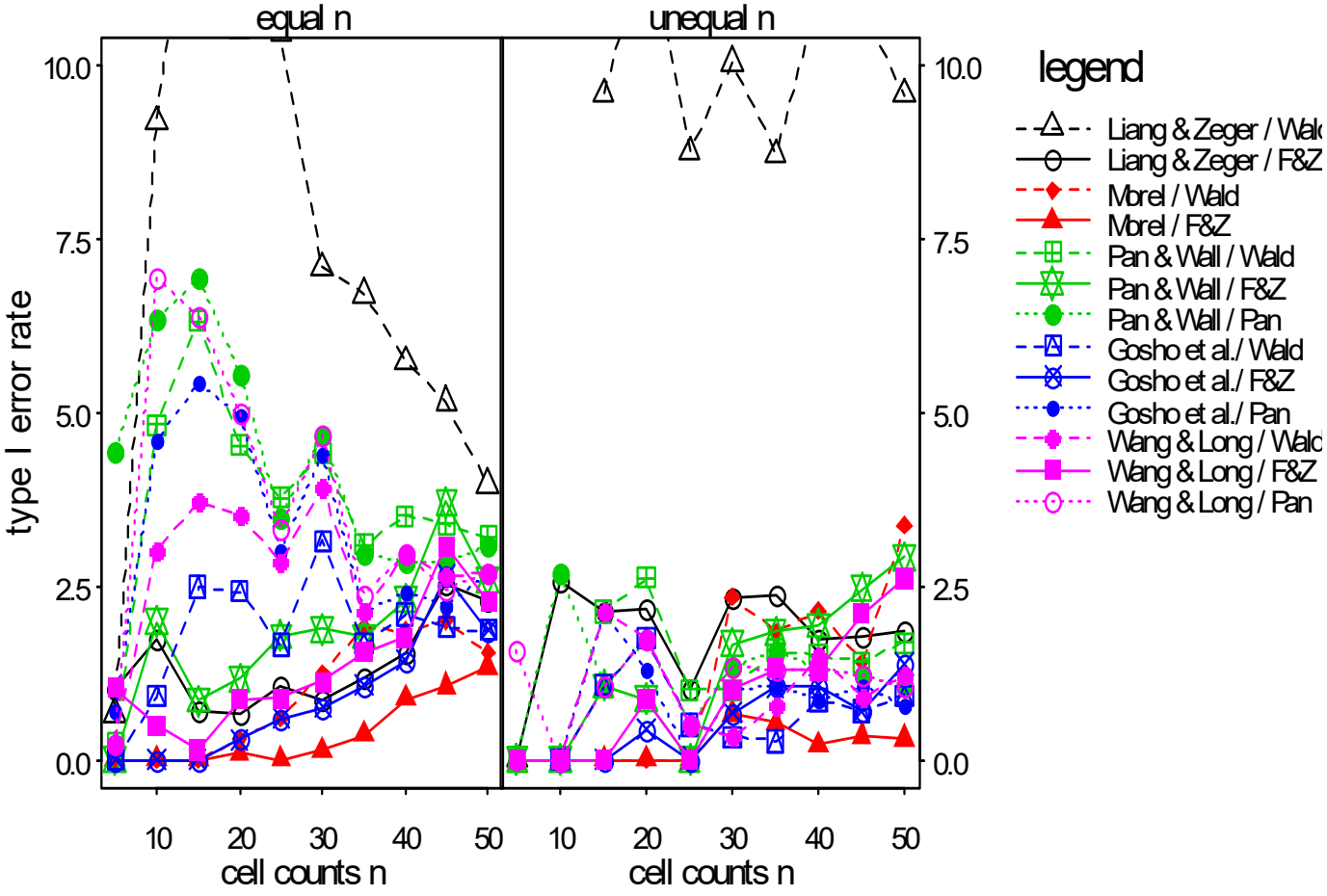
9. 4. 3. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	8.4	10.8	8.9	5.1	4.6	4.8	5.5		9.0	13.7	13.5	7.9	7.5	5.9
	Fan & Zhang	0.4	0.6	1.5	2.7	3.5	4.6	4.7	0.0	1.1	0.5	2.6	3.5	4.9	3.6
Morel et al.	Wald	0.0	0.0	0.0	0.1	1.1	1.7	2.2	0.0	0.0	0.0	0.3	0.8	2.8	1.9
	Fan & Zhang	0.0	0.0	0.0	0.3	0.6	2.3	2.5	0.0	0.0	0.0	0.3	0.8	2.0	2.0
Pan & Wall	Wald	5.3	5.9	5.9	3.9	4.5	5.5	5.4	2.2	4.1	2.6	3.3	2.5	5.3	3.8
	Fan & Zhang	2.3	1.6	3.1	3.4	3.3	4.9	5.2	0.0	2.2	2.3	3.4	3.6	5.1	4.6
	Pan	7.8	6.2	5.6	3.4	4.5	4.7	5.5	0.0	2.2	2.1	2.8	2.5	4.9	3.6
Gosho et al.	Wald	0.0	1.9	2.0	1.3	2.5	3.4	3.7		0.0	0.3	1.8	1.0	2.9	2.3
	Fan & Zhang	0.0	0.1	0.9	1.4	1.6	3.9	4.2		0.0	0.0	1.1	1.7	3.5	2.7
	Pan	6.0	5.0	3.6	2.2	4.2	4.1	4.7		1.5	0.9	2.2	1.4	3.9	2.9
Wang & Long	Wald	4.4	3.3	4.0	2.2	3.3	4.3	4.1	2.3	1.5	1.4	2.6	1.3	4.5	3.0
	Fan & Zhang	0.6	0.8	1.7	2.3	2.6	4.1	4.5	0.0	1.1	1.4	2.4	3.1	4.1	3.9
	Pan	6.0	5.2	4.5	2.8	4.4	4.5	4.9	0.0	1.9	1.8	2.7	2.0	4.6	3.3



9. 4. 3. 3 p = 0.9

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	0.7	9.2	13.9	10.5	7.1	5.7	4.0	0.0	0.0	9.6	11.9	10.0	11.0	9.6
	Fan & Zhang	1.0	1.7	0.7	0.7	0.9	1.5	2.3	0.0	2.6	2.1	2.2	2.3	1.7	1.8
Morel et al.	Wald	0.0	0.0	0.0	0.3	1.2	1.9	1.5	0.0	0.0	0.0	0.0	2.3	2.1	3.4
	Fan & Zhang	0.0	0.0	0.0	0.1	0.1	0.9	1.3	0.0	0.0	0.0	0.0	0.7	0.2	0.3
Pan & Wall	Wald	0.2	4.8	6.3	4.5	4.4	3.5	3.2	0.0	0.0	2.1	2.6	1.0	1.5	1.7
	Fan & Zhang	0.0	2.0	0.8	1.2	1.9	2.3	2.6	0.0	0.0	1.1	0.9	1.7	1.9	2.9
	Pan	4.4	6.3	6.9	5.5	4.7	2.9	3.1	0.0	2.7	1.1	1.7	1.3	1.3	1.1
Gosho et al.	Wald	0.0	0.9	2.5	2.4	3.1	2.1	1.9		0.0	1.1	1.7	0.3	0.9	0.9
	Fan & Zhang	0.0	0.0	0.0	0.3	0.8	1.4	1.9		0.0	0.0	0.4	0.7	1.1	1.4
	Pan	0.7	4.6	5.4	4.9	4.4	2.4	2.7		0.0	2.1	1.3	1.0	0.9	0.8
Wang & Long	Wald	0.2	3.0	3.7	3.5	3.9	3.0	2.7	0.0	0.0	2.1	1.7	0.3	1.5	1.2
	Fan & Zhang	1.0	0.5	0.1	0.9	1.1	1.8	2.3	0.0	0.0	0.0	0.9	1.0	1.3	2.6
	Pan	0.2	6.9	6.4	5.0	4.7	3.0	2.7	1.6	0.0	1.1	1.7	1.3	1.3	1.1

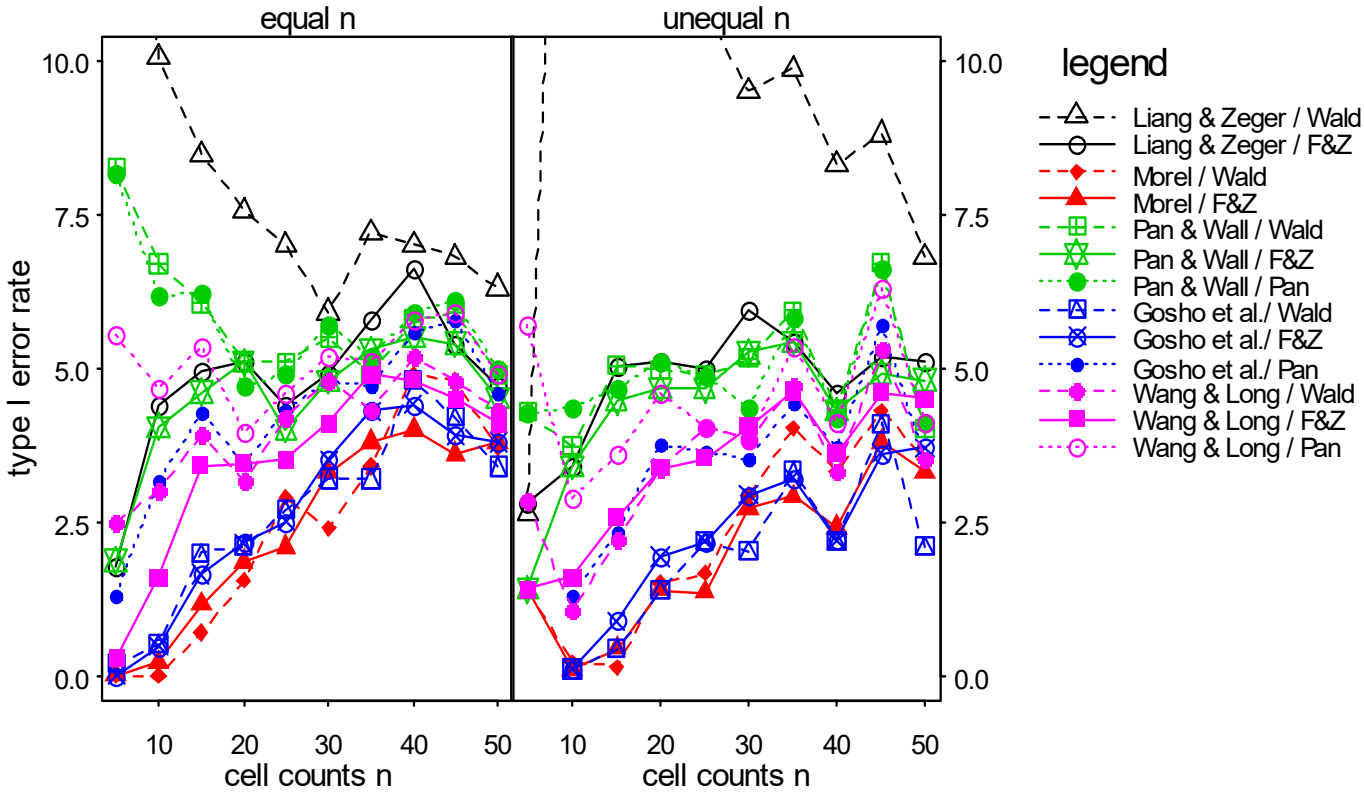


9. 5. Main effect B - A significant (effects b_i = 0.4*s)

9. 5. 1. equal correlations on B (r=0.3)

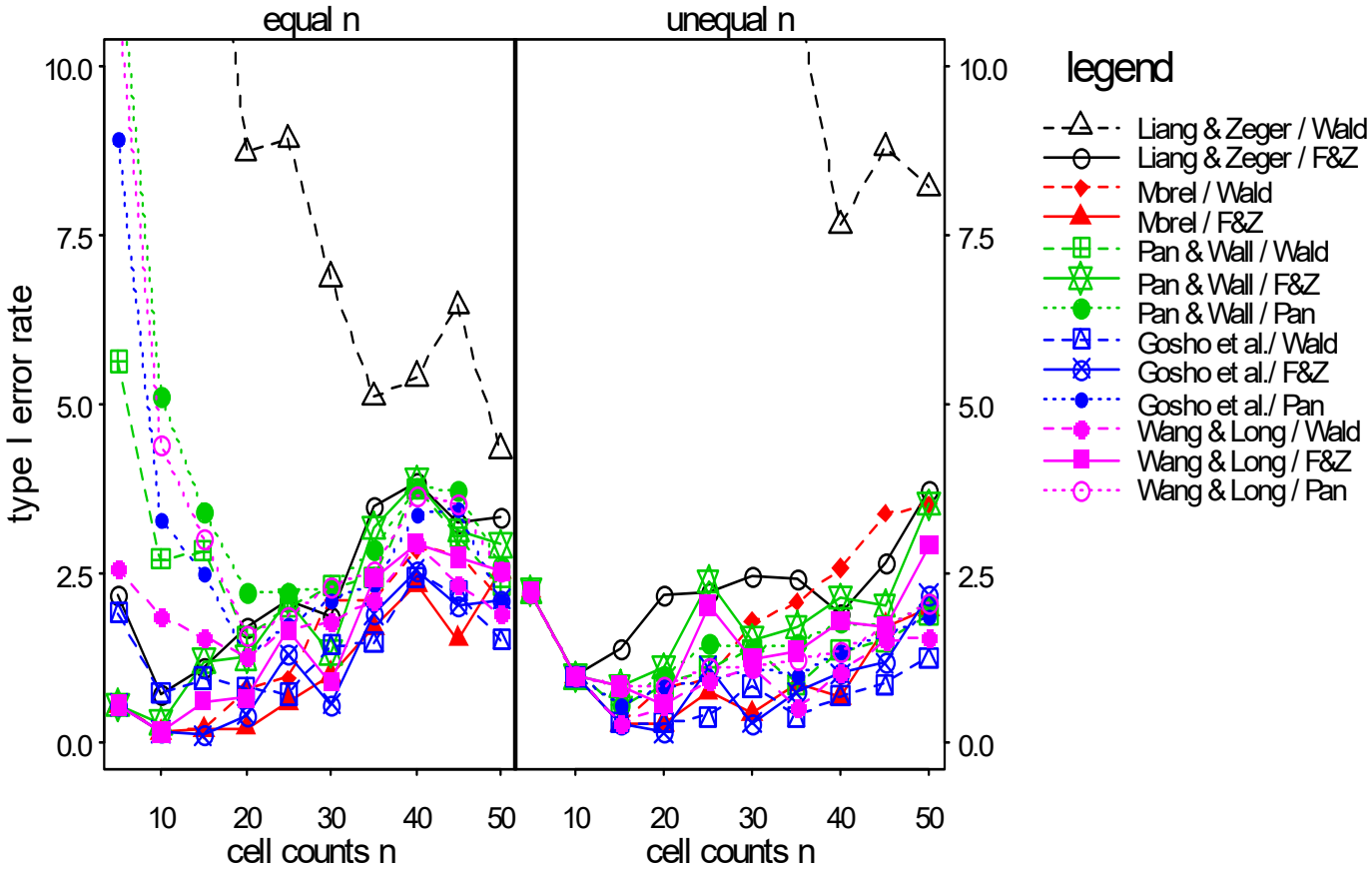
9. 5. 1. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	21.1	10.1	8.5	7.6	5.9	7.0	6.3	2.6	22.6	14.9	12.1	9.5	8.3	6.8
	Fan & Zhang	1.8	4.4	5.0	5.1	4.9	6.6	4.7	2.8	3.4	5.0	5.1	6.0	4.6	5.1
Morel et al.	Wald	0.0	0.0	0.7	1.6	2.4	4.9	3.7	1.4	0.2	0.1	1.5	2.9	3.3	3.5
	Fan & Zhang	0.0	0.2	1.2	1.9	3.3	4.0	3.8	1.4	0.1	0.4	1.4	2.7	2.4	3.3
Pan & Wall	Wald	8.3	6.7	6.1	5.1	5.5	5.8	4.9	4.3	3.7	5.0	5.0	5.2	4.3	4.0
	Fan & Zhang	1.9	4.0	4.6	5.1	4.8	5.5	4.5	1.4	3.4	4.5	4.7	5.3	4.3	4.8
	Pan	8.2	6.2	6.2	4.7	5.7	5.9	5.0	4.3	4.4	4.7	5.1	4.3	4.2	4.1
Gosho et al.	Wald	0.2	0.5	2.0	2.1	3.2	4.8	3.4		0.1	0.4	1.4	2.0	2.2	2.1
	Fan & Zhang	0.0	0.5	1.7	2.2	3.5	4.4	3.8		0.1	0.9	1.9	2.9	2.2	3.7
	Pan	1.3	3.2	4.3	3.5	4.8	5.6	4.6		1.3	2.3	3.8	3.5	3.7	3.5
Wang & Long	Wald	2.5	3.0	3.9	3.2	4.8	5.2	4.3	2.9	1.1	2.2	3.4	3.8	3.3	3.5
	Fan & Zhang	0.3	1.6	3.4	3.5	4.1	4.8	4.1	1.4	1.6	2.6	3.4	4.0	3.6	4.5
	Pan	5.5	4.7	5.4	4.0	5.2	5.8	4.9	5.7	2.9	3.6	4.6	3.8	4.1	4.1



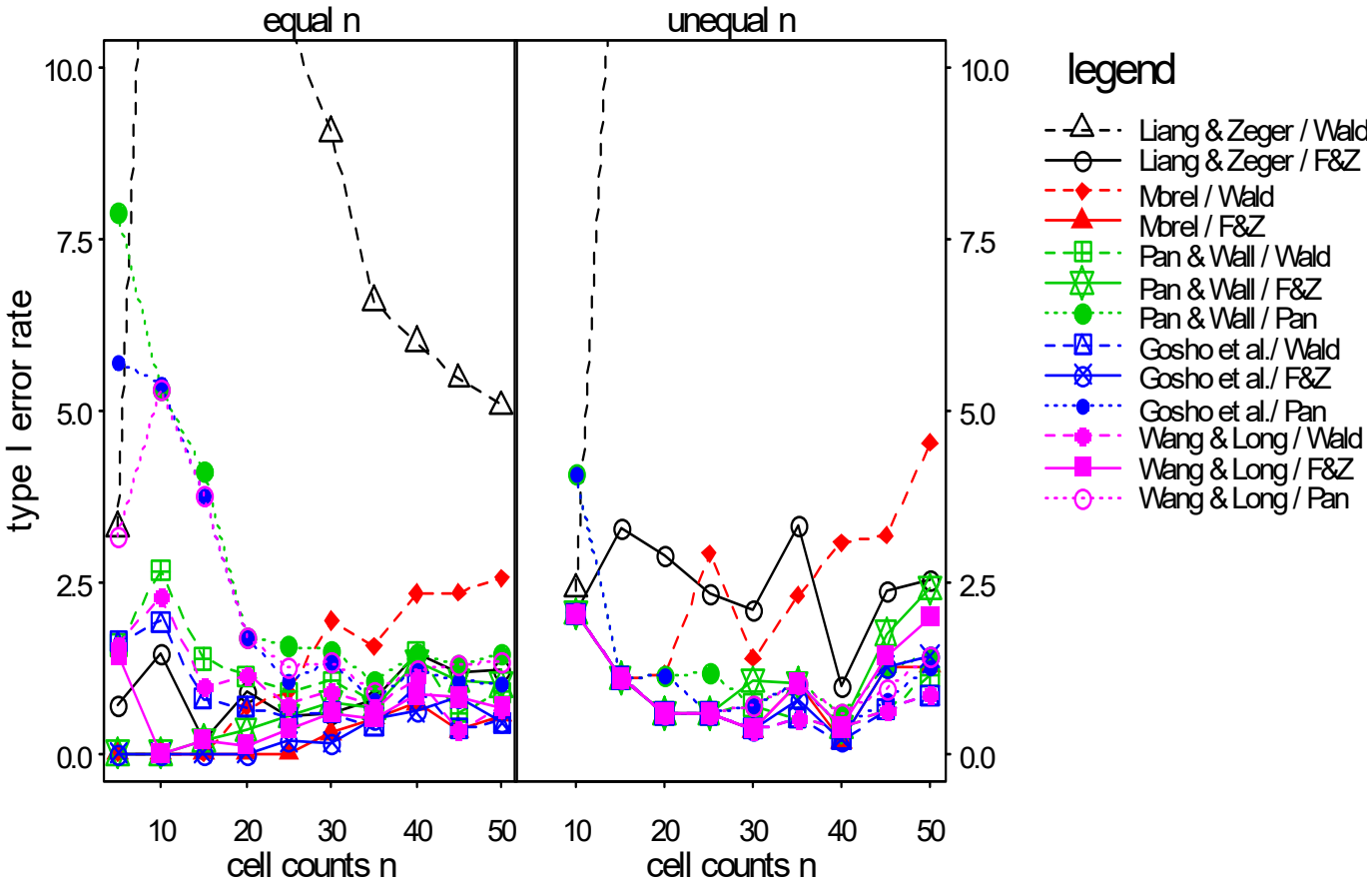
9. 5. 1. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	12.9	21.3	14.4	8.7	6.9	5.4	4.3		16.9	23.4	22.6	12.7	7.6	8.2
	Fan & Zhang	2.2	0.7	1.1	1.7	1.9	3.9	3.3	2.2	1.0	1.4	2.2	2.5	1.9	3.7
Morel et al.	Wald	0.5	0.1	0.2	0.8	2.1	2.8	2.1	2.2	1.0	0.3	0.8	1.8	2.6	3.5
	Fan & Zhang	0.5	0.1	0.2	0.2	1.0	2.3	2.5	2.2	1.0	0.3	0.3	0.4	0.7	2.0
Pan & Wall	Wald	5.6	2.7	2.8	1.6	2.3	3.8	2.3	2.2	1.0	0.5	0.8	1.4	1.3	1.9
	Fan & Zhang	0.5	0.3	1.2	1.2	1.3	3.9	2.9	2.2	1.0	0.8	1.1	1.5	2.1	3.5
	Pan	11.9	5.1	3.4	2.2	2.3	3.8	2.6	2.2	1.0	0.5	1.0	1.4	1.8	2.1
Gosho et al.	Wald	1.9	0.7	0.9	0.8	1.4	2.4	1.5		1.0	0.3	0.3	0.8	0.7	1.2
	Fan & Zhang	0.5	0.1	0.1	0.4	0.5	2.5	2.1		1.0	0.3	0.1	0.3	1.0	2.2
	Pan	8.9	3.3	2.5	1.2	2.1	3.3	2.1		1.0	0.5	0.8	1.1	1.3	1.9
Wang & Long	Wald	2.6	1.8	1.5	1.2	1.8	2.9	1.9	2.2	1.0	0.3	0.5	1.1	1.0	1.5
	Fan & Zhang	0.5	0.1	0.6	0.7	0.9	2.9	2.5	2.2	1.0	0.8	0.5	1.2	1.8	2.9
	Pan	11.0	4.4	3.0	1.6	2.3	3.7	2.5	2.2	1.0	0.8	0.8	1.1	1.3	2.1



9. 5. 1. 3 p = 0.9

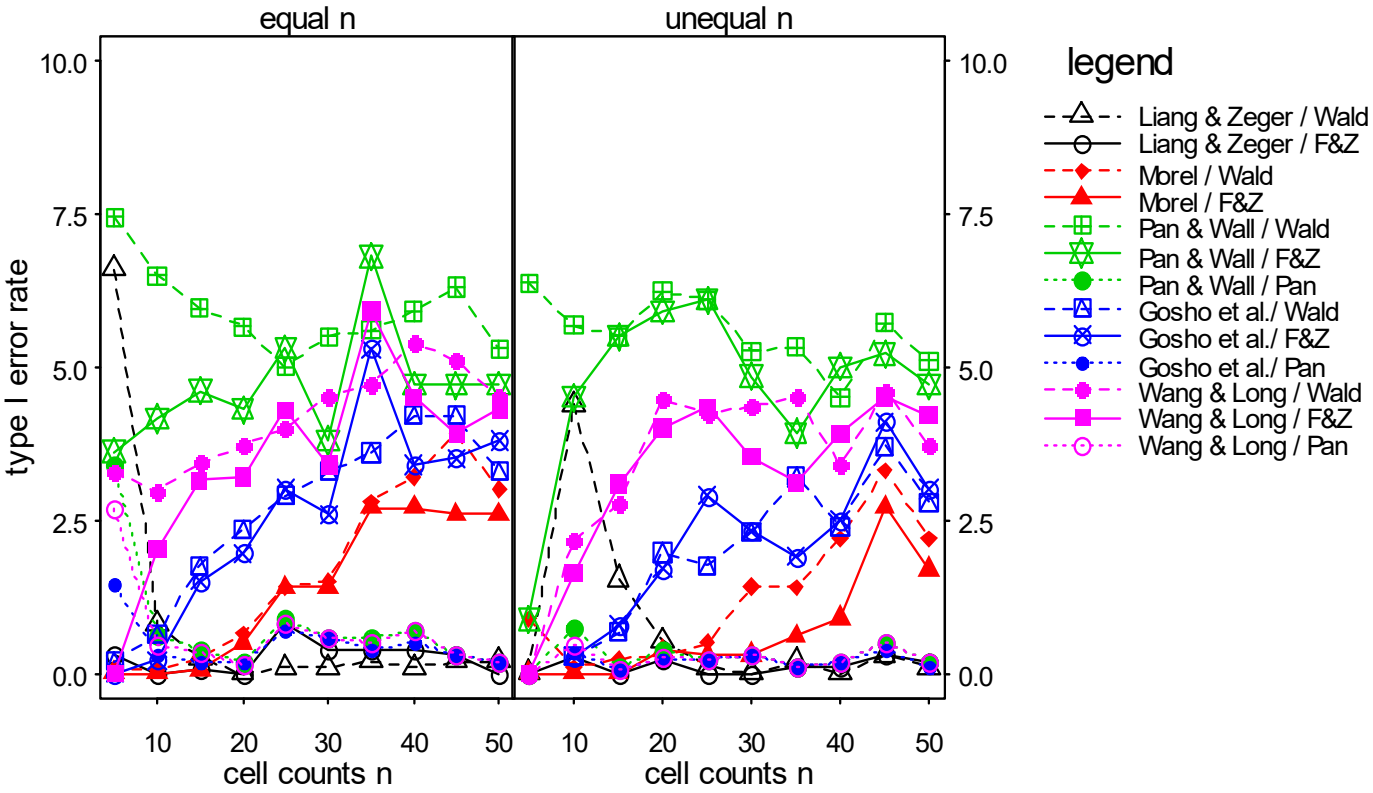
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	3.3	19.1	16.0	15.3	9.0	6.0	5.1		2.4	13.9	18.0	18.3	15.6	13.2
	Fan & Zhang	0.7	1.4	0.2	0.9	0.6	1.5	1.2		2.0	3.3	2.9	2.1	1.0	2.5
Morel et al.	Wald	0.0	0.0	0.0	0.7	1.9	2.3	2.6		2.0	1.1	1.2	1.4	3.1	4.5
	Fan & Zhang	0.0	0.0	0.0	0.0	0.3	0.7	0.6		2.0	1.1	0.6	0.3	0.2	1.3
Pan & Wall	Wald	1.6	2.7	1.4	1.1	1.0	1.5	0.9		2.0	1.1	0.6	0.7	0.4	1.1
	Fan & Zhang	0.0	0.0	0.2	0.3	0.7	1.3	1.0		2.0	1.1	0.6	1.0	0.4	2.4
	Pan	7.9	5.3	4.1	1.7	1.5	1.5	1.4		4.1	1.1	1.2	0.7	0.6	1.4
Gosho et al.	Wald	1.6	1.9	0.8	0.7	0.6	1.0	0.4		2.0	1.1	0.6	0.3	0.2	0.8
	Fan & Zhang	0.0	0.0	0.0	0.0	0.1	0.6	0.4		2.0	1.1	0.6	0.3	0.2	1.4
	Pan	5.7	5.4	3.7	1.7	1.3	1.2	1.0		4.1	1.1	1.2	0.7	0.4	1.3
Wang & Long	Wald	1.6	2.3	1.0	1.1	0.9	1.1	0.7		2.0	1.1	0.6	0.3	0.4	0.8
	Fan & Zhang	1.4	0.0	0.2	0.1	0.6	0.9	0.7		2.0	1.1	0.6	0.3	0.4	2.0
	Pan	3.2	5.3	3.7	1.7	1.3	1.2	1.3		2.0	1.1	0.6	0.7	0.6	1.4



9. 5. 2. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) ar1-structure assumed

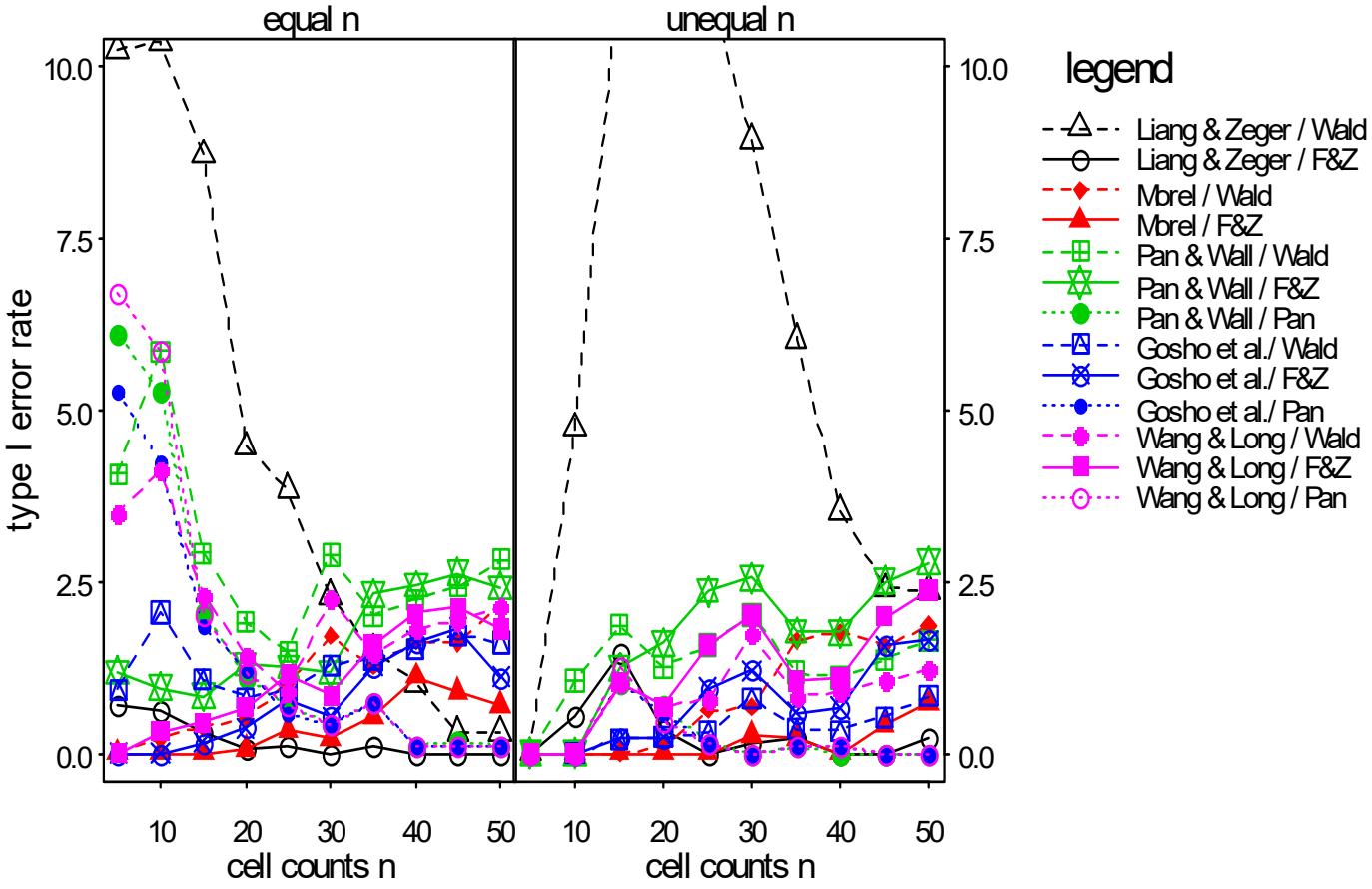
9. 5. 2. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	6.6	0.8	0.3	0.0	0.1	0.1	0.2	0.0	4.4	1.5	0.5	0.0	0.0	0.1
	Fan & Zhang	0.3	0.0	0.1	0.0	0.4	0.4	0.0	0.0	0.3	0.0	0.2	0.0	0.1	0.2
Morel et al.	Wald	0.1	0.1	0.3	0.7	1.5	3.2	3.0	0.9	0.1	0.2	0.3	1.4	2.2	2.2
	Fan & Zhang	0.0	0.0	0.1	0.5	1.4	2.7	2.6	0.0	0.0	0.0	0.4	0.3	0.9	1.7
Pan & Wall	Wald	7.4	6.5	6.0	5.7	5.5	5.9	5.3	6.4	5.7	5.5	6.2	5.2	4.5	5.1
	Fan & Zhang	3.6	4.2	4.6	4.3	3.8	4.7	4.7	0.9	4.5	5.5	5.9	4.8	5.0	4.7
	Pan	3.4	0.6	0.4	0.2	0.6	0.7	0.2	0.0	0.7	0.1	0.4	0.3	0.2	0.2
Gosho et al.	Wald	0.2	0.6	1.8	2.4	3.3	4.2	3.3		0.3	0.7	2.0	2.3	2.4	2.8
	Fan & Zhang	0.0	0.2	1.5	2.0	2.6	3.4	3.8		0.3	0.8	1.7	2.3	2.5	3.0
	Pan	1.5	0.3	0.2	0.2	0.6	0.5	0.2		0.4	0.1	0.2	0.3	0.2	0.1
Wang & Long	Wald	3.3	2.9	3.5	3.7	4.5	5.4	4.5	0.0	2.2	2.8	4.5	4.3	3.4	3.7
	Fan & Zhang	0.0	2.0	3.2	3.2	3.4	4.5	4.3	0.0	1.6	3.1	4.0	3.5	3.9	4.2
	Pan	2.7	0.5	0.4	0.2	0.6	0.7	0.2	0.0	0.5	0.1	0.3	0.3	0.2	0.2



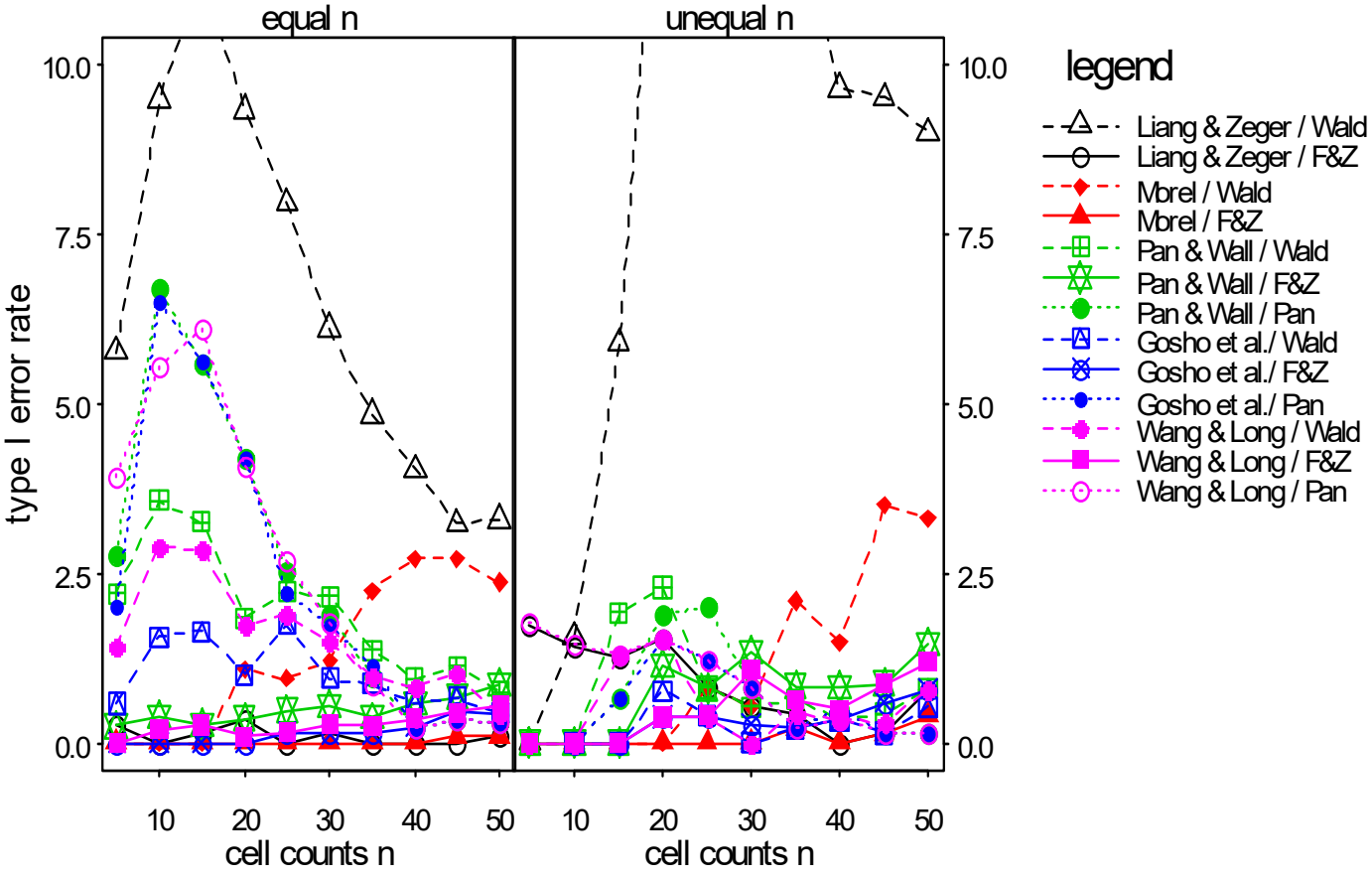
9. 5. 2. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	10.2	10.3	8.7	4.5	2.3	1.0	0.3		4.7	11.5	13.3	8.9	3.5	2.4
	Fan & Zhang	0.7	0.6	0.3	0.1	0.0	0.0	0.0		0.5	1.4	0.3	0.1	0.0	0.2
Morel et al.	Wald	0.0	0.2	0.4	0.5	1.7	1.6	2.1		0.0	0.0	0.1	0.7	1.8	1.9
	Fan & Zhang	0.0	0.0	0.0	0.1	0.2	1.1	0.7		0.0	0.0	0.0	0.3	0.0	0.7
Pan & Wall	Wald	4.1	5.9	2.9	1.9	2.9	2.2	2.8		1.1	1.9	1.3	2.0	1.1	1.6
	Fan & Zhang	1.2	1.0	0.8	1.3	1.2	2.4	2.4		0.0	1.2	1.6	2.5	1.8	2.8
	Pan	6.1	5.3	2.1	1.1	0.4	0.1	0.1		0.0	1.0	0.7	0.0	0.0	0.0
Gosho et al.	Wald	0.9	2.1	1.1	0.8	1.3	1.5	1.6		0.0	0.2	0.2	0.8	0.3	0.8
	Fan & Zhang	0.0	0.0	0.2	0.4	0.5	1.6	1.1		0.0	0.2	0.2	1.2	0.7	1.6
	Pan	5.2	4.2	1.8	1.2	0.4	0.1	0.1		0.0	1.0	0.6	0.0	0.1	0.0
Wang & Long	Wald	3.5	4.1	2.3	1.4	2.2	1.8	2.1		0.0	1.0	0.7	1.7	0.9	1.2
	Fan & Zhang	0.0	0.3	0.5	0.7	0.9	2.0	1.8		0.0	1.0	0.7	2.0	1.1	2.4
	Pan	6.7	5.8	2.0	1.2	0.4	0.1	0.1		0.0	1.2	0.5	0.0	0.1	0.0



9. 5. 2. 3 p = 0.9

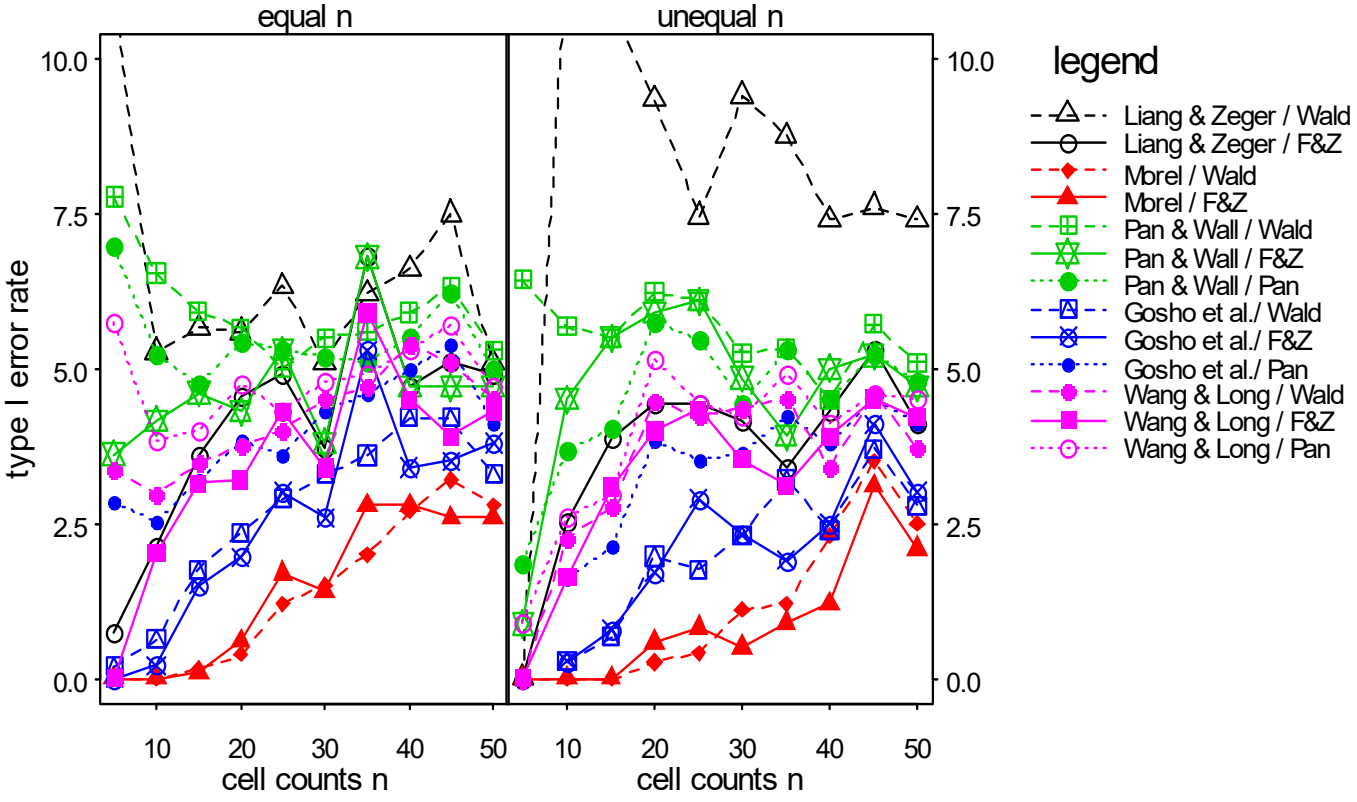
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	5.8	9.5	11.3	9.3	6.1	4.0	3.3	0.0	1.6	5.9	14.4	15.1	9.6	9.0
	Fan & Zhang	0.2	0.0	0.1	0.4	0.1	0.0	0.1	1.7	1.4	1.3	1.5	0.5	0.0	0.8
Morel et al.	Wald	0.0	0.0	0.0	1.1	1.2	2.7	2.4	0.0	0.0	0.0	0.0	0.5	1.5	3.3
	Fan & Zhang	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Pan & Wall	Wald	2.2	3.6	3.3	1.8	2.2	0.9	0.8	0.0	0.0	1.9	2.3	0.5	0.3	0.8
	Fan & Zhang	0.2	0.4	0.3	0.4	0.5	0.6	0.9	0.0	0.0	0.0	1.1	1.3	0.8	1.5
	Pan	2.8	6.7	5.6	4.2	1.9	0.2	0.3	0.0	0.0	0.6	1.9	0.8	0.5	0.1
Gosho et al.	Wald	0.6	1.6	1.6	1.0	0.9	0.6	0.4		0.0	0.0	0.8	0.0	0.3	0.5
	Fan & Zhang	0.0	0.0	0.0	0.0	0.1	0.2	0.4		0.0	0.0	0.4	0.3	0.3	0.8
	Pan	2.0	6.5	5.6	4.2	1.8	0.2	0.3		0.0	0.6	1.5	0.8	0.5	0.1
Wang & Long	Wald	1.4	2.9	2.9	1.7	1.5	0.8	0.4	0.0	0.0	1.3	1.5	0.0	0.3	0.8
	Fan & Zhang	0.0	0.2	0.3	0.1	0.3	0.4	0.5	0.0	0.0	0.0	0.4	1.1	0.5	1.2
	Pan	3.9	5.5	6.1	4.1	1.8	0.2	0.3	1.8	1.4	1.3	1.5	0.8	0.3	0.1



9. 5. 3. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) exchangeable-structure assumed

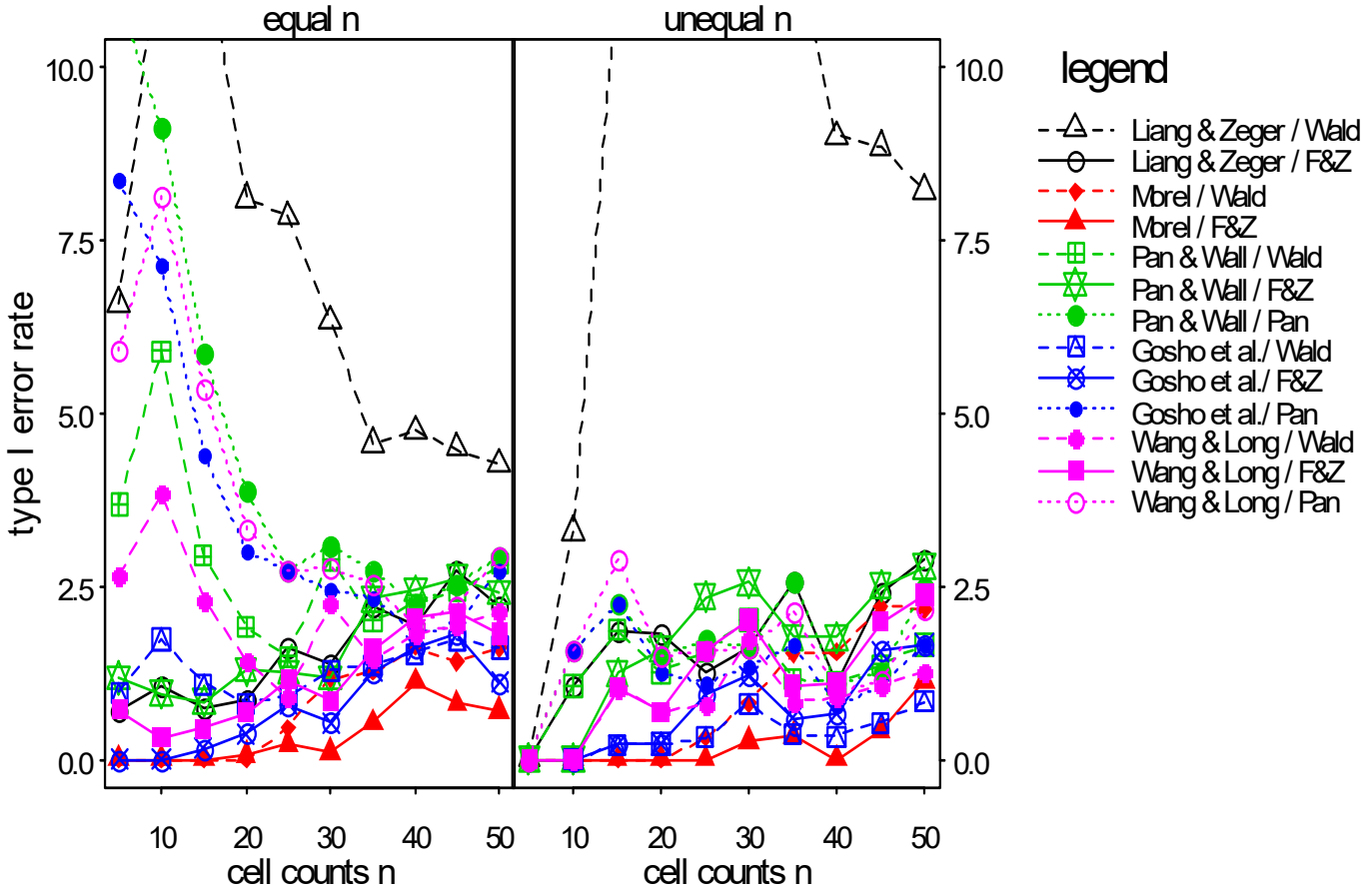
9. 5. 3. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	11.2	5.3	5.6	5.6	5.1	6.6	5.1	0.0	11.8	10.8	9.3	9.4	7.4	7.4
	Fan & Zhang	0.7	2.1	3.6	4.6	3.7	4.7	4.9	0.0	2.5	3.9	4.4	4.1	4.3	4.1
Morel et al.	Wald	0.0	0.0	0.2	0.4	1.5	2.7	2.8	0.0	0.0	0.0	0.3	1.1	2.3	2.5
	Fan & Zhang	0.0	0.0	0.1	0.6	1.4	2.8	2.6	0.0	0.0	0.0	0.6	0.5	1.2	2.1
Pan & Wall	Wald	7.8	6.5	5.9	5.7	5.5	5.9	5.3	6.4	5.7	5.5	6.2	5.2	4.5	5.1
	Fan & Zhang	3.6	4.2	4.6	4.3	3.8	4.7	4.7	0.9	4.5	5.5	5.9	4.8	5.0	4.7
	Pan	7.0	5.2	4.8	5.4	5.2	5.5	5.0	1.8	3.7	4.0	5.7	4.4	4.5	4.8
Gosho et al.	Wald	0.2	0.6	1.8	2.4	3.3	4.2	3.3		0.3	0.7	2.0	2.3	2.4	2.8
	Fan & Zhang	0.0	0.2	1.5	2.0	2.6	3.4	3.8		0.3	0.8	1.7	2.3	2.5	3.0
	Pan	2.8	2.5	3.2	3.9	4.3	5.0	4.1		1.6	2.1	3.8	3.6	3.8	4.1
Wang & Long	Wald	3.4	3.0	3.5	3.8	4.5	5.4	4.5	0.0	2.3	2.8	4.5	4.3	3.4	3.7
	Fan & Zhang	0.0	2.0	3.2	3.2	3.4	4.5	4.3	0.0	1.6	3.1	4.0	3.5	3.9	4.2
	Pan	5.7	3.8	4.0	4.8	4.8	5.3	4.7	0.9	2.6	3.0	5.2	4.2	4.1	4.5



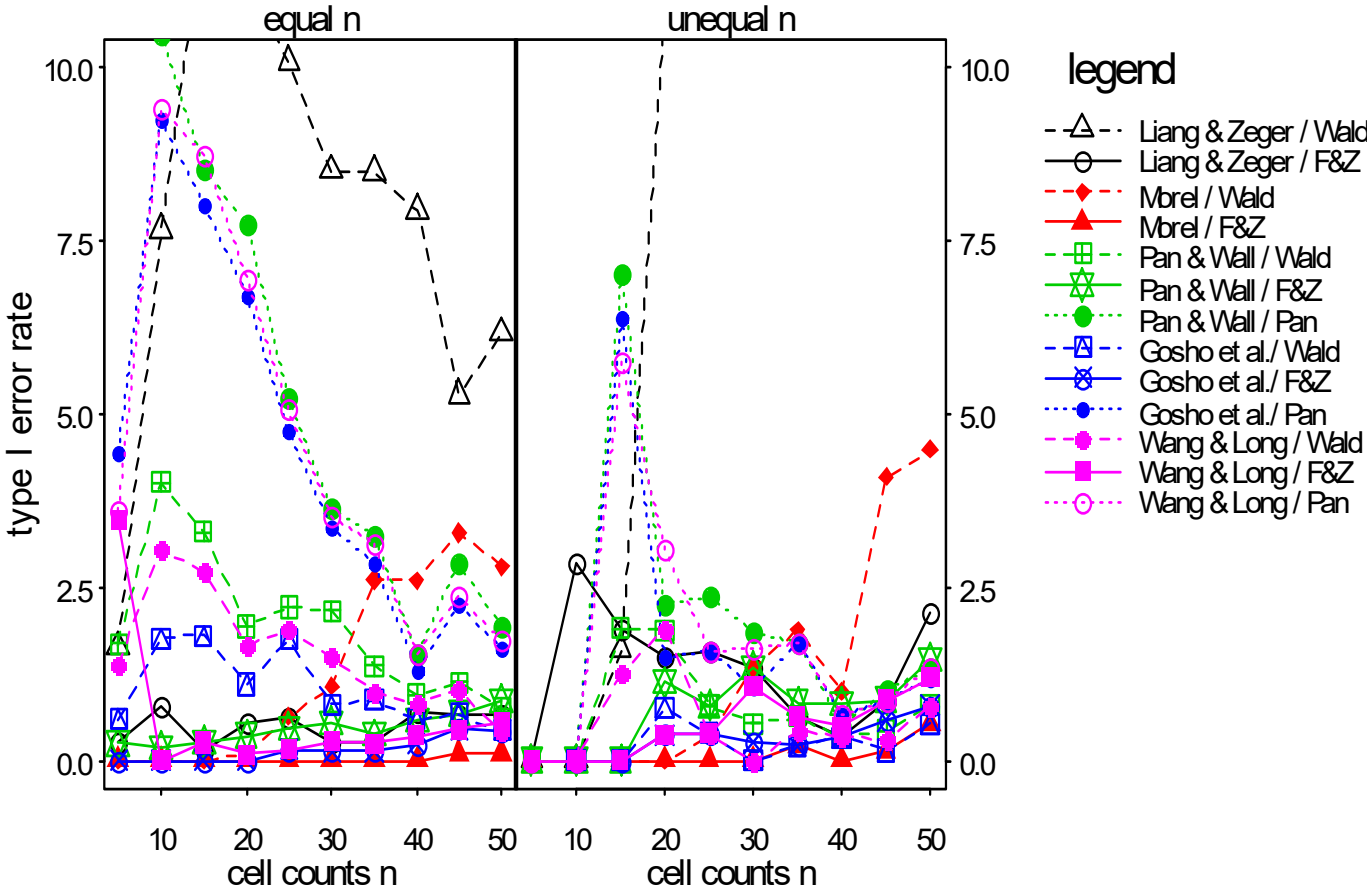
9. 5. 3. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	6.6	12.4	12.0	8.1	6.3	4.7	4.3		3.3	11.2	16.0	14.2	9.0	8.2
	Fan & Zhang	0.7	1.1	0.8	0.9	1.4	1.9	2.2		1.1	1.9	1.8	1.6	1.1	2.9
Morel et al.	Wald	0.0	0.0	0.0	0.0	1.2	1.6	1.6		0.0	0.0	0.0	0.8	1.5	2.2
	Fan & Zhang	0.0	0.0	0.0	0.1	0.1	1.1	0.7		0.0	0.0	0.0	0.3	0.0	1.1
Pan & Wall	Wald	3.7	5.9	2.9	1.9	2.9	2.2	2.8		1.1	1.9	1.2	2.0	1.1	1.6
	Fan & Zhang	1.2	1.0	0.8	1.3	1.2	2.4	2.4		0.0	1.2	1.6	2.5	1.8	2.8
	Pan	11.0	9.1	5.9	3.9	3.1	2.2	2.9		1.6	2.3	1.5	1.6	1.1	2.5
Gosho et al.	Wald	1.0	1.7	1.1	0.8	1.3	1.5	1.6		0.0	0.2	0.2	0.8	0.3	0.8
	Fan & Zhang	0.0	0.0	0.2	0.4	0.5	1.6	1.1		0.0	0.2	0.2	1.2	0.7	1.6
	Pan	8.4	7.2	4.4	3.0	2.5	1.8	2.7		1.6	2.3	1.2	1.3	0.8	1.6
Wang & Long	Wald	2.7	3.8	2.3	1.4	2.2	1.8	2.1		0.0	1.0	0.7	1.7	0.9	1.2
	Fan & Zhang	0.7	0.3	0.5	0.7	0.9	2.0	1.8		0.0	1.0	0.7	2.0	1.1	2.4
	Pan	5.9	8.1	5.4	3.3	2.8	1.9	2.9		1.6	2.9	1.5	1.6	1.0	2.2



9. 5. 3. 3 p = 0.9

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	1.6	7.6	12.1	11.4	8.5	7.9	6.2		0.0	1.6	10.8	16.3	13.3	13.7
	Fan & Zhang	0.2	0.8	0.1	0.5	0.3	0.7	0.6		2.9	1.9	1.5	1.3	0.3	2.1
Morel et al.	Wald	0.0	0.0	0.0	0.1	1.1	2.6	2.8		0.0	0.0	0.0	1.3	1.0	4.5
	Fan & Zhang	0.0	0.0	0.0	0.0	0.0	0.0	0.1		0.0	0.0	0.0	0.0	0.0	0.5
Pan & Wall	Wald	1.7	4.0	3.3	1.9	2.2	0.9	0.8		0.0	1.9	1.9	0.5	0.3	0.8
	Fan & Zhang	0.2	0.2	0.3	0.4	0.5	0.6	0.9		0.0	0.0	1.1	1.3	0.8	1.5
	Pan	12.0	10.5	8.5	7.7	3.6	1.5	1.9		0.0	7.0	2.3	1.9	0.5	1.3
Gosho et al.	Wald	0.6	1.8	1.8	1.1	0.8	0.6	0.4		0.0	0.0	0.8	0.0	0.3	0.5
	Fan & Zhang	0.0	0.0	0.0	0.0	0.1	0.2	0.4		0.0	0.0	0.4	0.3	0.3	0.8
	Pan	4.4	9.3	8.0	6.7	3.4	1.3	1.6		0.0	6.4	1.5	1.1	0.7	1.2
Wang & Long	Wald	1.4	3.1	2.7	1.6	1.5	0.8	0.4		0.0	1.3	1.9	0.0	0.3	0.8
	Fan & Zhang	3.5	0.0	0.3	0.1	0.3	0.4	0.5		0.0	0.0	0.4	1.1	0.5	1.2
	Pan	3.6	9.4	8.7	7.0	3.5	1.5	1.7		0.0	5.7	3.0	1.6	0.7	1.3

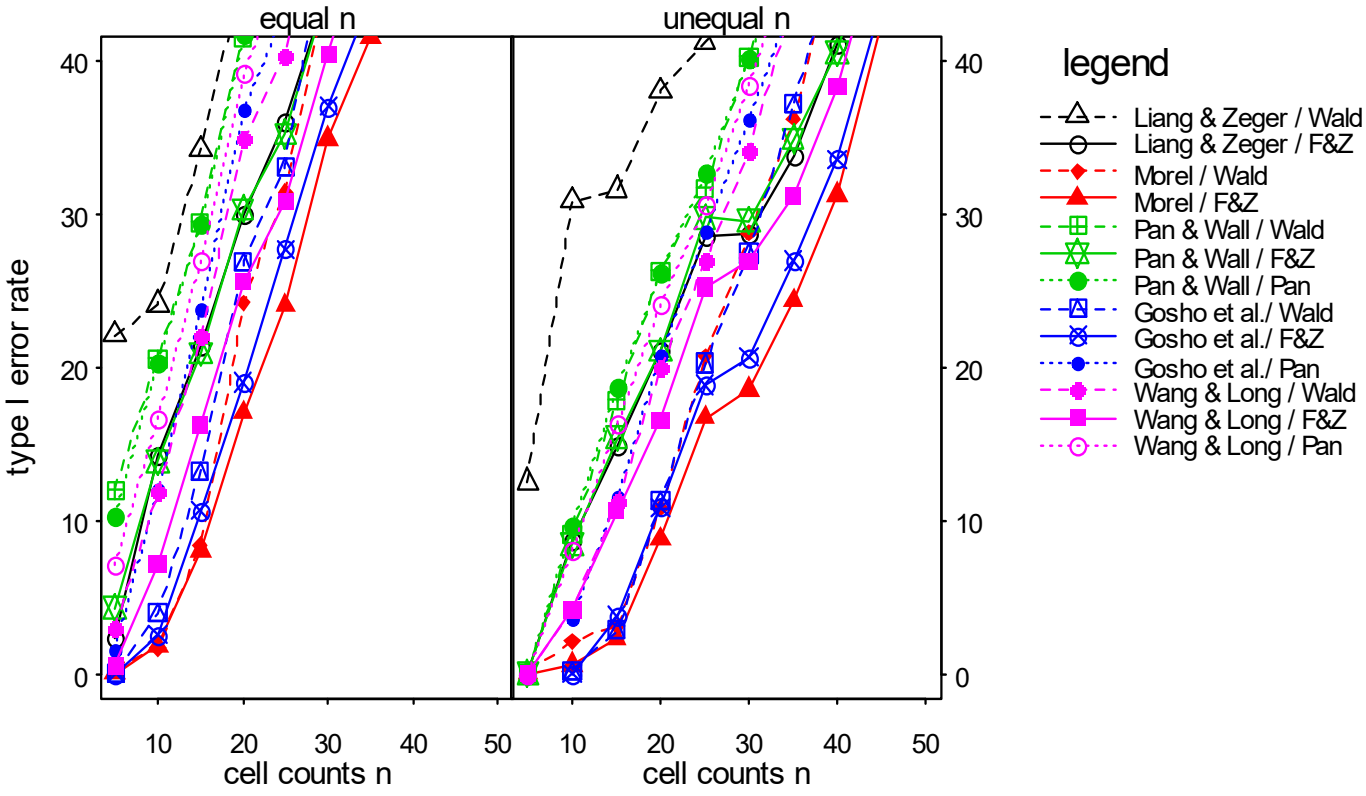


9. 6. Main effect B - Interaction significant (effects b_i = 0.4*s)

9. 6. 1. equal correlations on B (r=0.3)

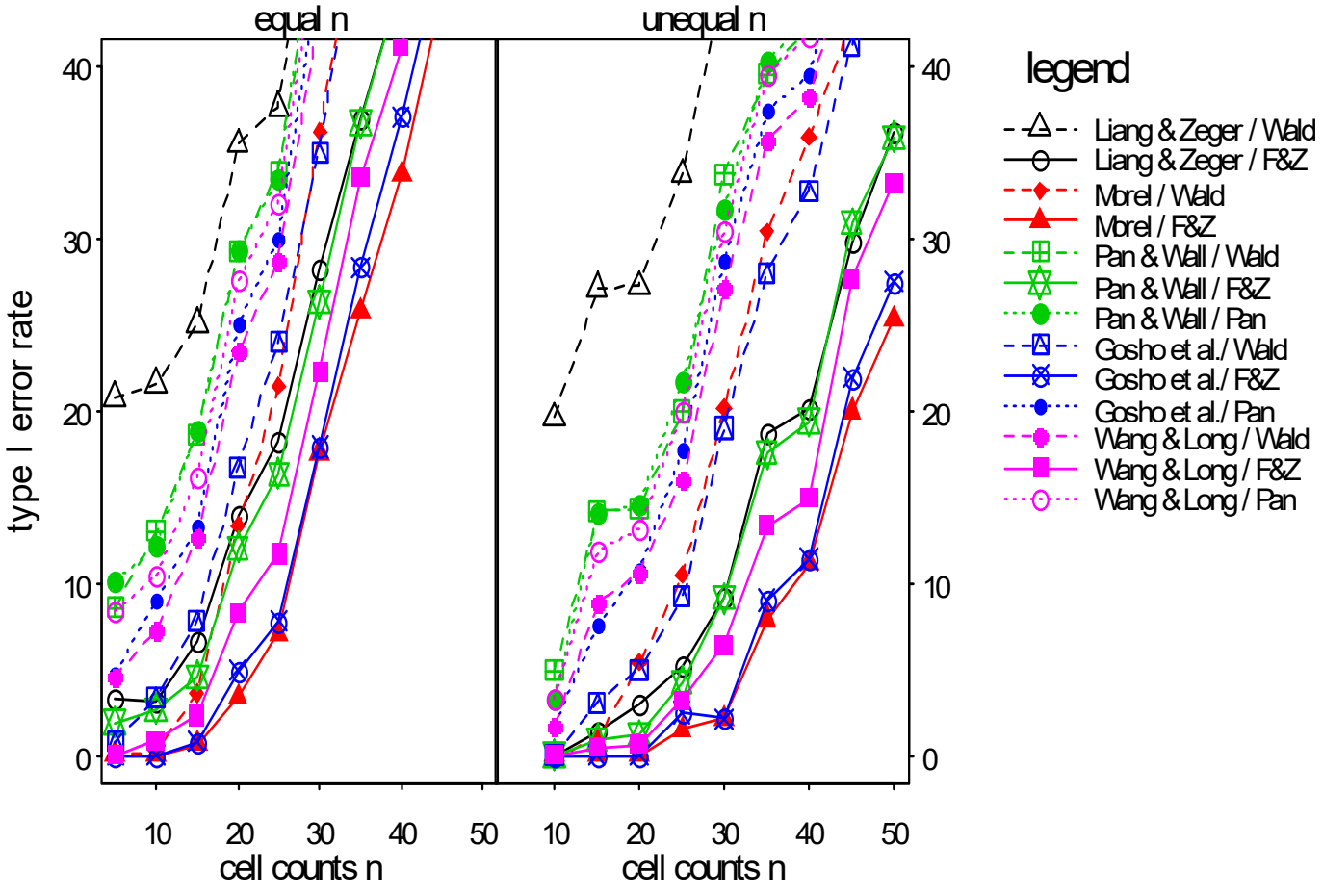
9. 6. 1. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	22.1	24.1	34.2	45.8	59.1	74.3	84.8	12.5	30.8	31.5	38.0	46.7	61.7	72.2
	Fan & Zhang	2.4	14.2	21.4	29.9	44.8	61.2	72.5	0.0	8.7	14.9	21.0	28.7	41.0	52.3
Morel et al.	Wald	0.4	1.6	8.4	24.2	45.8	66.3	80.6	0.0	2.1	3.1	10.8	28.7	48.7	63.0
	Fan & Zhang	0.0	1.8	8.1	17.0	34.9	53.3	67.0	0.0	0.6	2.3	8.8	18.5	31.2	45.2
Pan & Wall	Wald	12.0	20.6	29.4	41.5	57.3	73.7	84.2	0.0	9.1	17.8	26.2	40.2	56.9	69.6
	Fan & Zhang	4.3	13.9	21.0	30.3	44.6	60.1	72.0	0.0	8.4	15.4	21.0	29.5	40.5	51.4
	Pan	10.2	20.3	29.3	41.8	57.8	74.2	84.4	0.0	9.7	18.6	26.1	40.1	56.6	70.4
Gosho et al.	Wald	0.0	4.0	13.2	26.9	48.6	68.0	80.7		0.2	2.8	11.2	27.4	47.0	62.3
	Fan & Zhang	0.0	2.5	10.6	19.0	37.0	55.0	67.2		0.0	3.7	10.9	20.7	33.5	46.2
	Pan	1.6	12.0	23.7	36.9	54.7	72.0	83.5		3.6	11.5	20.7	36.1	54.7	68.6
Wang & Long	Wald	2.9	11.9	22.1	35.0	53.7	71.7	83.3	0.0	4.2	11.3	19.9	34.1	53.8	66.1
	Fan & Zhang	0.5	7.1	16.2	25.6	40.4	57.7	69.7	0.0	4.2	10.6	16.6	26.9	38.2	49.6
	Pan	7.1	16.6	27.0	39.2	56.0	73.3	84.1	0.0	8.1	16.3	24.1	38.4	55.7	70.0



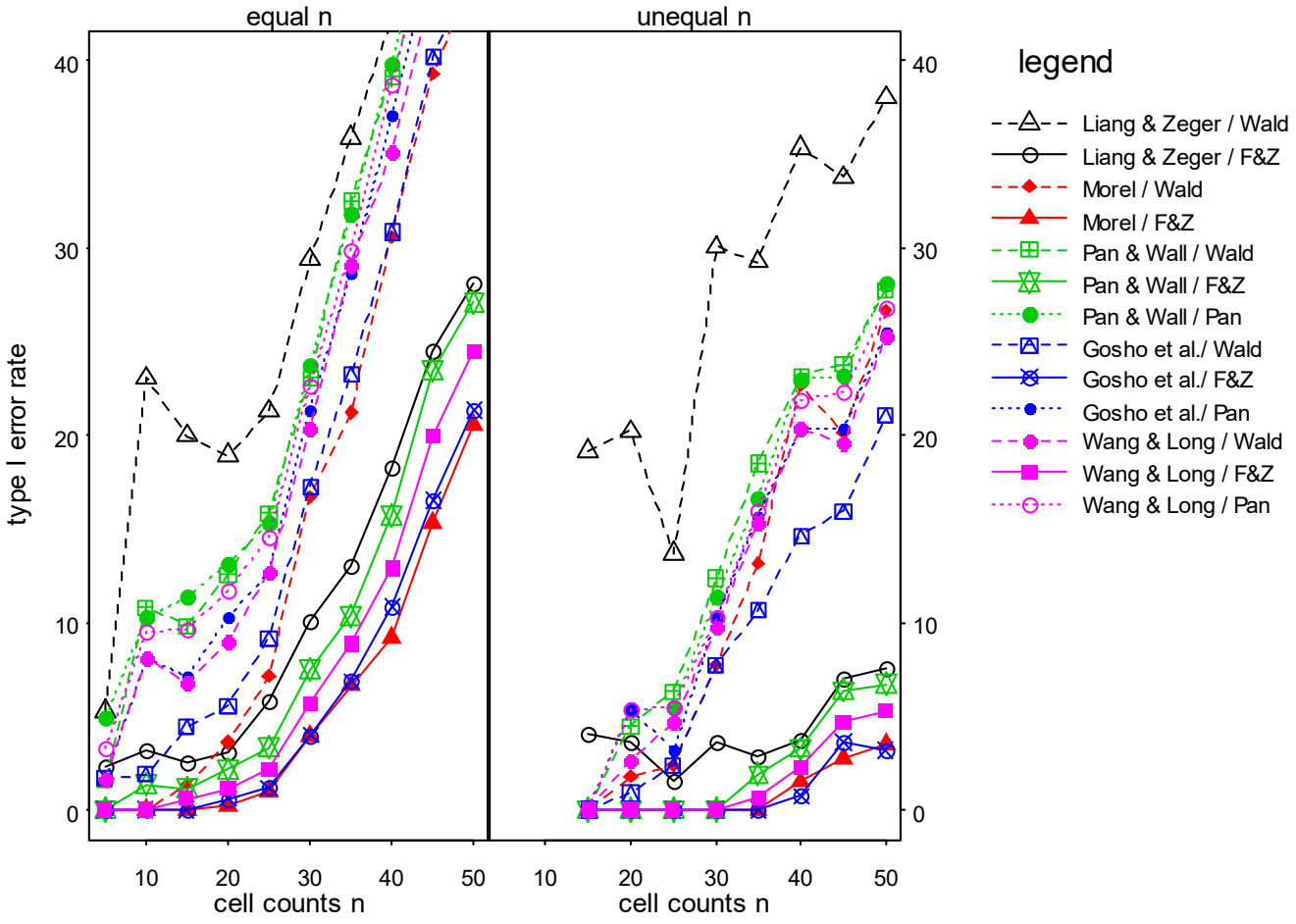
9. 6. 1. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	20.8	21.6	25.0	35.5	52.9	72.1	84.0		19.6	27.1	27.2	45.2	49.3	63.2
	Fan & Zhang	3.2	3.2	6.6	13.9	28.2	45.1	59.8		0.0	1.3	3.0	9.1	20.1	36.2
Morel et al.	Wald	0.0	0.3	3.6	13.3	36.2	62.7	78.2		0.0	0.9	5.4	20.2	35.9	50.8
	Fan & Zhang	0.0	0.0	0.6	3.4	17.6	33.7	49.9		0.0	0.0	0.0	2.1	11.1	25.3
Pan & Wall	Wald	8.6	13.0	18.6	29.3	49.1	69.1	82.8		4.9	14.1	14.3	33.7	42.3	58.5
	Fan & Zhang	1.9	2.7	4.6	12.0	26.3	44.8	60.1		0.0	0.9	1.2	9.1	19.4	35.9
	Pan	10.2	12.2	18.9	29.4	49.9	69.7	83.3		3.3	14.1	14.5	31.8	43.0	58.7
Gosho et al.	Wald	0.8	3.3	7.8	16.7	35.0	61.1	78.7		0.0	3.1	5.0	19.0	32.8	51.4
	Fan & Zhang	0.0	0.0	0.8	4.9	17.9	37.1	54.6		0.0	0.0	0.0	2.1	11.4	27.5
	Pan	4.8	9.0	13.3	25.0	45.7	68.2	81.7		1.6	7.5	10.8	28.7	39.4	56.2
Wang & Long	Wald	4.5	7.2	12.7	23.4	43.0	65.6	81.2		1.6	8.8	10.6	27.1	38.2	55.1
	Fan & Zhang	0.0	0.8	2.3	8.3	22.3	41.1	57.1		0.0	0.4	0.6	6.4	14.9	33.3
	Pan	8.3	10.4	16.2	27.6	48.2	69.0	82.5		3.3	11.9	13.1	30.4	41.7	57.2



9. 6. 1. 3 p = 0.9

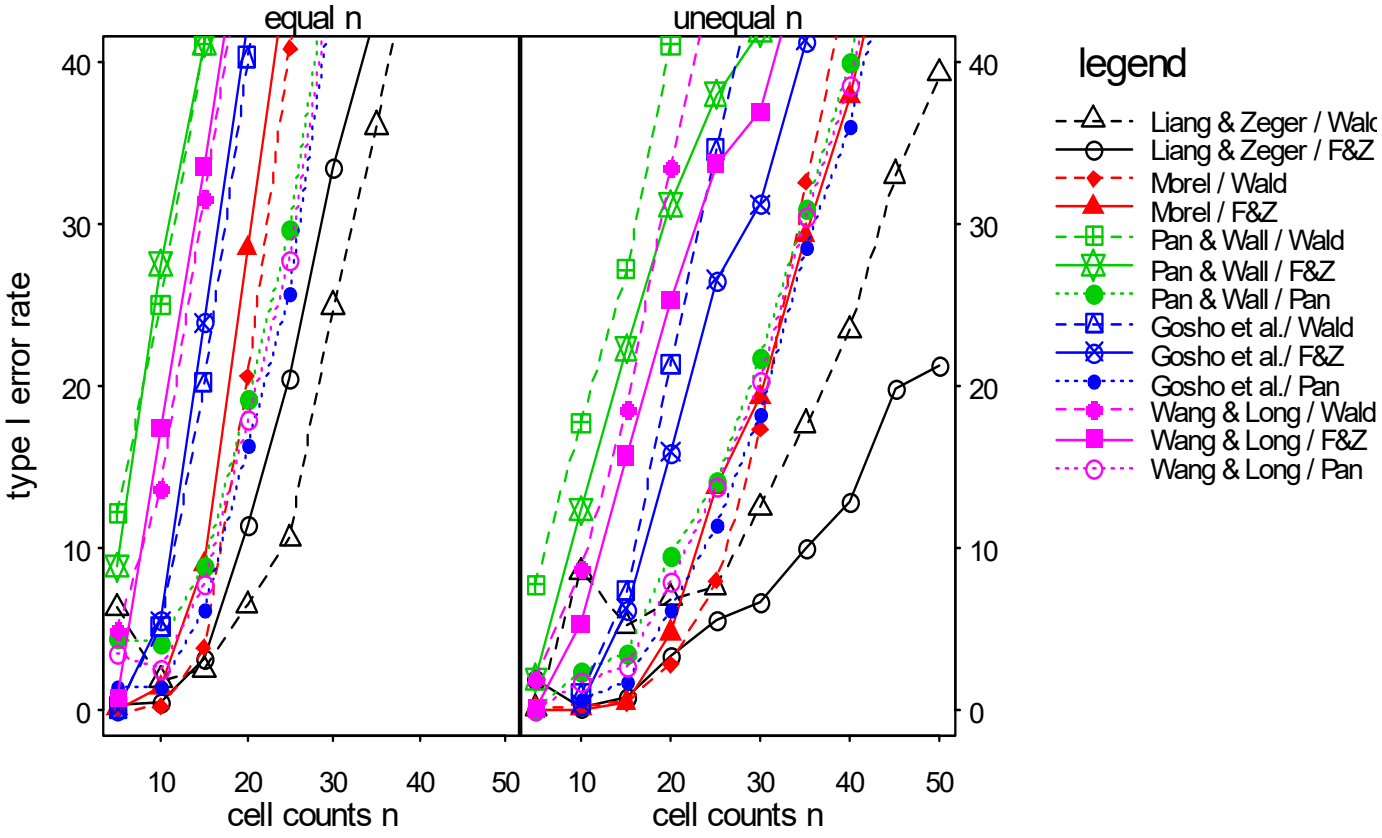
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	5.3	23.0	20.0	18.9	29.4	42.3	54.8			19.1	20.2	30.1	35.4	38.1
	Fan & Zhang	2.3	3.2	2.5	3.1	10.0	18.3	28.2			4.0	3.6	3.6	3.8	7.6
Morel et al.	Wald	0.0	0.0	1.3	3.6	16.7	30.6	44.7			0.0	1.8	7.7	22.7	26.7
	Fan & Zhang	0.0	0.0	0.0	0.2	4.0	9.2	20.6			0.0	0.0	0.0	1.5	3.5
Pan & Wall	Wald	1.7	10.8	9.8	12.6	23.1	39.1	50.4			0.0	4.5	12.4	23.2	27.7
	Fan & Zhang	0.0	1.4	1.1	2.1	7.5	15.7	27.1			0.0	0.0	0.0	3.3	6.7
	Pan	5.0	10.3	11.4	13.1	23.8	39.8	51.6			0.0	5.4	11.3	22.9	28.1
Gosho et al.	Wald	1.7	1.9	4.4	5.5	17.3	30.8	44.6			0.0	0.9	7.7	14.6	21.0
	Fan & Zhang	0.0	0.0	0.0	0.6	4.0	10.8	21.3			0.0	0.0	0.0	0.8	3.2
	Pan	1.7	8.1	7.1	10.3	21.4	37.1	49.5			0.0	5.4	10.3	20.4	25.4
Wang & Long	Wald	1.6	8.1	6.7	8.9	20.4	35.2	47.9			0.0	2.7	9.8	20.4	25.3
	Fan & Zhang	0.0	0.0	0.6	1.1	5.7	12.9	24.5			0.0	0.0	0.0	2.3	5.3
	Pan	3.3	9.5	9.6	11.7	22.7	38.8	50.5			0.0	5.4	10.3	21.9	26.9



9. 6. 2. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) ar1-structure assumed

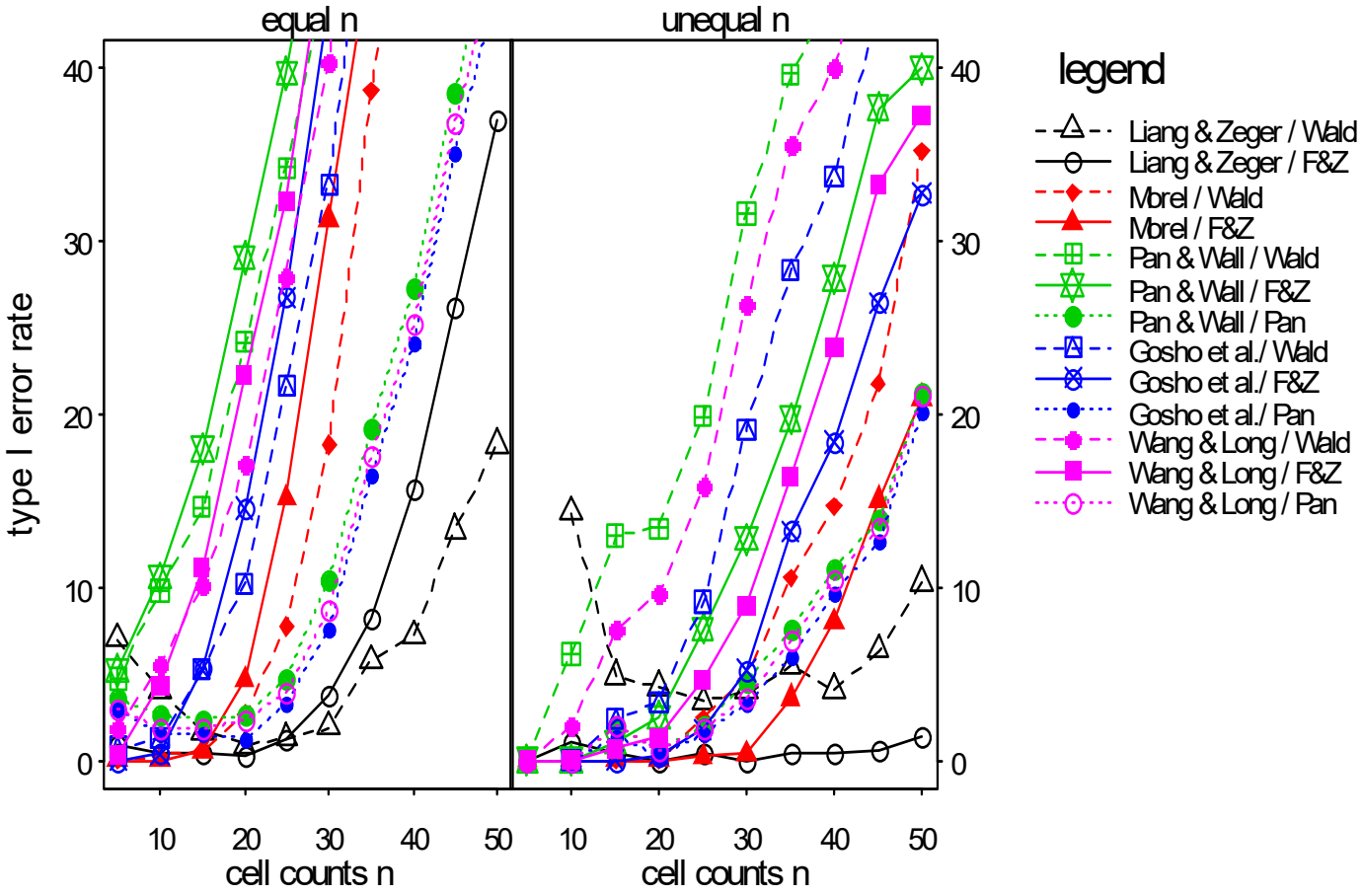
9. 6. 2. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	6.3	1.8	2.4	6.4	24.9	50.7	68.9	0.0	8.5	5.1	6.8	12.5	23.4	39.2
	Fan & Zhang	0.3	0.5	3.2	11.4	33.5	52.9	72.5	1.9	0.1	0.8	3.3	6.6	12.8	21.2
Morel et al.	Wald	0.0	0.2	3.8	20.6	63.4	85.7	95.4	0.0	0.3	0.4	2.7	17.3	45.3	69.2
	Fan & Zhang	0.0	1.3	8.9	28.5	65.0	86.2	94.6	0.0	0.0	0.4	4.7	19.3	37.8	56.8
Pan & Wall	Wald	12.1	25.0	41.0	55.5	80.1	91.5	96.9	7.7	17.7	27.2	41.0	60.4	77.1	86.3
	Fan & Zhang	8.8	27.5	41.1	57.1	79.4	90.8	96.3	1.9	12.3	22.3	31.2	41.8	59.0	69.1
	Pan	4.3	4.0	8.8	19.2	48.0	70.6	85.1	0.0	2.4	3.4	9.4	21.7	40.0	57.6
Gosho et al.	Wald	0.1	5.1	20.2	40.3	72.7	89.2	96.0		0.9	7.3	21.3	46.5	70.1	82.6
	Fan & Zhang	0.0	5.4	23.9	42.6	73.5	88.2	95.3		0.3	6.2	15.9	31.2	50.7	63.5
	Pan	1.4	1.4	6.2	16.3	44.4	67.9	83.3		0.6	1.6	6.1	18.2	36.0	55.7
Wang & Long	Wald	4.9	13.5	31.5	48.6	77.0	90.8	96.1	1.9	8.7	18.6	33.5	55.5	74.4	84.8
	Fan & Zhang	0.6	17.3	33.5	50.6	76.7	89.3	95.7	0.0	5.3	15.7	25.3	36.9	55.9	67.4
	Pan	3.5	2.5	7.7	17.9	46.0	69.4	84.4	0.0	1.6	2.6	7.9	20.3	38.5	56.9



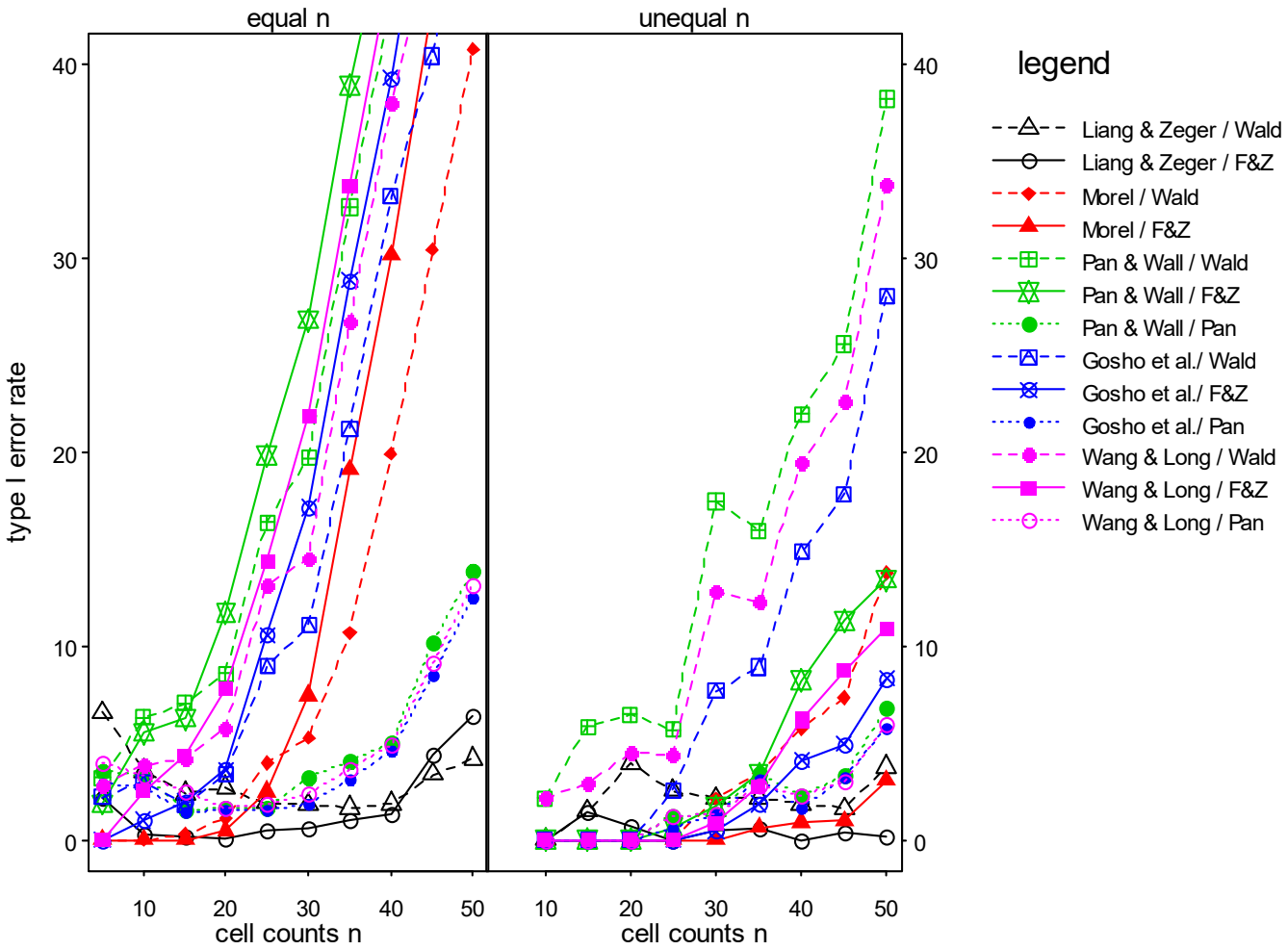
9. 6. 2. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	7.0	4.1	1.7	0.8	1.9	7.2	18.2		14.3	4.9	4.2	4.0	4.1	10.3
	Fan & Zhang	0.9	0.4	0.5	0.3	3.7	15.7	37.0		1.0	0.3	0.0	0.0	0.4	1.4
Morel et al.	Wald	0.0	0.2	0.6	2.7	18.2	54.1	80.4		0.0	0.0	0.0	4.7	14.7	35.1
	Fan & Zhang	0.0	0.0	0.6	4.6	31.2	63.1	83.2		0.0	0.0	0.0	0.3	8.0	20.9
Pan & Wall	Wald	4.7	9.8	14.6	24.1	45.7	74.0	88.8		6.1	13.0	13.4	31.6	44.3	64.6
	Fan & Zhang	5.2	10.6	17.9	29.0	53.4	76.3	88.3		0.0	1.0	2.5	12.8	27.8	39.9
	Pan	3.6	2.7	2.3	2.6	10.4	27.2	48.2		0.0	2.0	0.5	4.5	11.0	21.3
Gosho et al.	Wald	0.7	1.2	5.2	10.2	33.2	65.1	83.9		0.0	2.4	3.4	19.1	33.7	55.8
	Fan & Zhang	0.0	0.4	5.3	14.6	43.8	69.3	84.6		0.0	0.0	0.3	5.2	18.3	32.7
	Pan	3.0	1.5	1.6	1.2	7.5	24.0	44.8		0.0	1.4	0.3	3.3	9.7	20.1
Wang & Long	Wald	1.9	5.5	10.1	17.0	40.2	70.3	85.7		2.0	7.5	9.6	26.4	40.0	61.0
	Fan & Zhang	0.3	4.3	11.1	22.3	48.8	73.1	86.8		0.0	0.7	1.3	9.0	23.9	37.2
	Pan	3.0	1.8	1.8	2.3	8.7	25.2	46.1		0.0	2.0	0.5	3.6	10.4	21.1



9. 6. 2. 3 p = 0.9

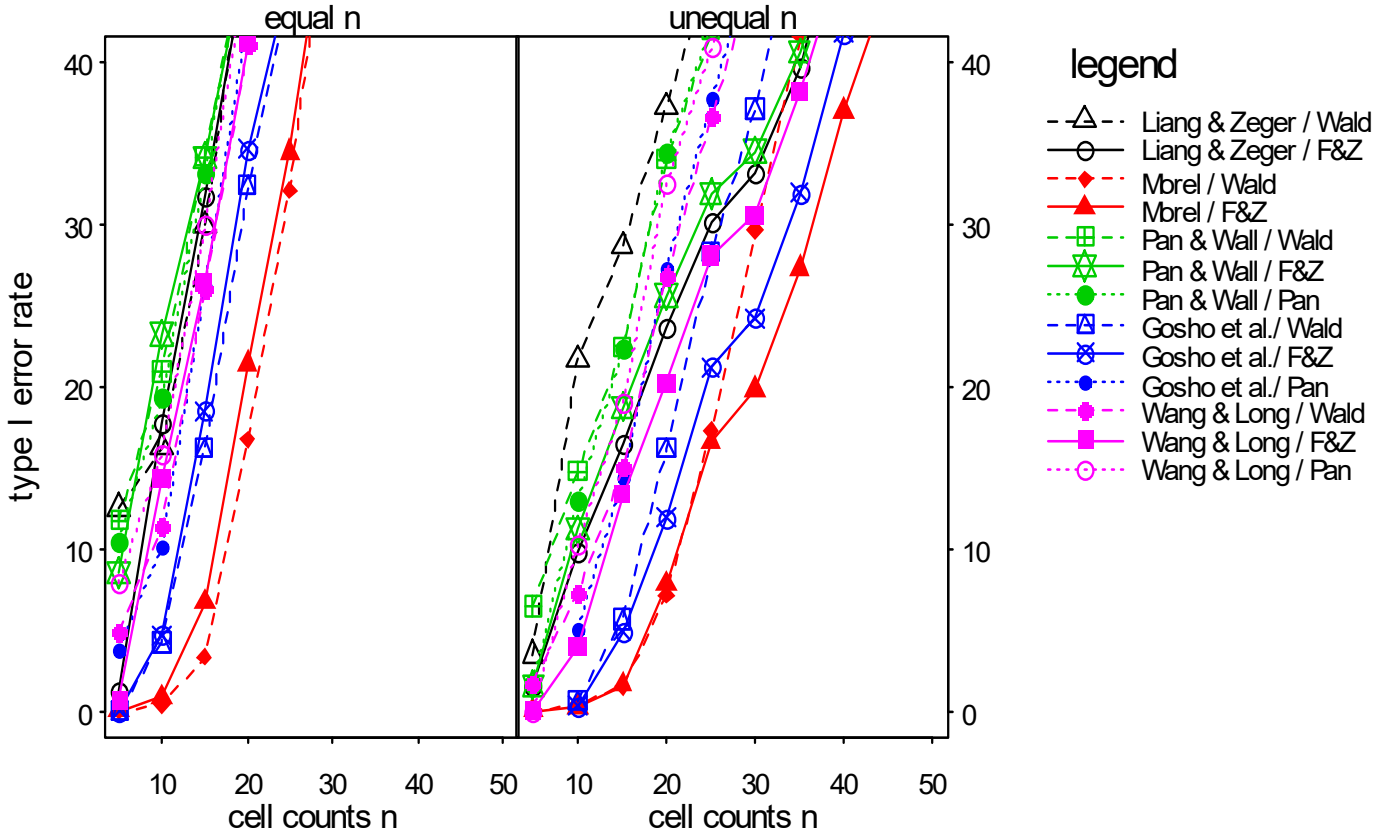
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	6.6	3.5	2.4	2.7	1.8	1.9	4.2			1.5	3.9	2.1	1.8	3.7
	Fan & Zhang	2.2	0.3	0.1	0.1	0.6	1.3	6.4			1.4	0.6	0.4	0.0	0.2
Morel et al.	Wald	0.0	0.0	0.3	1.1	5.2	19.9	40.7			0.0	0.0	2.1	5.7	13.8
	Fan & Zhang	0.0	0.0	0.0	0.5	7.5	30.1	54.2			0.0	0.0	0.0	0.9	3.1
Pan & Wall	Wald	3.2	6.3	7.0	8.5	19.7	43.1	61.1			5.8	6.5	17.4	21.9	38.2
	Fan & Zhang	1.9	5.5	6.3	11.7	26.8	49.1	66.6			0.0	0.0	1.7	8.2	13.4
	Pan	3.5	3.3	1.5	1.7	3.2	5.0	13.9			0.0	0.0	1.3	2.3	6.8
Gosho et al.	Wald	2.2	3.0	1.8	3.4	11.0	33.2	52.7			0.0	0.0	7.7	14.8	28.0
	Fan & Zhang	0.0	1.0	1.9	3.6	17.1	39.3	59.8			0.0	0.0	0.4	4.1	8.3
	Pan	2.9	2.7	1.4	1.5	1.8	4.5	12.5			0.0	0.0	1.3	1.6	5.8
Wang & Long	Wald	2.8	3.9	4.1	5.8	14.5	38.0	57.1			2.9	4.5	12.8	19.4	33.8
	Fan & Zhang	0.0	2.5	4.3	7.8	21.8	45.5	63.0			0.0	0.0	0.9	6.2	10.9
	Pan	3.9	3.3	2.4	1.7	2.3	4.9	13.2			0.0	0.0	1.3	2.3	5.9



9. 6. 3. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) exchangeable-structure assumed

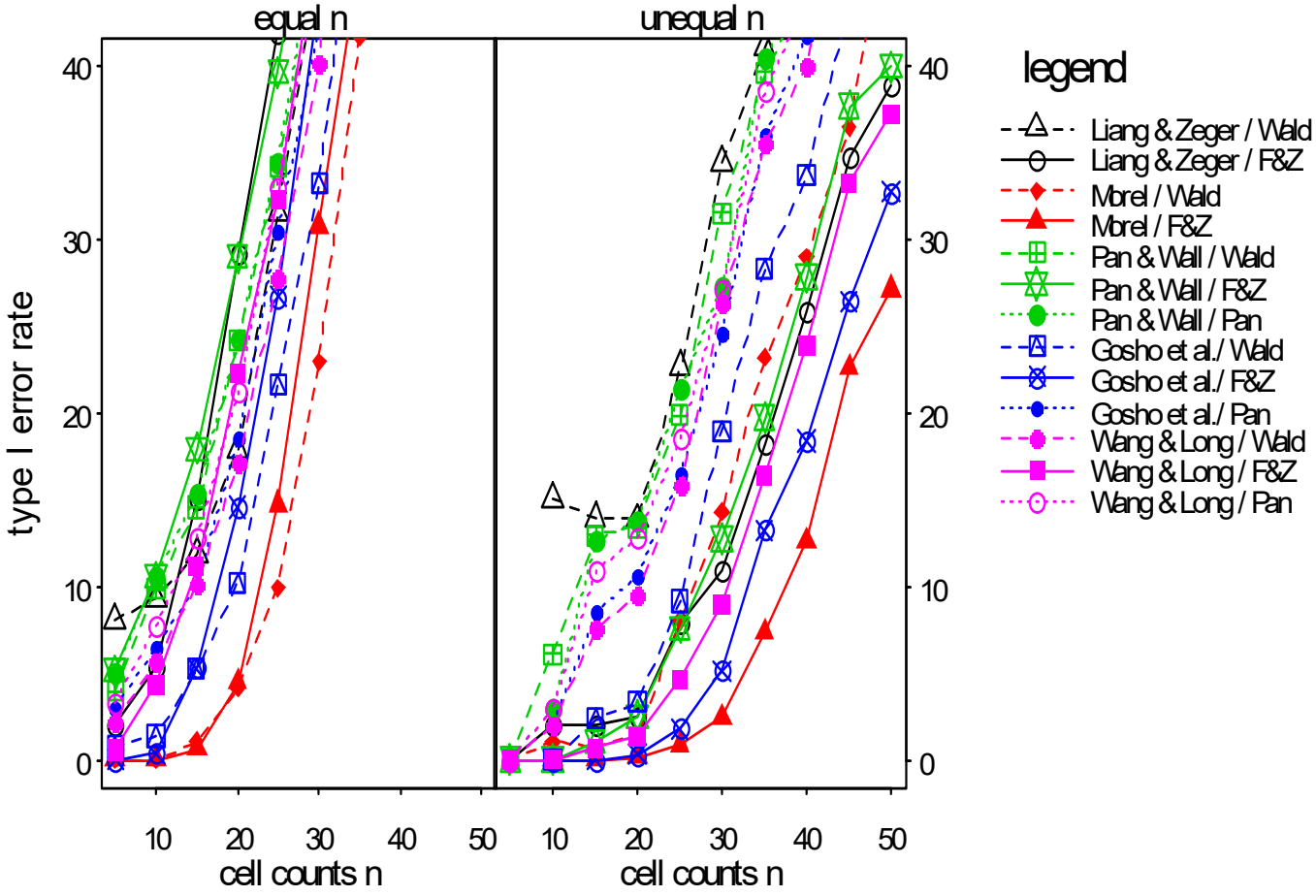
9. 6. 3. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	12.5	16.2	29.9	47.6	72.9	85.9	93.7	3.4	21.6	28.6	37.2	57.1	71.4	80.8
	Fan & Zhang	1.2	17.7	31.7	46.5	71.8	84.3	92.1	1.6	9.8	16.4	23.6	33.1	49.6	59.3
Morel et al.	Wald	0.0	0.4	3.4	16.8	52.6	77.3	88.5	0.0	0.5	1.5	7.1	29.6	53.1	70.7
	Fan & Zhang	0.0	0.8	6.7	21.4	52.4	73.6	87.0	0.0	0.3	1.6	7.8	19.8	37.0	50.2
Pan & Wall	Wald	11.7	20.9	34.1	47.8	70.1	84.4	92.6	6.5	14.8	22.5	34.0	50.7	67.2	78.1
	Fan & Zhang	8.5	23.2	34.1	47.3	69.9	82.9	91.5	1.6	11.2	18.7	25.6	34.5	49.3	58.7
	Pan	10.5	19.3	33.1	48.4	71.4	85.0	93.2	1.6	13.0	22.3	34.4	52.1	68.2	79.2
Gosho et al.	Wald	0.0	4.2	16.3	32.4	61.3	79.2	90.0		0.6	5.7	16.2	37.1	58.7	73.2
	Fan & Zhang	0.0	4.6	18.5	34.6	61.9	79.4	88.7		0.3	4.9	11.9	24.2	41.8	52.3
	Pan	3.8	10.1	26.1	42.9	68.5	83.9	92.9		5.0	14.4	27.3	47.3	64.4	77.1
Wang & Long	Wald	4.8	11.3	26.0	41.0	65.8	81.8	91.4	1.6	7.2	15.1	26.8	45.5	64.1	76.1
	Fan & Zhang	0.7	14.3	26.4	41.1	66.2	81.4	90.1	0.0	4.0	13.3	20.2	30.5	46.7	56.1
	Pan	8.0	15.8	30.0	45.7	69.9	84.5	93.2	0.0	10.2	19.0	32.4	50.4	67.0	78.7



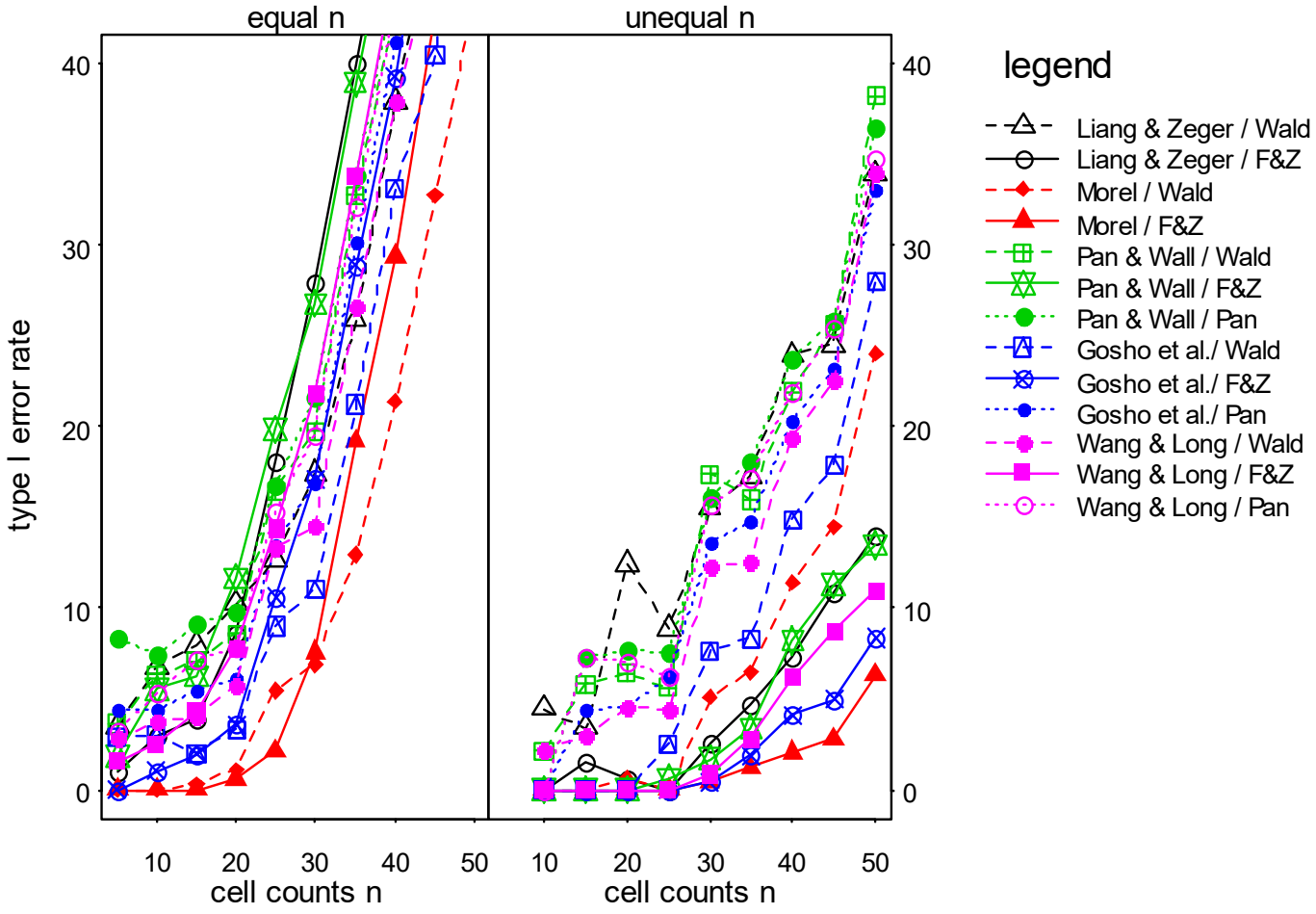
9. 6. 3. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	8.1	9.3	11.8	17.9	46.1	74.4	92.0		15.1	14.0	13.9	34.4	46.3	64.7
	Fan & Zhang	2.0	5.3	15.1	29.2	55.4	78.6	90.9		2.0	2.0	2.5	10.8	25.8	38.8
Morel et al.	Wald	0.0	0.0	1.1	4.1	22.9	56.8	82.3		1.0	0.7	1.3	14.3	29.0	50.1
	Fan & Zhang	0.0	0.0	0.6	4.5	30.8	62.3	82.2		0.0	0.0	0.2	2.4	12.6	27.1
Pan & Wall	Wald	4.0	9.8	14.5	24.1	45.7	74.0	88.8		6.1	12.9	13.4	31.5	44.3	64.6
	Fan & Zhang	5.2	10.6	17.9	29.0	53.4	76.3	88.3		0.0	1.0	2.5	12.7	27.8	39.9
	Pan	5.1	10.6	15.3	24.2	48.3	76.8	91.6		3.0	12.6	13.7	27.2	45.0	65.1
Gosho et al.	Wald	0.7	1.4	5.2	10.2	33.2	65.1	83.9		0.0	2.4	3.4	18.9	33.7	55.8
	Fan & Zhang	0.0	0.4	5.3	14.6	43.8	69.3	84.6		0.0	0.0	0.3	5.2	18.3	32.7
	Pan	2.9	6.4	10.1	18.5	42.1	75.1	90.3		2.0	8.5	10.6	24.6	41.7	62.4
Wang & Long	Wald	2.2	5.7	10.0	17.0	40.2	70.3	85.7		2.0	7.5	9.5	26.3	40.0	61.0
	Fan & Zhang	0.6	4.3	11.1	22.3	48.7	73.1	86.8		0.0	0.7	1.3	9.0	23.9	37.2
	Pan	3.3	7.7	12.8	21.3	45.1	76.0	90.8		3.0	10.9	12.7	27.0	43.8	63.6



9. 6. 3. 3 p = 0.9

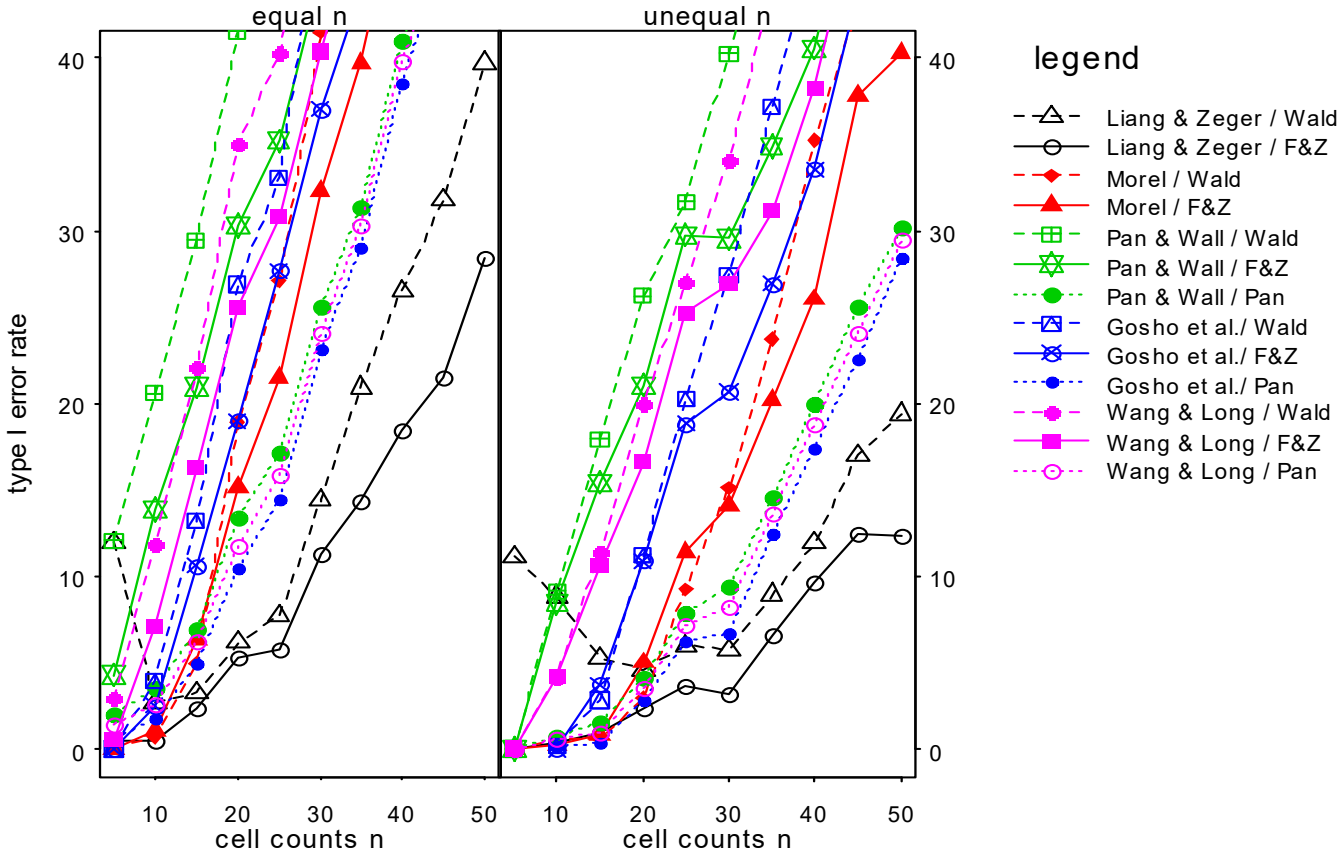
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	3.5	6.7	8.0	10.2	17.4	37.9	60.0		4.4	3.4	12.4	15.5	23.9	33.9
	Fan & Zhang	0.9	3.0	3.9	8.6	27.9	50.4	69.3		0.0	1.4	0.6	2.5	7.3	14.0
Morel et al.	Wald	0.0	0.0	0.3	1.1	6.9	21.4	43.7		0.0	0.0	0.6	5.1	11.4	24.0
	Fan & Zhang	0.0	0.0	0.0	0.6	7.6	29.4	53.5		0.0	0.0	0.0	0.4	2.1	6.3
Pan & Wall	Wald	3.6	6.3	7.1	8.6	19.7	43.1	61.1		2.1	5.8	6.4	17.4	21.9	38.2
	Fan & Zhang	1.9	5.5	6.2	11.7	26.8	49.0	66.7		0.0	0.0	0.0	1.7	8.2	13.5
	Pan	8.3	7.4	9.1	9.8	21.7	44.8	63.3		0.0	7.2	7.7	16.1	23.7	36.5
Gosho et al.	Wald	2.9	3.0	2.0	3.3	11.1	33.1	52.8		0.0	0.0	0.0	7.6	14.8	27.9
	Fan & Zhang	0.0	1.0	1.9	3.6	17.1	39.3	59.9		0.0	0.0	0.0	0.4	4.1	8.3
	Pan	4.4	4.4	5.5	6.1	16.9	41.2	60.0		0.0	4.3	4.5	13.6	20.3	33.0
Wang & Long	Wald	2.8	3.7	4.0	5.7	14.5	37.9	57.2		2.1	2.9	4.5	12.3	19.4	33.9
	Fan & Zhang	1.6	2.5	4.3	7.8	21.8	45.4	63.1		0.0	0.0	0.0	0.8	6.2	10.9
	Pan	3.2	5.3	7.2	7.9	19.4	43.3	61.6		0.0	7.2	7.1	15.7	21.9	34.8



9. 6. 4. equal correlations on B (r=0.3) ar1-structure assumed

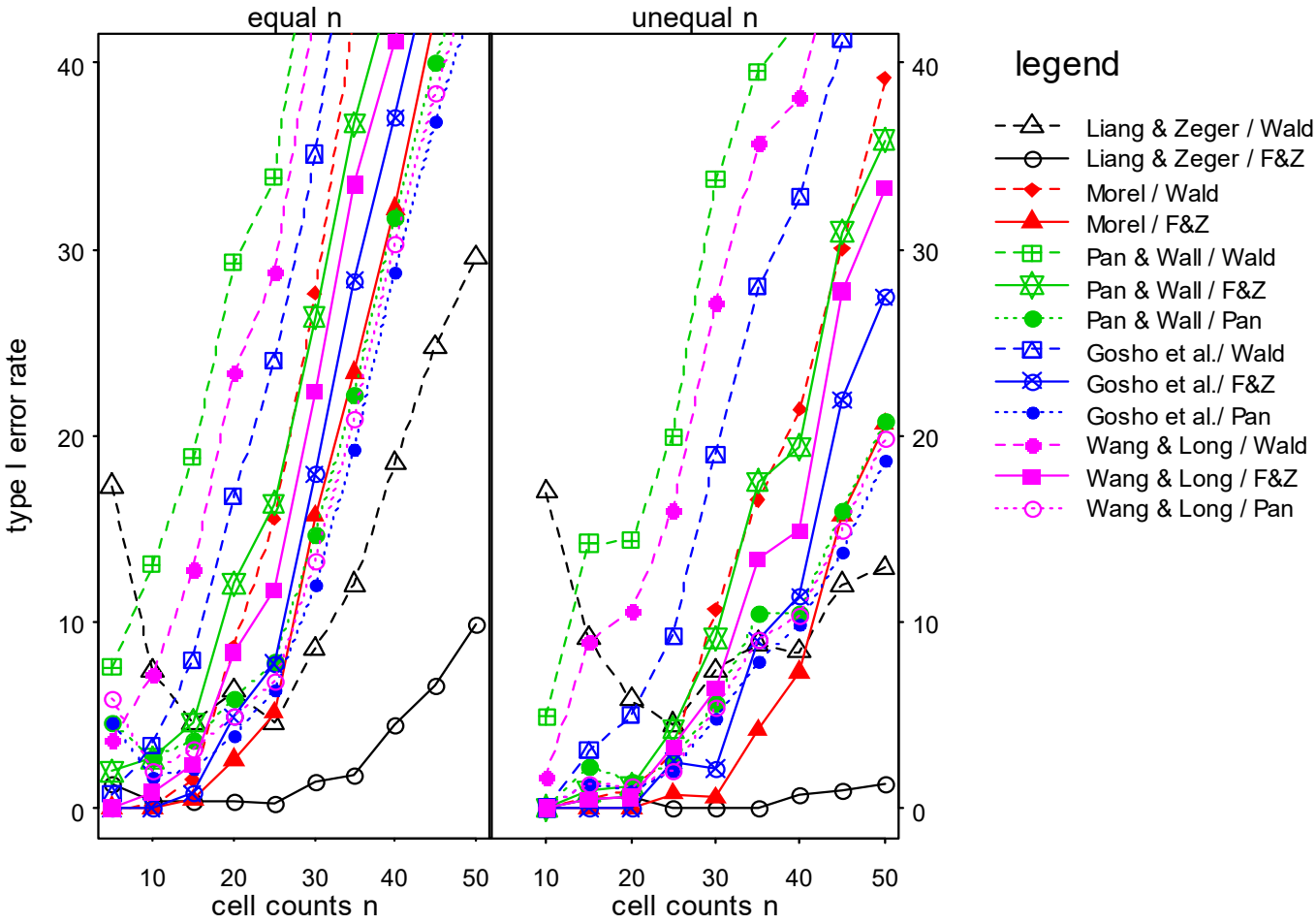
9. 6. 4. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	11.9	2.7	3.3	6.2	14.4	26.5	39.7	11.1	8.8	5.2	4.6	5.7	11.9	19.4
	Fan & Zhang	0.5	0.5	2.4	5.2	11.3	18.4	28.4	0.0	0.3	1.0	2.4	3.2	9.6	12.3
Morel et al.	Wald	0.1	0.7	5.0	18.9	41.5	62.9	78.8	0.0	0.6	0.6	3.0	15.1	35.2	52.3
	Fan & Zhang	0.0	1.1	6.3	15.2	32.3	51.5	65.6	0.0	0.2	0.8	5.0	14.1	26.0	40.3
Pan & Wall	Wald	12.1	20.6	29.4	41.5	57.3	73.7	84.2	0.0	9.1	17.9	26.2	40.2	56.9	69.6
	Fan & Zhang	4.3	13.9	21.0	30.3	44.6	60.1	72.0	0.0	8.5	15.4	21.0	29.5	40.5	51.4
	Pan	2.0	3.5	6.9	13.3	25.6	41.0	55.7	0.0	0.7	1.5	4.2	9.4	20.0	30.2
Gosho et al.	Wald	0.0	4.0	13.2	26.9	48.6	68.0	80.7		0.2	2.8	11.2	27.4	47.0	62.3
	Fan & Zhang	0.0	2.5	10.6	19.0	37.0	55.0	67.2		0.0	3.7	10.9	20.7	33.5	46.2
	Pan	0.6	1.7	4.9	10.4	23.1	38.5	54.1		0.1	0.4	2.8	6.8	17.4	28.4
Wang & Long	Wald	2.9	11.9	22.1	35.0	53.7	71.7	83.3	0.0	4.2	11.3	19.9	34.1	53.8	66.1
	Fan & Zhang	0.5	7.1	16.2	25.6	40.4	57.7	69.7	0.0	4.2	10.6	16.6	26.9	38.2	49.6
	Pan	1.5	2.6	6.3	11.7	24.1	39.8	55.1	0.0	0.6	1.0	3.6	8.3	18.8	29.5



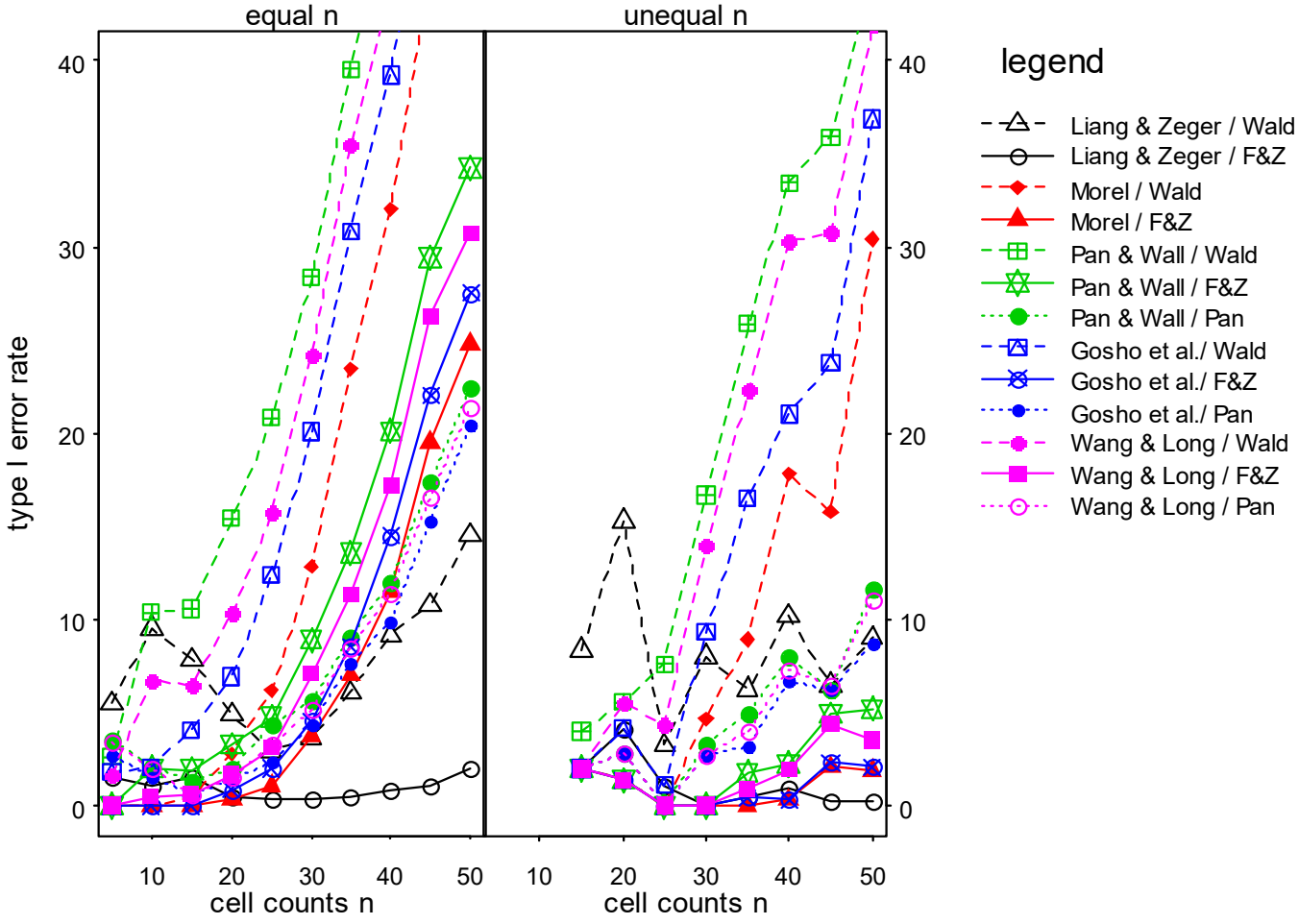
9. 6. 4. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	17.3	7.3	4.6	6.3	8.5	18.5	29.6		16.9	9.1	5.8	7.4	8.4	12.9
	Fan & Zhang	1.3	0.3	0.4	0.4	1.4	4.5	9.9		0.0	0.4	0.6	0.0	0.7	1.3
Morel et al.	Wald	0.0	0.2	1.5	8.7	27.6	56.6	75.5		0.0	0.4	1.0	10.7	21.4	39.2
	Fan & Zhang	0.0	0.0	0.5	2.6	15.7	32.2	48.5		0.0	0.0	0.0	0.6	7.3	20.6
Pan & Wall	Wald	7.6	13.1	18.8	29.3	49.2	69.1	82.8		4.9	14.2	14.4	33.7	42.3	58.5
	Fan & Zhang	1.9	2.7	4.6	12.0	26.3	44.8	60.1		0.0	0.9	1.2	9.1	19.4	35.9
	Pan	4.5	2.7	3.7	5.9	14.7	31.7	46.9		0.0	2.2	1.4	5.6	10.4	20.8
Gosho et al.	Wald	0.8	3.4	7.9	16.8	35.1	61.1	78.7		0.0	3.1	5.0	19.0	32.8	51.4
	Fan & Zhang	0.0	0.0	0.8	4.9	17.9	37.1	54.6		0.0	0.0	0.0	2.1	11.4	27.5
	Pan	4.6	1.7	2.1	3.8	12.0	28.7	44.1		0.0	1.3	1.0	4.8	9.9	18.7
Wang & Long	Wald	3.6	7.2	12.8	23.4	43.1	65.6	81.2		1.6	8.9	10.6	27.1	38.2	55.1
	Fan & Zhang	0.0	0.8	2.3	8.3	22.4	41.1	57.1		0.0	0.4	0.6	6.4	14.9	33.3
	Pan	5.8	2.0	3.2	4.9	13.3	30.3	45.4		0.0	1.3	1.2	5.4	10.3	19.9



9. 6. 4. 3 p = 0.9

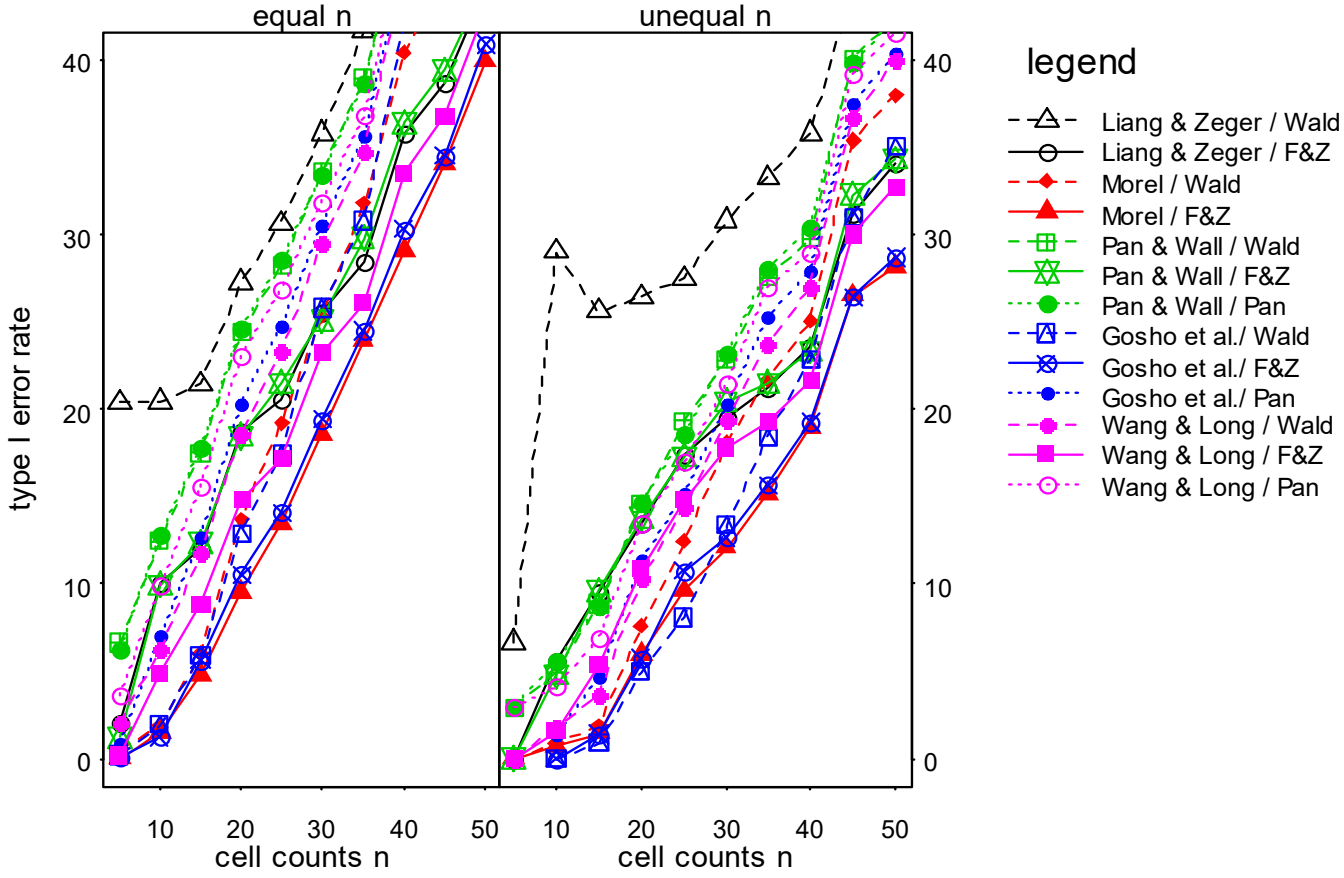
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	5.5	9.5	7.8	4.9	3.6	9.1	14.5			8.3	15.3	8.0	10.2	9.0
	Fan & Zhang	1.6	1.0	1.5	0.5	0.3	0.9	2.0			2.0	4.2	0.0	1.0	0.2
Morel et al.	Wald	0.0	0.0	0.4	2.8	12.8	32.0	50.2			2.0	1.4	4.7	17.8	30.4
	Fan & Zhang	0.0	0.0	0.0	0.4	3.8	11.4	24.8			2.0	1.4	0.0	0.3	1.9
Pan & Wall	Wald	2.6	10.4	10.6	15.4	28.4	48.6	61.7			4.0	5.6	16.7	33.4	44.8
	Fan & Zhang	0.0	2.0	1.9	3.3	8.9	20.1	34.3			2.0	1.4	0.0	2.2	5.2
	Pan	3.5	2.1	1.3	2.0	5.6	11.9	22.5			2.0	2.8	3.3	8.0	11.7
Gosho et al.	Wald	1.8	2.1	4.1	6.9	20.1	39.2	56.5			2.0	4.2	9.3	21.0	36.9
	Fan & Zhang	0.0	0.0	0.0	0.9	4.5	14.5	27.5			2.0	1.4	0.0	0.3	2.1
	Pan	2.7	1.6	0.6	1.4	4.4	9.9	20.5			2.0	2.8	2.7	6.7	8.8
Wang & Long	Wald	1.7	6.7	6.5	10.4	24.2	43.6	59.5			2.0	5.6	14.0	30.3	41.9
	Fan & Zhang	0.0	0.5	0.6	1.6	7.1	17.2	30.7			2.0	1.4	0.0	1.9	3.5
	Pan	3.4	2.1	0.6	1.5	5.1	11.4	21.4			2.0	2.8	2.7	7.3	11.0



9. 6. 5. equal correlations on B (r=0)

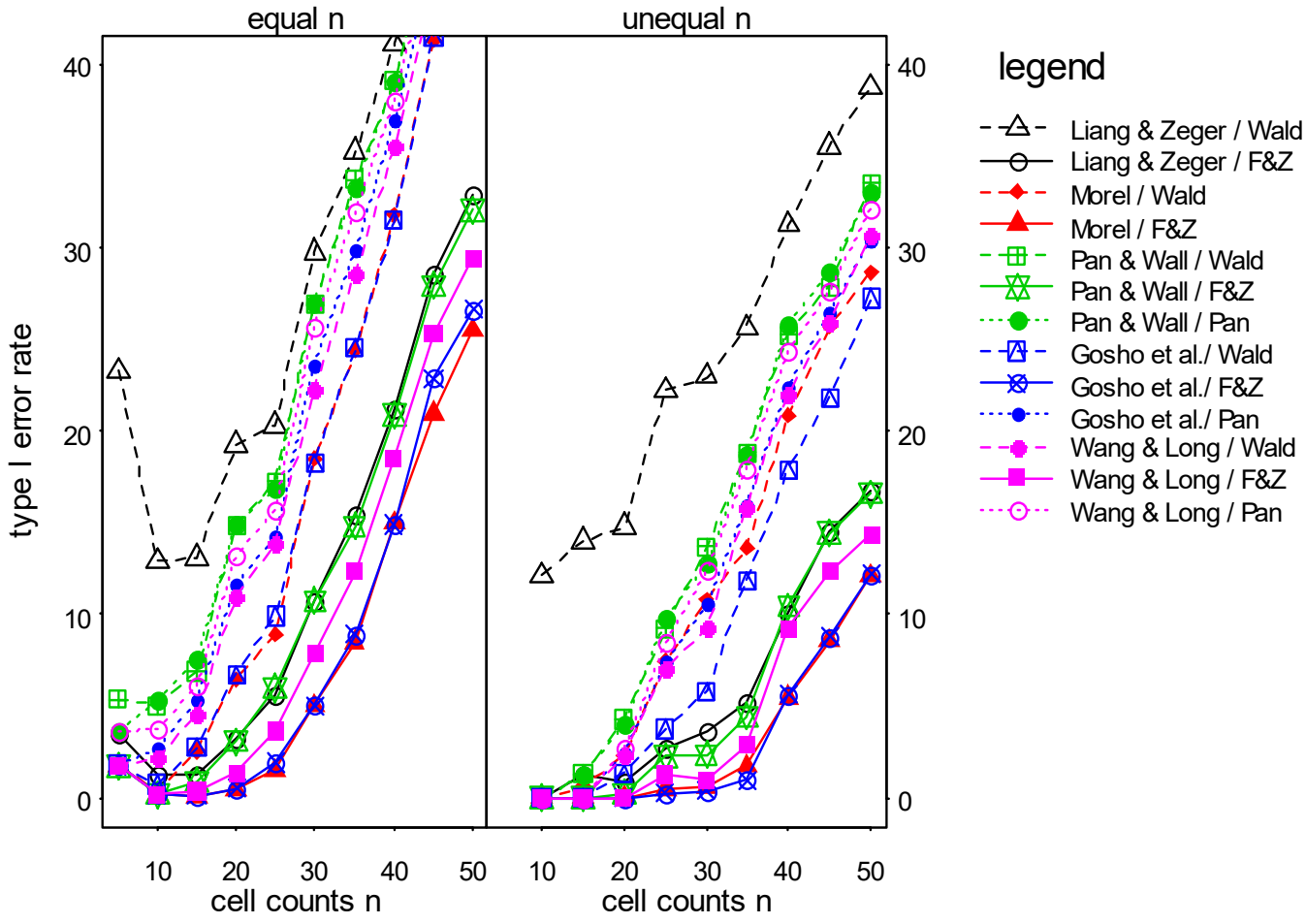
9. 6. 5. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	20.4	20.4	21.4	27.2	35.8	49.5	58.5	6.7	29.0	25.6	26.4	30.8	35.8	46.4
	Fan & Zhang	2.0	10.0	12.0	18.7	25.6	35.8	44.1	0.0	5.5	9.5	13.5	19.5	23.5	34.1
Morel et al.	Wald	0.5	1.9	6.0	13.7	25.3	40.4	53.2	0.0	0.9	1.9	7.6	18.1	25.1	38.0
	Fan & Zhang	0.0	1.5	4.8	9.6	18.6	29.1	39.9	0.0	0.7	1.4	6.0	12.1	18.9	28.2
Pan & Wall	Wald	6.6	12.4	17.5	24.4	33.6	48.7	57.2	2.9	4.9	8.9	14.5	22.8	29.8	42.3
	Fan & Zhang	1.2	9.9	12.3	18.4	25.1	36.4	44.6	0.0	4.8	9.6	13.8	20.4	23.3	34.3
	Pan	6.2	12.7	17.8	24.6	33.4	48.5	57.4	2.9	5.5	8.7	14.6	23.2	30.4	42.4
Gosho et al.	Wald	0.2	1.9	5.9	12.9	25.8	42.2	52.9		0.0	0.9	5.0	13.4	22.8	35.1
	Fan & Zhang	0.1	1.2	5.6	10.6	19.4	30.3	40.9		0.0	1.4	5.7	12.7	19.2	28.7
	Pan	0.9	7.1	12.7	20.4	30.5	45.9	55.7		1.3	4.7	11.4	20.3	27.9	40.4
Wang & Long	Wald	2.0	6.2	11.7	18.6	29.5	45.1	54.9	0.0	1.8	3.6	10.4	19.3	27.0	40.0
	Fan & Zhang	0.2	4.9	8.8	14.8	23.2	33.5	42.9	0.0	1.5	5.3	10.9	17.8	21.6	32.7
	Pan	3.6	9.9	15.6	23.1	31.9	47.2	56.5	2.9	4.1	6.9	13.5	21.5	29.0	41.5



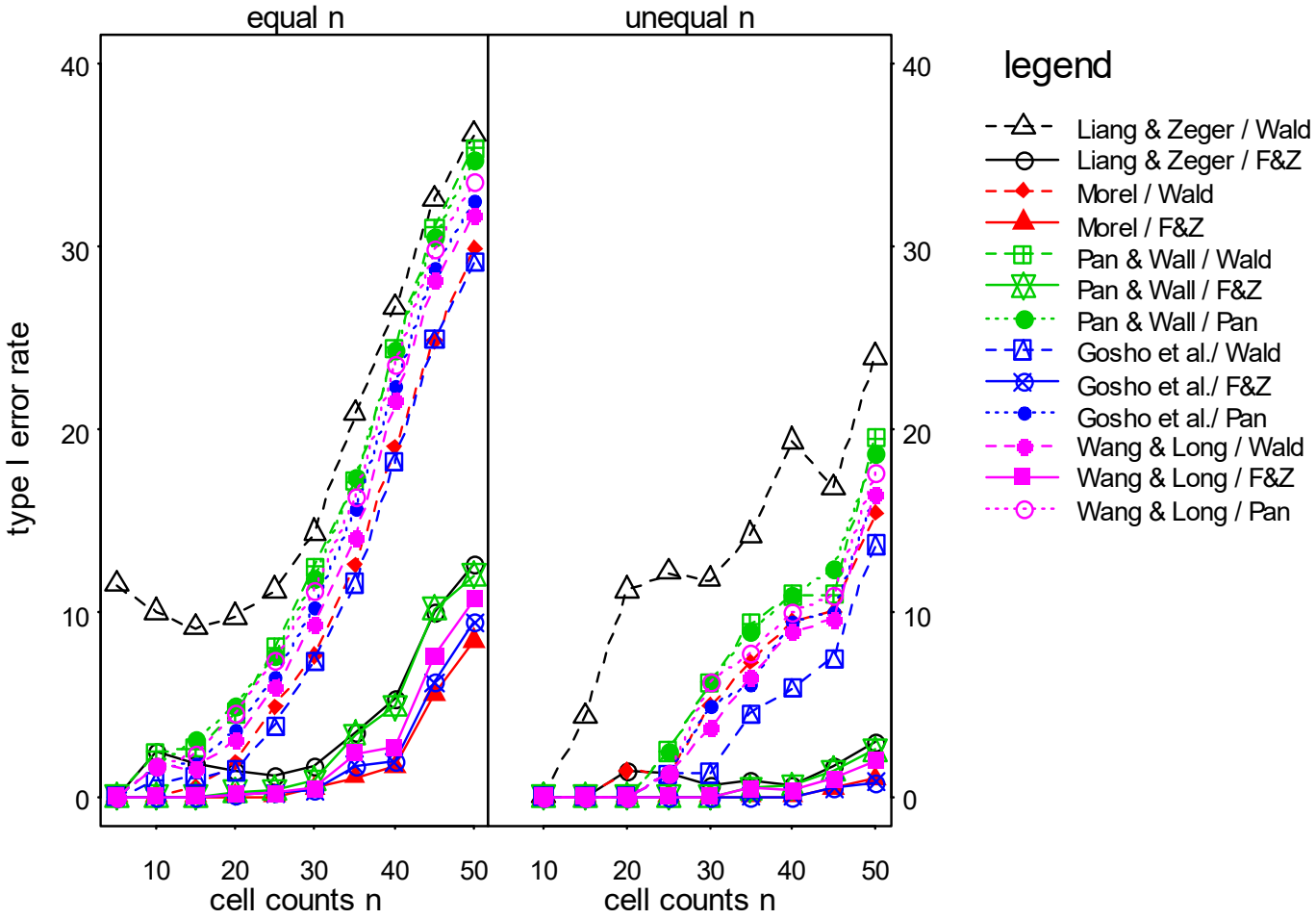
9. 6. 5. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	23.3	12.9	13.1	19.3	29.8	41.1	54.9		12.1	14.0	14.8	23.0	31.2	38.7
	Fan & Zhang	3.4	1.3	1.3	3.3	10.7	21.2	32.9		0.0	1.3	0.9	3.7	10.0	16.7
Morel et al.	Wald	1.7	0.4	2.6	6.4	18.5	31.8	47.8		0.0	0.6	2.3	10.8	20.8	28.7
	Fan & Zhang	1.7	0.2	0.1	0.4	5.0	15.0	25.5		0.0	0.0	0.0	0.6	5.5	12.1
Pan & Wall	Wald	5.4	5.0	6.9	14.8	26.9	39.1	53.8		0.0	1.3	4.3	13.7	25.2	33.5
	Fan & Zhang	1.7	0.2	0.9	3.1	10.7	20.9	32.1		0.0	0.0	0.2	2.3	10.4	16.6
	Pan	3.6	5.4	7.5	14.9	27.0	39.0	53.4		0.0	1.3	4.1	12.7	25.8	33.1
Gosho et al.	Wald	1.8	0.7	2.7	6.7	18.3	31.5	47.1		0.0	0.0	1.4	5.8	17.9	27.3
	Fan & Zhang	1.7	0.2	0.1	0.5	5.0	14.9	26.6		0.0	0.0	0.0	0.4	5.6	12.2
	Pan	1.8	2.7	5.3	11.7	23.6	37.0	51.7		0.0	0.0	2.5	10.6	22.4	30.5
Wang & Long	Wald	1.8	2.2	4.5	10.9	22.3	35.5	51.0		0.0	0.0	2.3	9.3	22.0	30.7
	Fan & Zhang	1.7	0.2	0.3	1.3	7.9	18.5	29.4		0.0	0.0	0.0	1.0	9.2	14.3
	Pan	3.6	3.8	6.1	13.2	25.7	38.0	52.4		0.0	0.0	2.7	12.4	24.3	32.1



9. 6. 5. 3 p = 0.9

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	11.5	10.1	9.2	9.8	14.4	26.7	36.1		0.0	4.3	11.3	11.8	19.4	24.0
	Fan & Zhang	0.0	2.4	1.8	1.4	1.6	5.4	12.6		0.0	0.0	1.4	0.6	0.6	2.9
Morel et al.	Wald	0.0	0.0	0.5	1.9	7.7	19.1	29.9		0.0	0.0	1.4	5.0	9.6	15.5
	Fan & Zhang	0.0	0.0	0.0	0.0	0.4	1.6	8.5		0.0	0.0	0.0	0.0	0.0	1.0
Pan & Wall	Wald	0.0	2.4	2.6	4.5	12.5	24.4	35.3		0.0	0.0	0.0	6.2	11.0	19.5
	Fan & Zhang	0.0	0.0	0.0	0.3	0.9	4.9	12.1		0.0	0.0	0.0	0.0	0.6	2.5
	Pan	0.0	1.6	3.1	4.9	11.9	24.3	34.7		0.0	0.0	0.0	6.2	11.0	18.8
Gosho et al.	Wald	0.0	0.8	1.0	1.4	7.4	18.3	29.1		0.0	0.0	0.0	1.2	5.9	13.7
	Fan & Zhang	0.0	0.0	0.0	0.1	0.3	1.9	9.5		0.0	0.0	0.0	0.0	0.0	0.8
	Pan	0.0	1.6	1.8	3.7	10.3	22.4	32.5		0.0	0.0	0.0	5.0	9.6	16.4
Wang & Long	Wald	0.0	1.6	1.6	3.2	9.4	21.5	31.7		0.0	0.0	0.0	3.7	9.0	16.4
	Fan & Zhang	0.0	0.0	0.0	0.1	0.4	2.7	10.8		0.0	0.0	0.0	0.0	0.3	1.9
	Pan	0.0	1.6	2.3	4.5	11.2	23.5	33.6		0.0	0.0	0.0	6.2	10.1	17.6

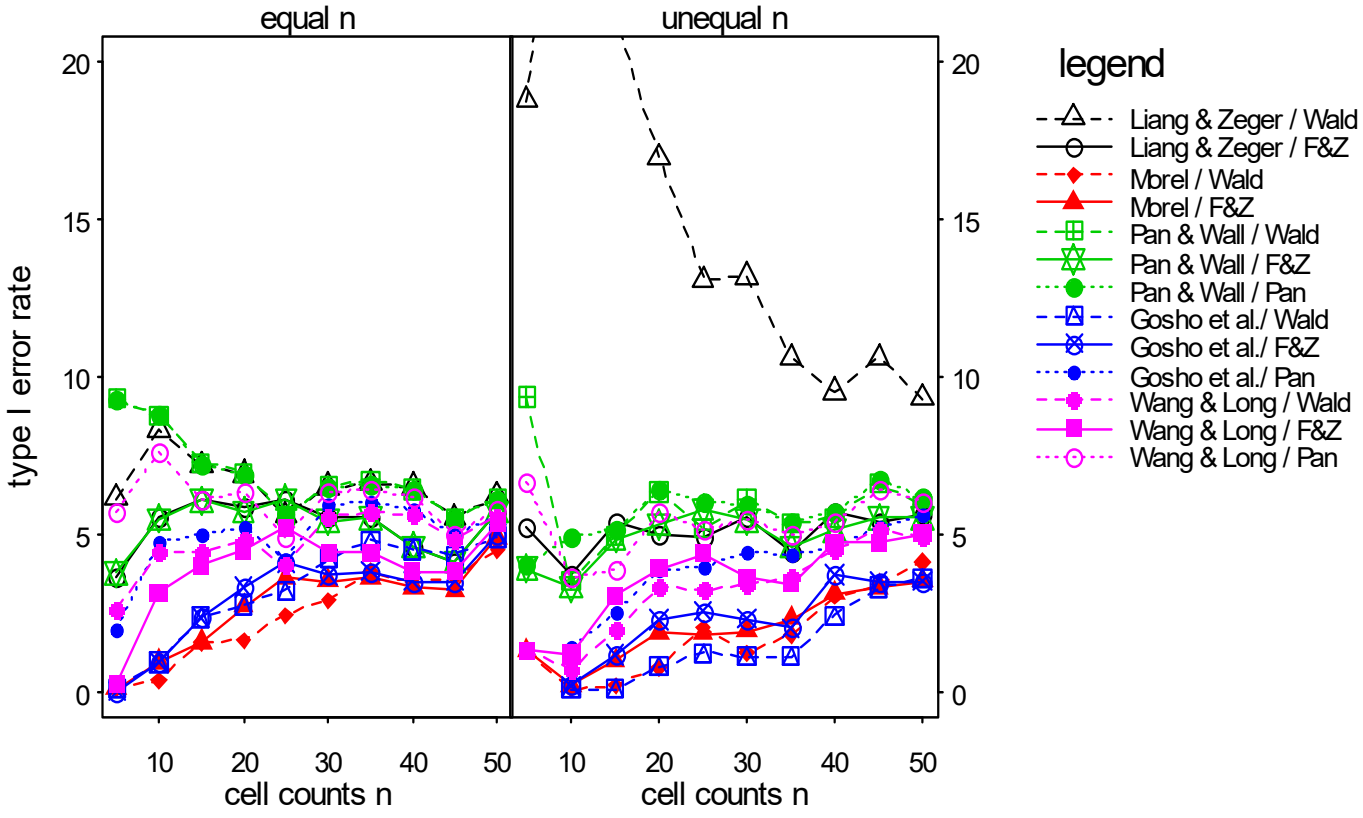


9. 7. Interaction effect AB - null model

9. 7. 1. equal correlations on B (r=0.3)

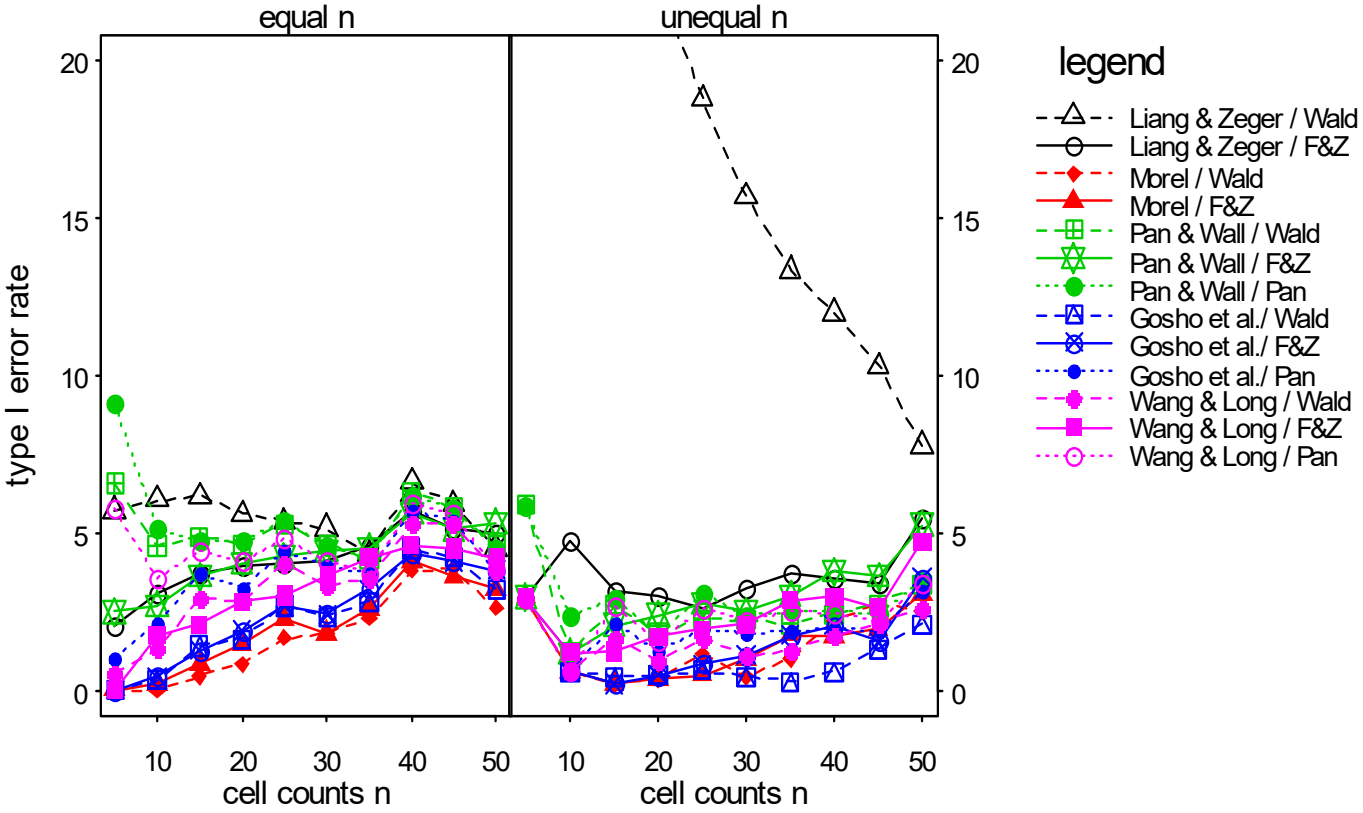
9. 7. 1. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	6.1	8.3	7.2	6.9	6.5	6.5	6.2	18.8	32.5	21.3	17.0	13.2	9.5	9.3
	Fan & Zhang	3.6	5.5	6.1	5.8	5.5	4.6	5.7	5.2	3.7	5.4	5.0	5.5	5.7	5.6
Morel et al.	Wald	0.1	0.4	1.6	1.6	2.9	3.5	4.5	1.3	0.1	0.2	0.7	1.2	3.0	4.1
	Fan & Zhang	0.1	0.9	1.6	2.7	3.5	3.3	4.9	1.3	0.2	1.0	1.9	1.9	3.1	3.5
Pan & Wall	Wald	9.3	8.7	7.3	7.0	6.5	6.4	6.1	9.3	3.5	5.0	6.3	6.1	5.5	5.9
	Fan & Zhang	3.8	5.5	6.1	5.7	5.4	4.6	5.7	3.9	3.3	4.8	5.3	5.4	5.1	5.5
	Pan	9.3	8.7	7.2	6.9	6.5	6.4	6.1	4.0	4.9	5.1	6.4	5.9	5.7	6.2
Gosho et al.	Wald	0.1	0.9	2.4	2.8	4.2	4.5	4.9		0.1	0.1	0.8	1.1	2.4	3.6
	Fan & Zhang	0.0	0.9	2.4	3.3	3.7	3.5	5.0		0.2	1.2	2.3	2.3	3.7	3.5
	Pan	1.9	4.7	5.0	5.2	5.9	5.8	5.5		1.4	2.5	3.9	4.4	4.6	5.6
Wang & Long	Wald	2.6	4.4	4.5	4.8	5.5	5.6	5.5	1.3	0.7	2.0	3.3	3.4	4.5	4.9
	Fan & Zhang	0.2	3.1	4.0	4.5	4.4	3.8	5.3	1.3	1.2	3.0	3.9	3.6	4.7	5.0
	Pan	5.7	7.6	6.1	6.3	6.3	6.2	5.8	6.7	3.7	3.8	5.7	5.4	5.4	6.0



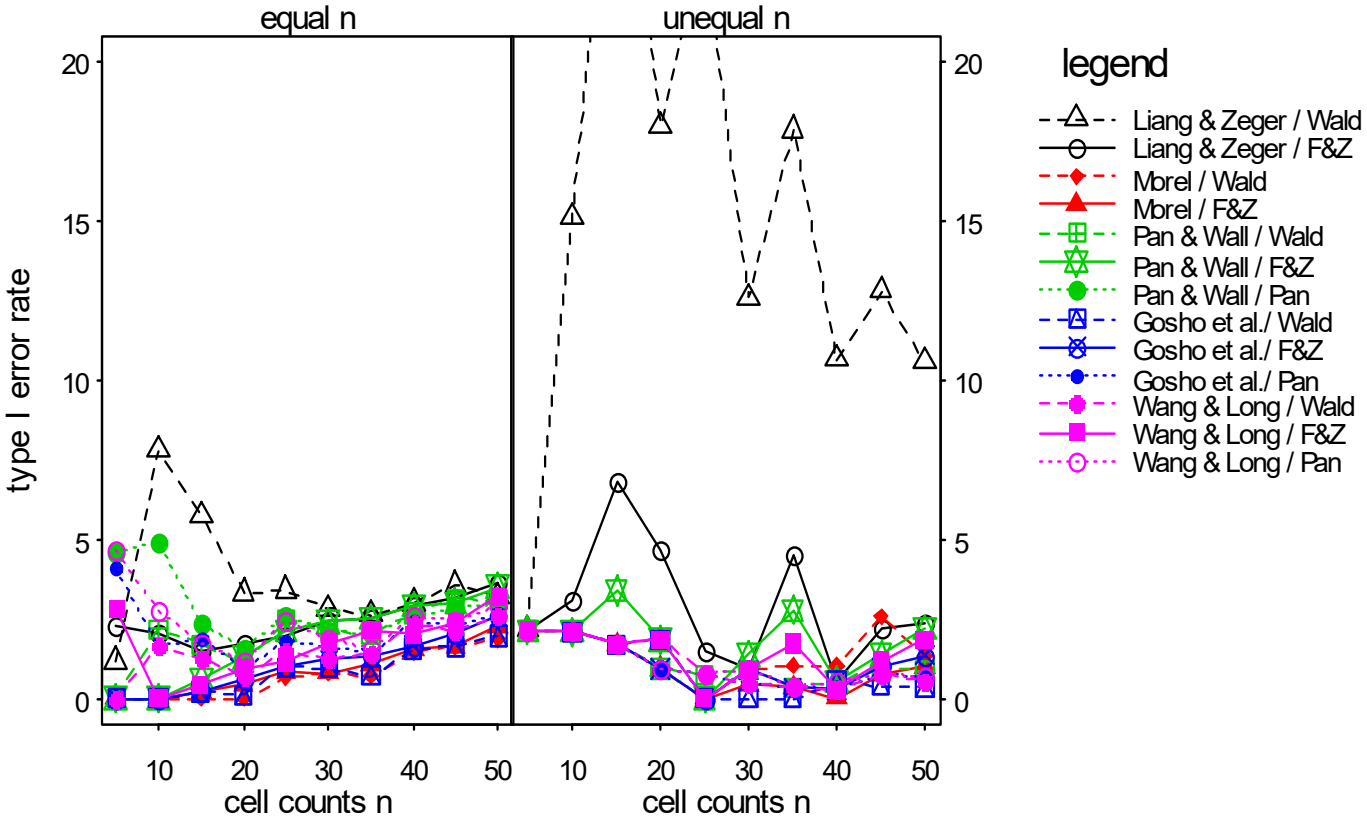
9. 7. 1. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	5.7	6.0	6.2	5.6	5.1	6.6	4.5	0.1	43.1	28.5	22.6	15.7	12.0	7.8
	Fan & Zhang	2.1	3.1	3.7	4.0	4.1	5.7	5.0	2.9	4.7	3.1	3.0	3.2	3.5	5.5
Morel et al.	Wald	0.0	0.0	0.4	0.8	1.8	3.8	2.6	2.9	0.6	0.2	0.3	0.4	2.2	2.5
	Fan & Zhang	0.0	0.2	0.8	1.5	1.8	4.1	3.2	2.9	0.6	0.2	0.3	1.0	1.7	3.0
Pan & Wall	Wald	6.6	4.6	4.9	4.6	4.6	6.3	4.6	5.9	1.2	2.7	1.8	2.2	2.4	3.4
	Fan & Zhang	2.5	2.7	3.6	4.0	4.4	5.6	5.3	2.9	1.2	2.1	2.4	2.5	3.8	5.2
	Pan	9.1	5.1	4.7	4.7	4.5	6.2	4.5	5.9	2.4	2.9	1.7	2.4	2.5	3.5
Gosho et al.	Wald	0.0	0.3	1.4	1.6	2.3	4.5	3.2		0.6	0.4	0.5	0.4	0.6	2.1
	Fan & Zhang	0.0	0.4	1.3	1.9	2.4	4.3	3.8		0.6	0.2	0.5	1.1	2.1	3.6
	Pan	1.0	2.1	3.7	3.2	3.9	5.7	3.8		0.6	2.1	1.3	1.8	1.9	3.1
Wang & Long	Wald	0.5	1.4	2.9	2.8	3.3	5.3	3.8	2.9	0.6	1.7	0.9	1.1	1.7	2.6
	Fan & Zhang	0.0	1.7	2.1	2.8	3.6	4.6	4.2	2.9	1.2	1.2	1.7	2.1	3.0	4.7
	Pan	5.8	3.5	4.4	4.1	4.1	5.9	3.9	2.9	0.6	2.7	1.6	2.2	2.4	3.4



9. 7. 1. 3 p = 0.9

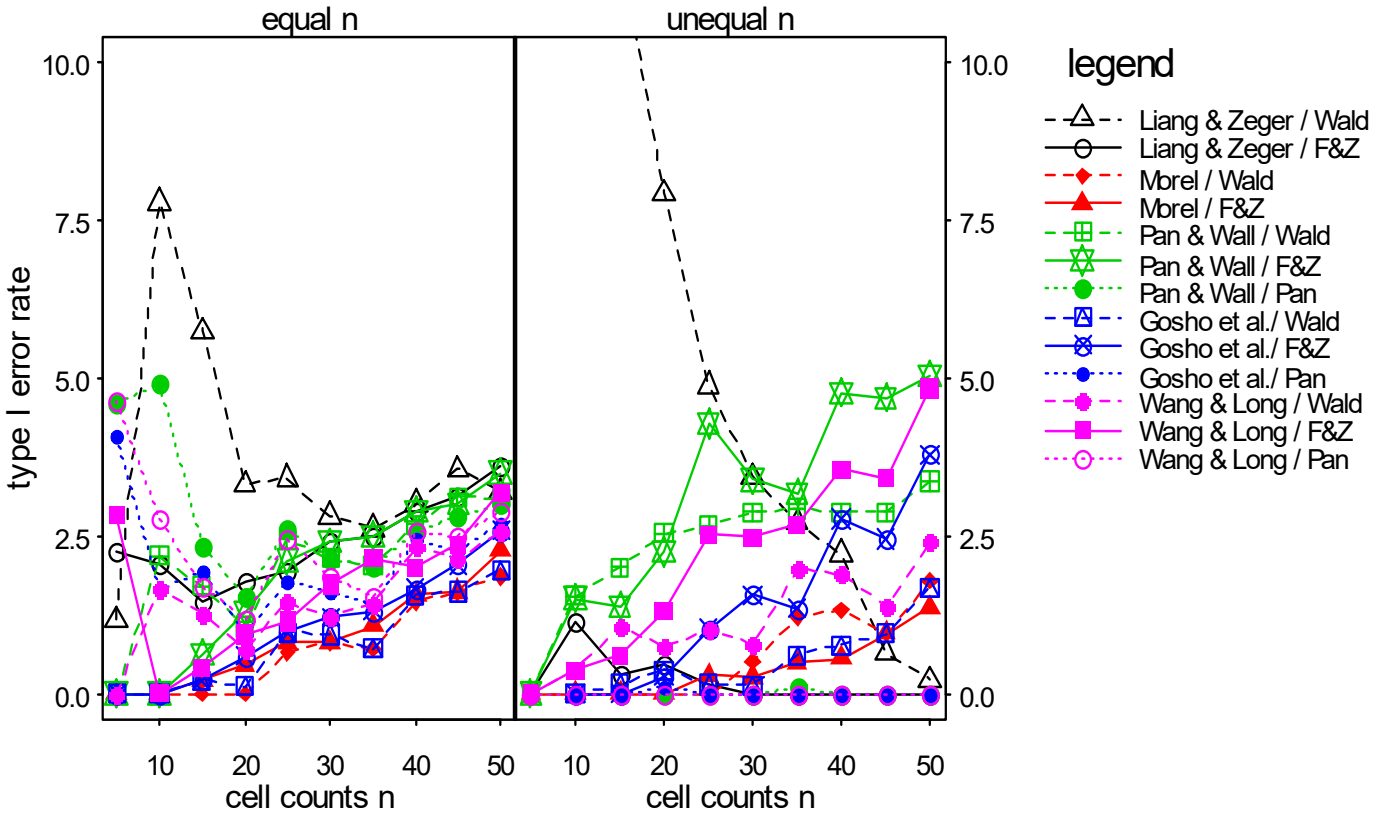
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	1.2	7.8	5.7	3.3	2.8	3.0	3.2	2.2	15.1	29.4	18.0	12.6	10.6	10.6
	Fan & Zhang	2.2	2.1	1.5	1.8	2.4	2.9	3.6	2.1	3.1	6.8	4.6	0.9	0.5	2.3
Morel et al.	Wald	0.0	0.0	0.0	0.0	0.8	1.4	1.9	2.1	2.1	1.7	0.9	0.9	1.0	1.3
	Fan & Zhang	0.0	0.0	0.2	0.5	0.8	1.6	2.3	2.1	2.1	1.7	0.9	0.5	0.0	1.0
Pan & Wall	Wald	0.0	2.2	1.7	1.1	2.1	2.7	3.1	2.1	2.1	1.7	0.9	0.9	0.5	0.8
	Fan & Zhang	0.0	0.0	0.6	1.3	2.4	2.9	3.5	2.1	2.1	3.4	1.9	1.4	0.5	2.2
	Pan	4.6	4.9	2.3	1.5	2.1	2.6	3.0	2.1	2.1	1.7	0.9	0.9	0.5	0.7
Gosho et al.	Wald	0.0	0.0	0.2	0.1	0.9	1.6	2.0		2.1	1.7	1.9	0.0	0.5	0.3
	Fan & Zhang	0.0	0.0	0.2	0.6	1.2	1.7	2.6		2.1	1.7	0.9	0.9	0.3	1.3
	Pan	4.1	1.6	1.9	0.9	1.6	2.4	2.7		2.1	1.7	0.9	0.5	0.3	0.7
Wang & Long	Wald	0.0	1.7	1.3	0.7	1.2	2.3	2.6	2.1	2.1	1.7	1.9	0.5	0.3	0.5
	Fan & Zhang	2.8	0.0	0.4	0.9	1.7	2.0	3.2	2.1	2.1	1.7	1.9	0.9	0.3	1.8
	Pan	4.6	2.8	1.7	1.2	1.9	2.6	2.9	2.1	2.1	1.7	0.9	0.9	0.5	0.7



9. 7. 2. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) ar1 structure assumed

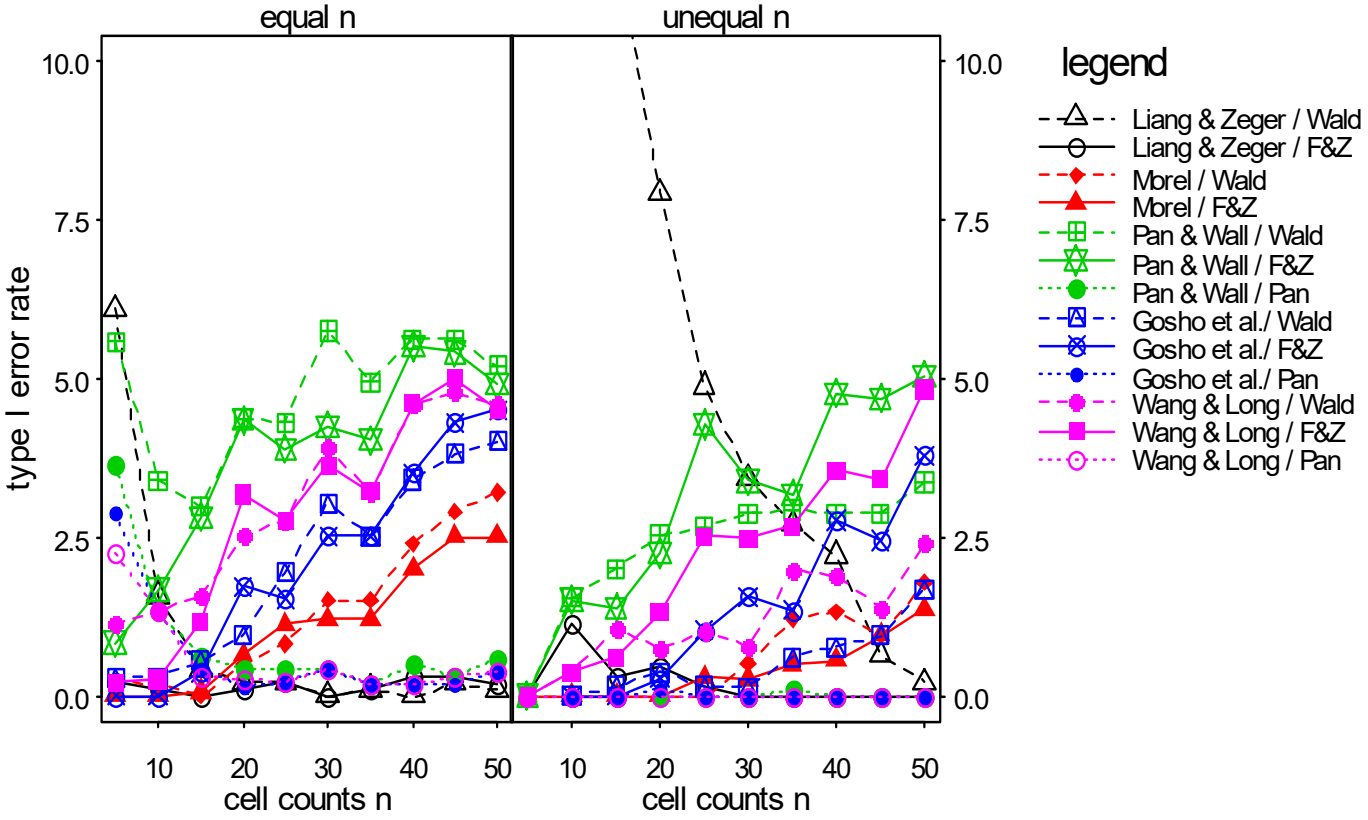
9. 7. 2. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	1.2	7.8	5.7	3.3	2.8	3.0	3.2	0.0	16.1	12.0	7.9	3.4	2.2	0.2
	Fan & Zhang	2.2	2.1	1.5	1.8	2.4	2.9	3.6	0.0	1.1	0.3	0.5	0.0	0.0	0.0
Morel et al.	Wald	0.0	0.0	0.0	0.0	0.8	1.4	1.9	0.0	0.0	0.0	0.0	0.5	1.3	1.8
	Fan & Zhang	0.0	0.0	0.2	0.5	0.8	1.6	2.3	0.0	0.0	0.0	0.0	0.3	0.6	1.4
Pan & Wall	Wald	0.0	2.2	1.7	1.1	2.1	2.7	3.1	0.0	1.5	2.0	2.5	2.9	2.9	3.4
	Fan & Zhang	0.0	0.0	0.6	1.3	2.4	2.9	3.5	0.0	1.5	1.4	2.2	3.4	4.8	5.0
	Pan	4.6	4.9	2.3	1.5	2.1	2.6	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gosho et al.	Wald	0.0	0.0	0.2	0.1	0.9	1.6	2.0		0.0	0.2	0.4	0.1	0.8	1.7
	Fan & Zhang	0.0	0.0	0.2	0.6	1.2	1.7	2.6		0.0	0.0	0.3	1.6	2.8	3.8
	Pan	4.1	1.6	1.9	0.9	1.6	2.4	2.7		0.0	0.0	0.1	0.0	0.0	0.0
Wang & Long	Wald	0.0	1.7	1.3	0.7	1.2	2.3	2.6	0.0	0.4	1.1	0.8	0.8	1.9	2.4
	Fan & Zhang	2.8	0.0	0.4	0.9	1.7	2.0	3.2	0.0	0.4	0.6	1.3	2.5	3.5	4.8
	Pan	4.6	2.8	1.7	1.2	1.9	2.6	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0



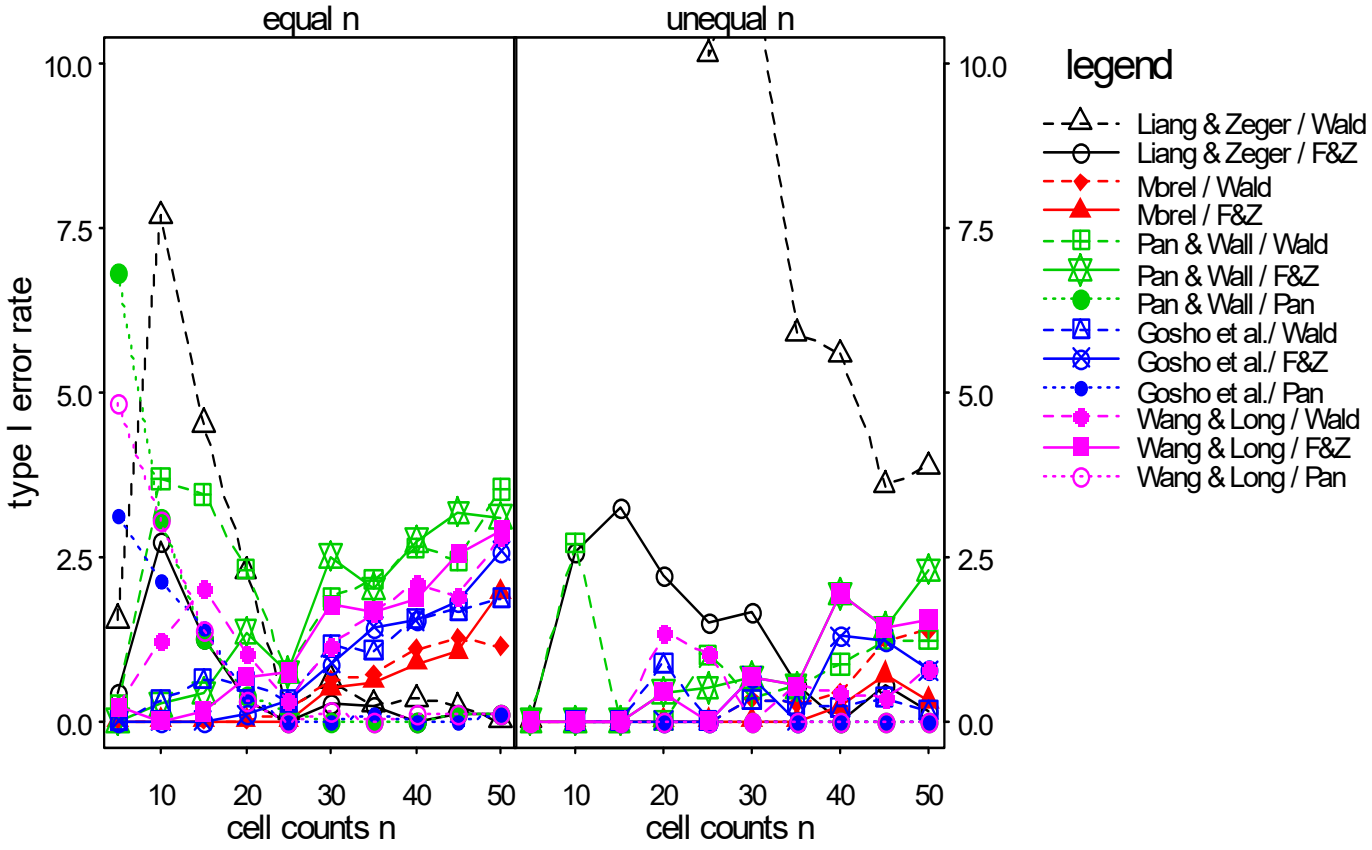
9. 7. 2. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	6.1	1.6	0.4	0.2	0.0	0.0	0.1	0.0	16.1	12.0	7.9	3.4	2.2	0.2
	Fan & Zhang	0.2	0.1	0.0	0.1	0.0	0.3	0.2	0.0	1.1	0.3	0.5	0.0	0.0	0.0
Morel et al.	Wald	0.2	0.2	0.0	0.5	1.5	2.4	3.2	0.0	0.0	0.0	0.0	0.5	1.3	1.8
	Fan & Zhang	0.0	0.0	0.1	0.6	1.2	2.0	2.5	0.0	0.0	0.0	0.0	0.3	0.6	1.4
Pan & Wall	Wald	5.6	3.4	3.0	4.4	5.7	5.6	5.2	0.0	1.5	2.0	2.5	2.9	2.9	3.4
	Fan & Zhang	0.8	1.7	2.8	4.3	4.2	5.5	4.9	0.0	1.5	1.4	2.2	3.4	4.8	5.0
	Pan	3.6	1.3	0.6	0.4	0.4	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gosho et al.	Wald	0.3	0.3	0.6	1.0	3.0	3.4	4.0		0.0	0.2	0.4	0.1	0.8	1.7
	Fan & Zhang	0.0	0.0	0.4	1.7	2.5	3.5	4.5		0.0	0.0	0.3	1.6	2.8	3.8
	Pan	2.9	1.3	0.4	0.2	0.4	0.2	0.4		0.0	0.0	0.1	0.0	0.0	0.0
Wang & Long	Wald	1.1	1.3	1.6	2.5	3.9	4.6	4.6	0.0	0.4	1.1	0.8	0.8	1.9	2.4
	Fan & Zhang	0.2	0.3	1.2	3.2	3.6	4.6	4.5	0.0	0.4	0.6	1.3	2.5	3.5	4.8
	Pan	2.3	1.3	0.3	0.3	0.4	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0



9. 7. 2. 3 p = 0.9

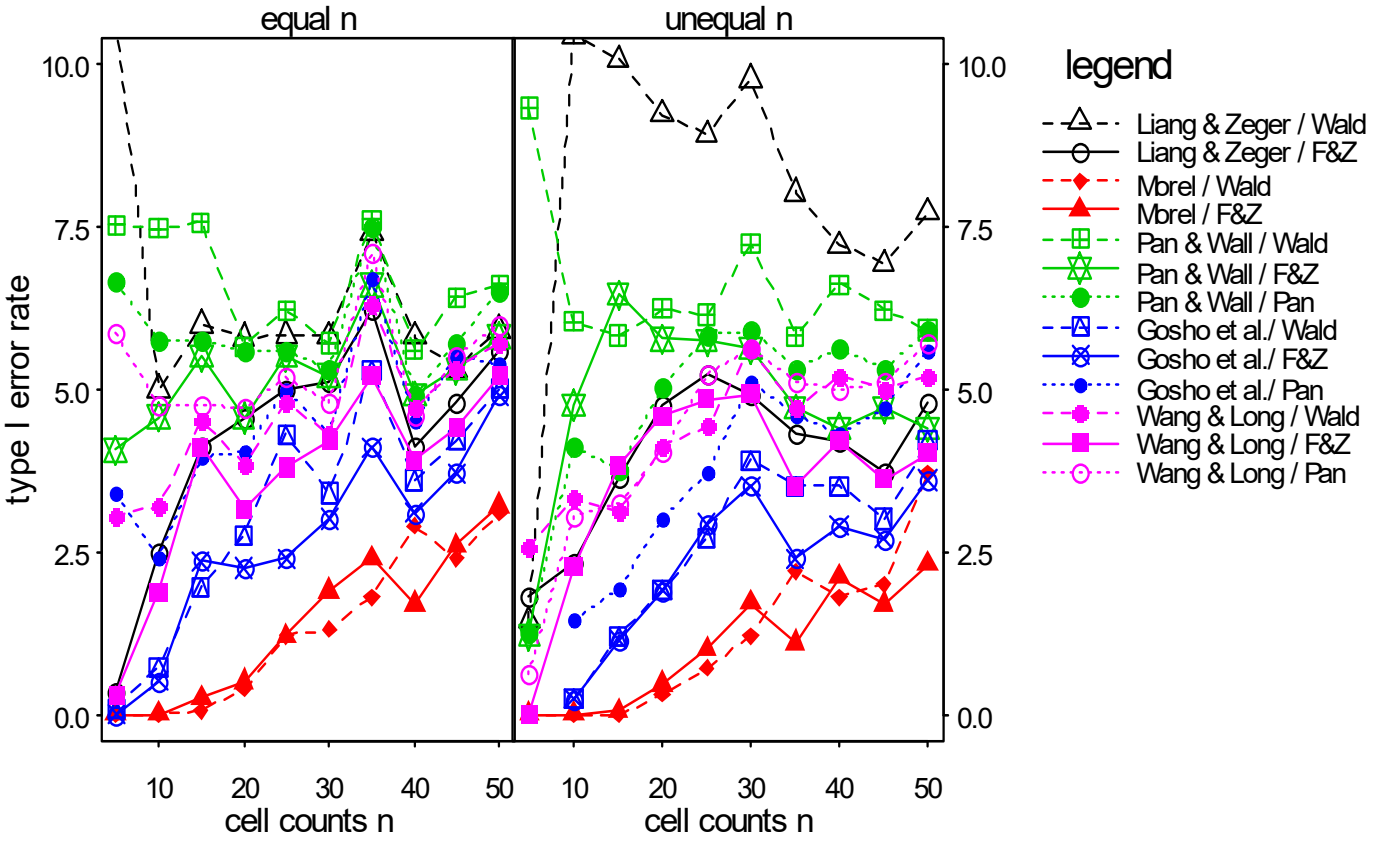
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	1.5	7.7	4.5	2.3	0.6	0.3	0.0		0.1	24.0	25.4	12.0	5.6	3.9
	Fan & Zhang	0.4	2.7	1.3	0.3	0.3	0.0	0.1		2.6	3.2	2.2	1.7	0.0	0.2
Morel et al.	Wald	0.0	0.0	0.0	0.0	0.6	1.1	1.1		0.0	0.0	0.0	0.3	0.4	1.4
	Fan & Zhang	0.0	0.0	0.0	0.0	0.5	0.9	2.0		0.0	0.0	0.0	0.0	0.2	0.3
Pan & Wall	Wald	0.2	3.7	3.4	2.3	1.9	2.6	3.5		2.7	0.0	0.0	0.3	0.9	1.2
	Fan & Zhang	0.0	0.2	0.4	1.4	2.5	2.7	3.1		0.0	0.0	0.4	0.7	1.9	2.3
	Pan	6.8	3.1	1.3	0.4	0.0	0.0	0.1		0.0	0.0	0.0	0.0	0.0	0.0
Gosho et al.	Wald	0.0	0.3	0.6	0.6	1.1	1.5	1.9		0.0	0.0	0.9	0.3	0.2	0.2
	Fan & Zhang	0.0	0.0	0.0	0.1	0.9	1.5	2.6		0.0	0.0	0.0	0.7	1.3	0.8
	Pan	3.1	2.1	1.4	0.4	0.0	0.0	0.1		0.0	0.0	0.0	0.0	0.0	0.0
Wang & Long	Wald	0.2	1.2	2.0	1.0	1.1	2.1	2.8		0.0	0.0	1.3	0.0	0.4	0.8
	Fan & Zhang	0.2	0.0	0.1	0.7	1.8	1.9	2.9		0.0	0.0	0.4	0.7	1.9	1.5
	Pan	4.8	3.0	1.4	0.3	0.1	0.1	0.1		0.0	0.0	0.0	0.0	0.0	0.0



9. 7. 3. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) exchangeable-structure assumed

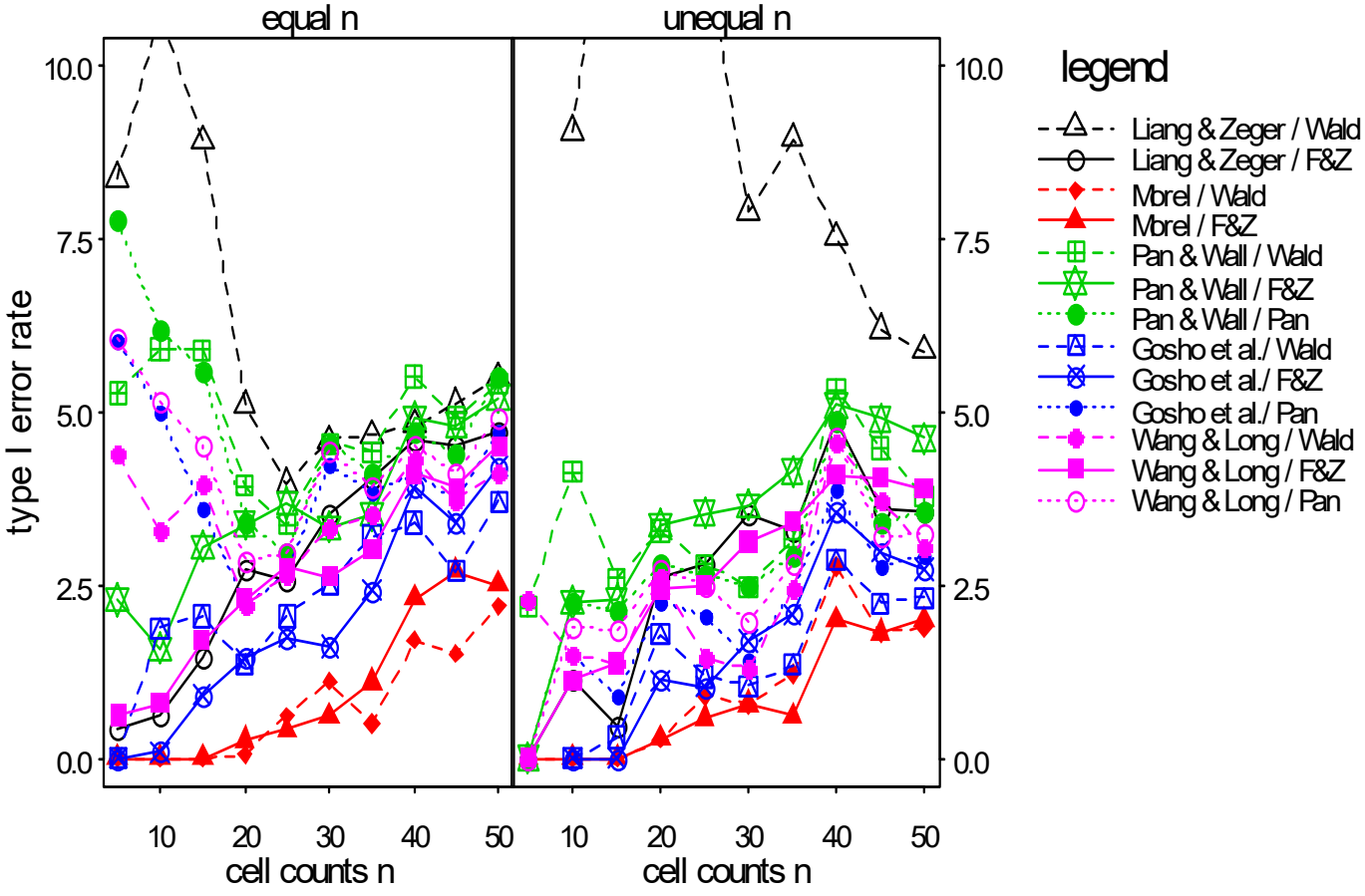
9. 7. 3. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	5.3	5.5	6.4	6.5	5.9	5.1	5.1	10.0	25.4	18.1	15.1	11.5	11.3	9.3
	Fan & Zhang	2.6	4.3	5.5	4.8	4.2	3.9	4.1	3.0	3.7	4.3	5.1	4.8	3.9	5.6
Morel et al.	Wald	0.0	0.1	0.5	0.9	1.1	2.0	2.3	0.0	0.0	0.1	0.1	0.4	1.1	1.7
	Fan & Zhang	0.0	0.1	0.6	1.1	1.5	2.1	2.5	0.0	0.0	0.2	0.4	1.5	1.6	2.8
Pan & Wall	Wald	6.7	6.4	7.1	6.4	5.8	5.2	5.1	6.2	5.7	5.7	5.4	4.7	7.7	6.0
	Fan & Zhang	3.3	4.6	5.6	4.9	4.3	3.9	4.1	0.0	3.9	5.9	6.4	5.5	4.9	5.8
	Pan	8.0	6.5	6.9	6.3	5.8	5.2	5.1	1.4	5.6	5.8	5.4	5.3	6.6	6.5
Gosho et al.	Wald	0.0	0.4	1.9	3.3	2.8	3.3	3.7		0.2	0.1	0.6	1.2	3.1	2.9
	Fan & Zhang	0.0	0.4	2.0	2.4	2.5	2.9	3.5		0.2	0.7	1.5	2.8	2.7	4.2
	Pan	1.9	3.0	4.4	5.0	5.0	4.6	4.3		1.5	3.1	3.2	3.6	5.5	5.8
Wang & Long	Wald	1.6	2.5	3.8	4.7	4.7	4.2	4.2	0.0	1.7	2.2	2.7	3.3	4.9	4.9
	Fan & Zhang	0.1	2.0	3.7	3.5	3.4	3.6	3.9	0.0	1.6	3.3	3.8	4.4	3.8	4.8
	Pan	6.2	4.8	5.5	5.8	5.2	4.9	4.4	1.4	4.0	5.0	4.4	4.5	5.8	6.3



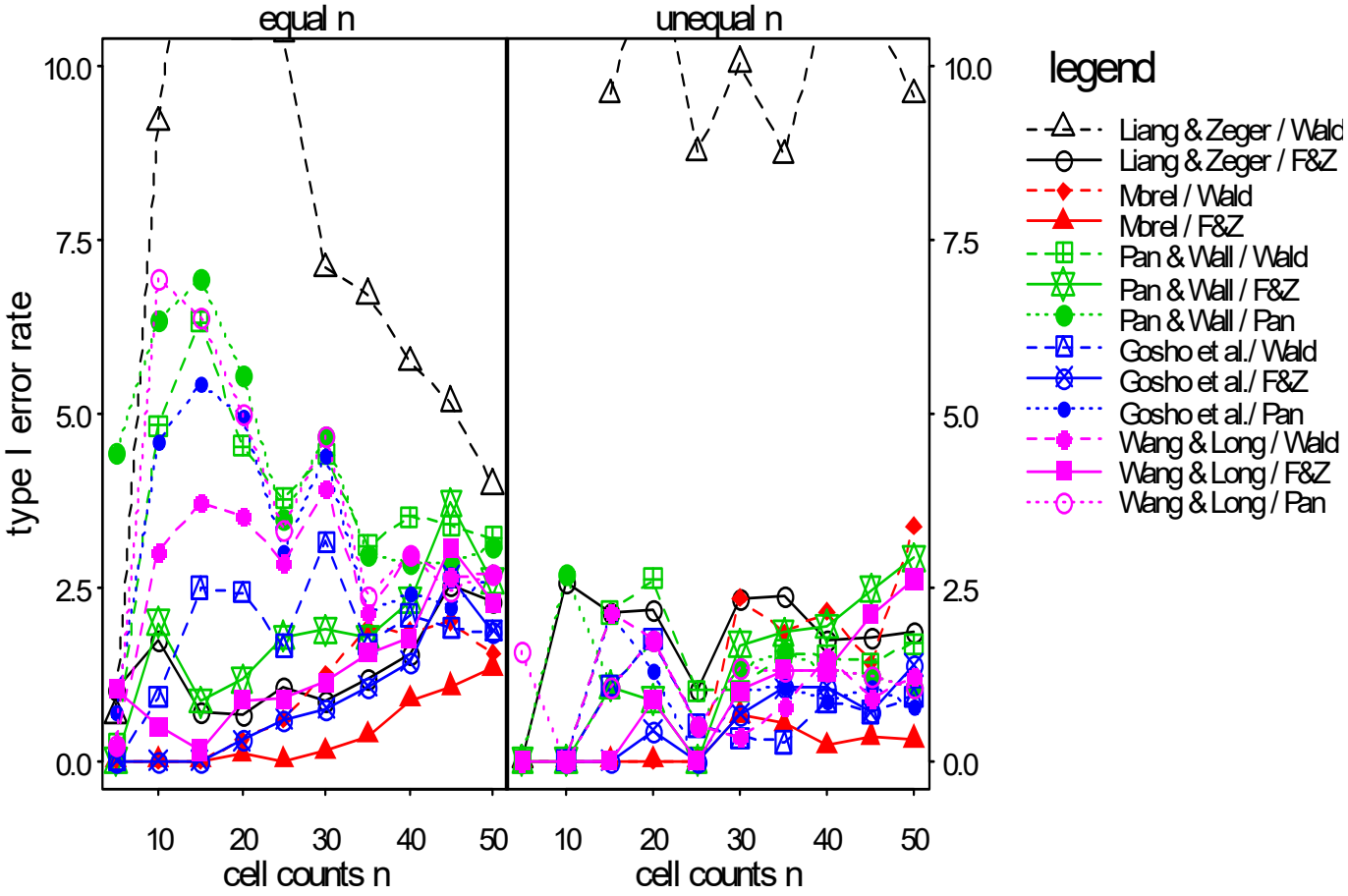
9. 7. 3. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	8.4	5.5	4.1	4.7	6.5	5.7	5.1	0	33.3	31.3	25.1	17.2	13.9	9.8
	Fan & Zhang	2.7	1.8	2.6	4.1	3.9	5.4	4.7		2.6	0.8	2.2	3.1	4.2	4.2
Morel et al.	Wald	0.0	0.1	0.0	0.2	1.0	2.1	2.7		0.0	0.0	0.0	0.5	1.3	1.8
	Fan & Zhang	0.0	0.0	0.1	0.5	1.1	2.0	2.4		0.0	0.0	0.0	0.3	0.9	1.8
Pan & Wall	Wald	6.3	3.3	3.1	4.4	5.8	5.6	5.2		1.6	1.8	2.4	3.0	2.9	3.4
	Fan & Zhang	1.2	1.7	2.8	4.3	4.2	5.5	4.9		1.5	1.4	2.2	3.4	4.8	5.0
	Pan	14.1	4.9	3.7	4.6	6.0	5.7	5.1		2.3	2.5	2.9	3.1	3.0	3.4
Gosho et al.	Wald	0.3	0.3	0.5	1.0	3.0	3.4	4.0		0.0	0.0	0.2	0.1	0.8	1.7
	Fan & Zhang	0.0	0.0	0.4	1.7	2.5	3.5	4.5		0.0	0.0	0.3	1.6	2.8	3.8
	Pan	4.3	2.9	2.4	3.1	4.8	4.9	4.6		0.0	1.1	1.5	1.8	2.2	2.6
Wang & Long	Wald	1.4	1.3	1.6	2.5	3.9	4.6	4.6		0.4	0.6	0.8	0.8	1.9	2.4
	Fan & Zhang	0.4	0.3	1.2	3.2	3.6	4.6	4.5		0.4	0.6	1.3	2.5	3.5	4.8
	Pan	8.9	4.1	2.7	3.9	5.6	5.4	4.7		0.8	2.1	2.3	3.0	2.7	3.0



9. 7. 3. 3 p = 0.9

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	0.9	10.7	8.3	5.1	3.2	4.9	4.2	1.6	0.2	27.5	36.2	28.4	15.6	14.4
	Fan & Zhang	5.6	3.7	1.4	1.5	2.6	2.4	3.1	0.0	2.6	3.2	2.6	2.3	1.9	2.0
Morel et al.	Wald	0.0	0.0	0.0	0.0	0.4	0.8	1.2	0.0	0.0	0.0	0.0	0.0	0.6	1.4
	Fan & Zhang	0.0	0.0	0.0	0.0	0.5	0.7	2.0	0.0	0.0	0.0	0.0	0.0	0.9	0.3
Pan & Wall	Wald	0.0	3.7	3.3	2.2	1.9	2.6	3.5	0.0	2.8	0.0	0.0	0.3	0.6	0.9
	Fan & Zhang	0.2	0.2	0.4	1.4	2.5	2.7	3.1	0.0	0.0	0.0	0.4	0.7	1.9	2.3
	Pan	9.6	7.5	5.4	3.6	2.1	2.7	3.3	0.0	0.0	0.0	0.0	0.7	0.6	1.2
Gosho et al.	Wald	0.0	0.3	0.8	0.4	1.1	1.5	1.9		0.0	0.0	0.0	0.7	0.0	0.2
	Fan & Zhang	0.0	0.0	0.0	0.1	0.9	1.5	2.6		0.0	0.0	0.0	0.7	1.3	0.8
	Pan	5.8	4.7	3.2	3.2	1.5	2.5	3.0		0.0	0.0	0.0	0.3	0.4	0.8
Wang & Long	Wald	0.2	0.9	2.2	1.0	1.1	2.1	2.8	0.0	0.0	0.0	0.9	0.3	0.2	0.6
	Fan & Zhang	2.7	0.0	0.1	0.7	1.8	1.9	2.9	0.0	0.0	0.0	0.4	0.7	1.9	1.5
	Pan	6.9	7.1	4.5	3.3	1.6	2.6	3.2	0.0	0.0	1.1	0.0	0.7	0.6	1.2

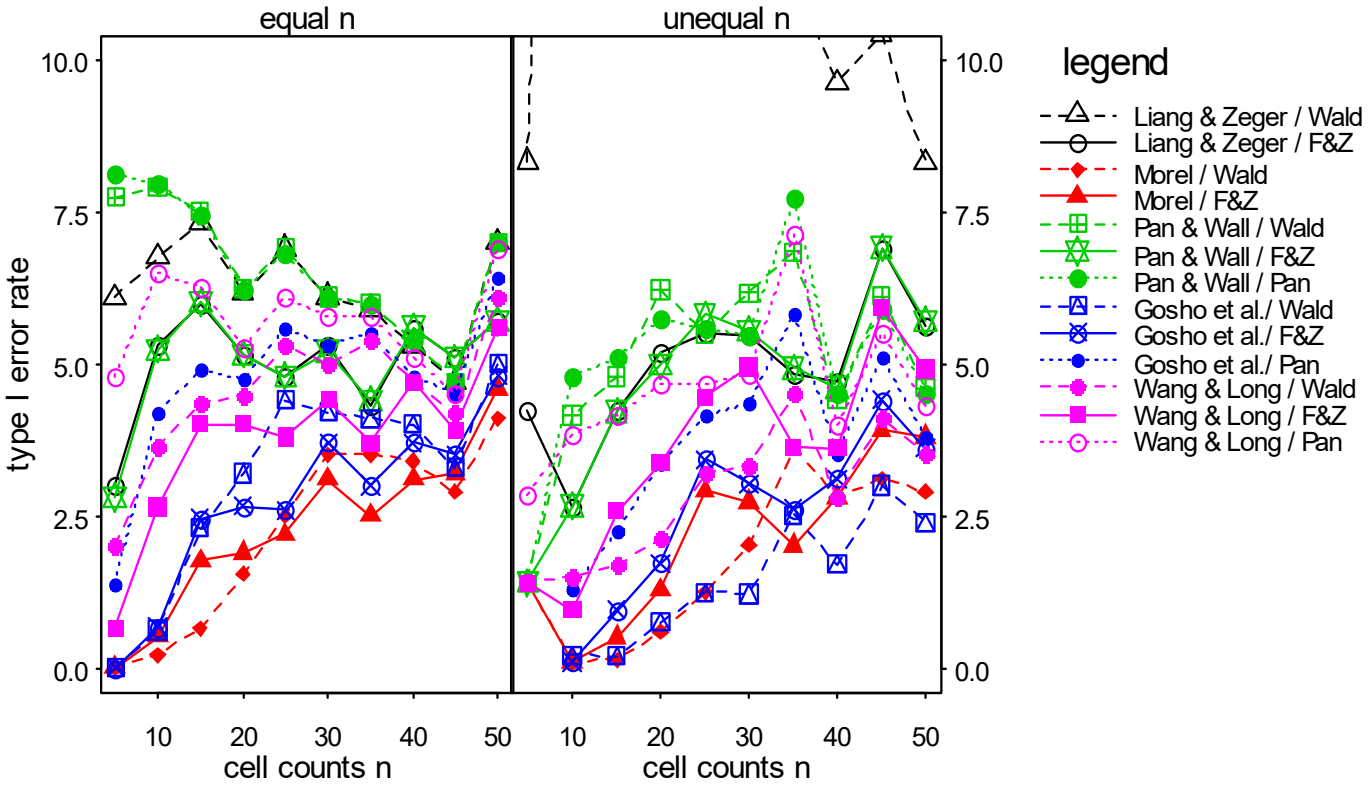


9. 8. Interaction effect AB - A significant (effects a_i = 0.4*s)

9. 8. 1. equal correlations on B (r=0.3)

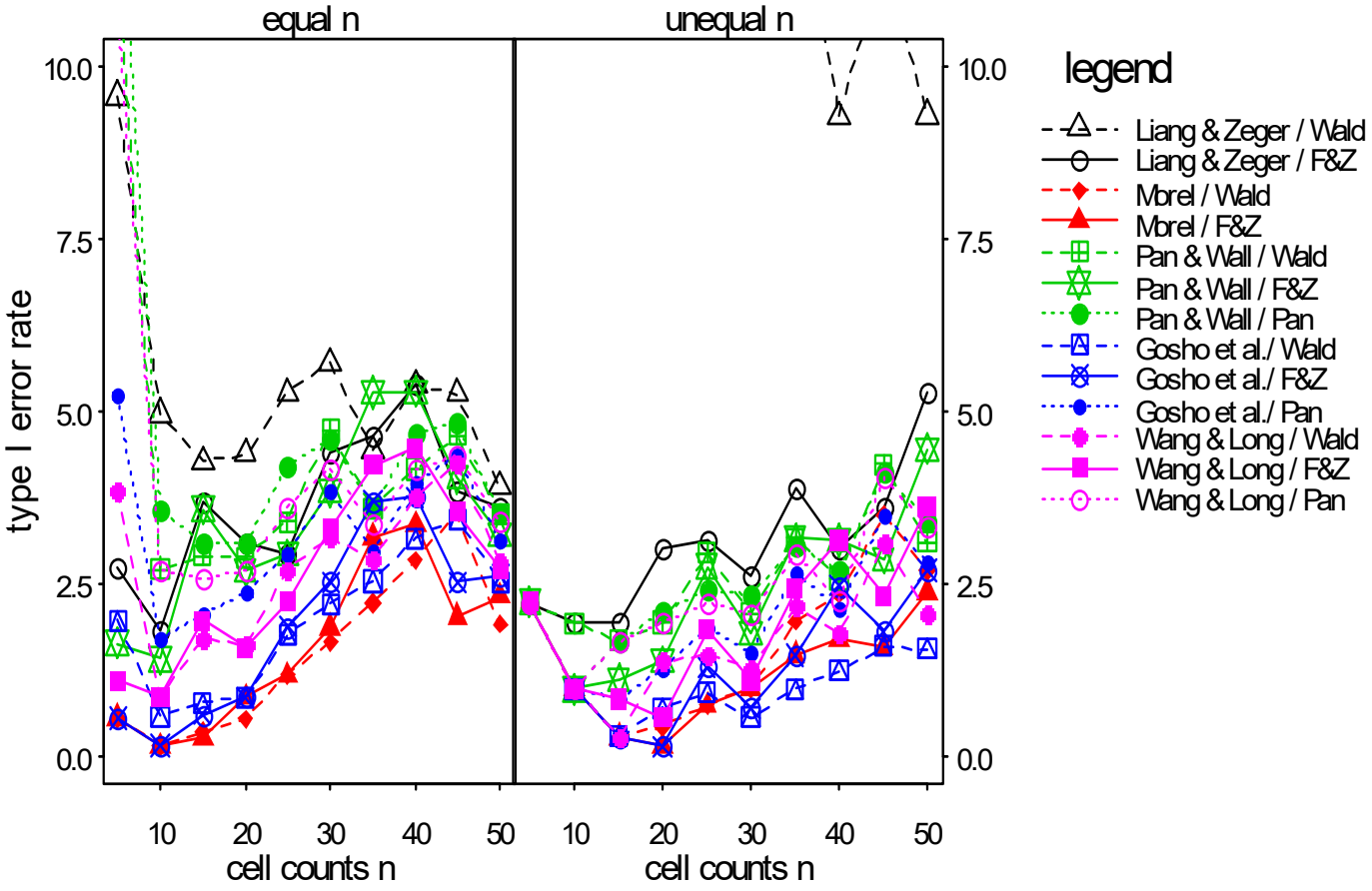
9. 8. 1. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	6.1	6.8	7.3	6.2	6.1	5.3	7.0	8.3	34.7	24.3	19.4	13.9	9.6	8.3
	Fan & Zhang	3.0	5.3	6.0	5.2	5.3	5.6	5.7	4.2	2.7	4.2	5.2	5.5	4.7	5.6
Morel et al.	Wald	0.0	0.2	0.7	1.6	3.5	3.4	4.1	1.4	0.1	0.1	0.6	2.0	2.8	2.9
	Fan & Zhang	0.0	0.5	1.8	1.9	3.1	3.1	4.6	1.4	0.1	0.5	1.3	2.7	2.8	3.8
Pan & Wall	Wald	7.7	7.9	7.5	6.3	6.1	5.4	7.0	1.4	4.2	4.8	6.2	6.2	4.4	4.6
	Fan & Zhang	2.8	5.2	6.0	5.2	5.2	5.6	5.7	1.4	2.7	4.2	5.0	5.6	4.6	5.7
	Pan	8.1	7.9	7.5	6.2	6.1	5.4	7.0	1.4	4.8	5.1	5.7	5.5	4.5	4.5
Gosho et al.	Wald	0.0	0.6	2.3	3.2	4.2	4.0	5.0		0.2	0.2	0.8	1.2	1.7	2.4
	Fan & Zhang	0.0	0.7	2.5	2.7	3.7	3.7	4.8		0.1	0.9	1.7	3.0	3.1	3.6
	Pan	1.4	4.2	4.9	4.8	5.3	4.8	6.4		1.3	2.3	3.4	4.3	3.5	3.8
Wang & Long	Wald	2.0	3.6	4.4	4.5	5.0	4.7	6.1	1.4	1.5	1.7	2.1	3.3	2.8	3.5
	Fan & Zhang	0.7	2.6	4.0	4.0	4.4	4.7	5.6	1.4	1.0	2.6	3.4	4.9	3.6	4.9
	Pan	4.8	6.5	6.3	5.3	5.8	5.1	6.9	2.9	3.8	4.2	4.7	4.8	4.0	4.3



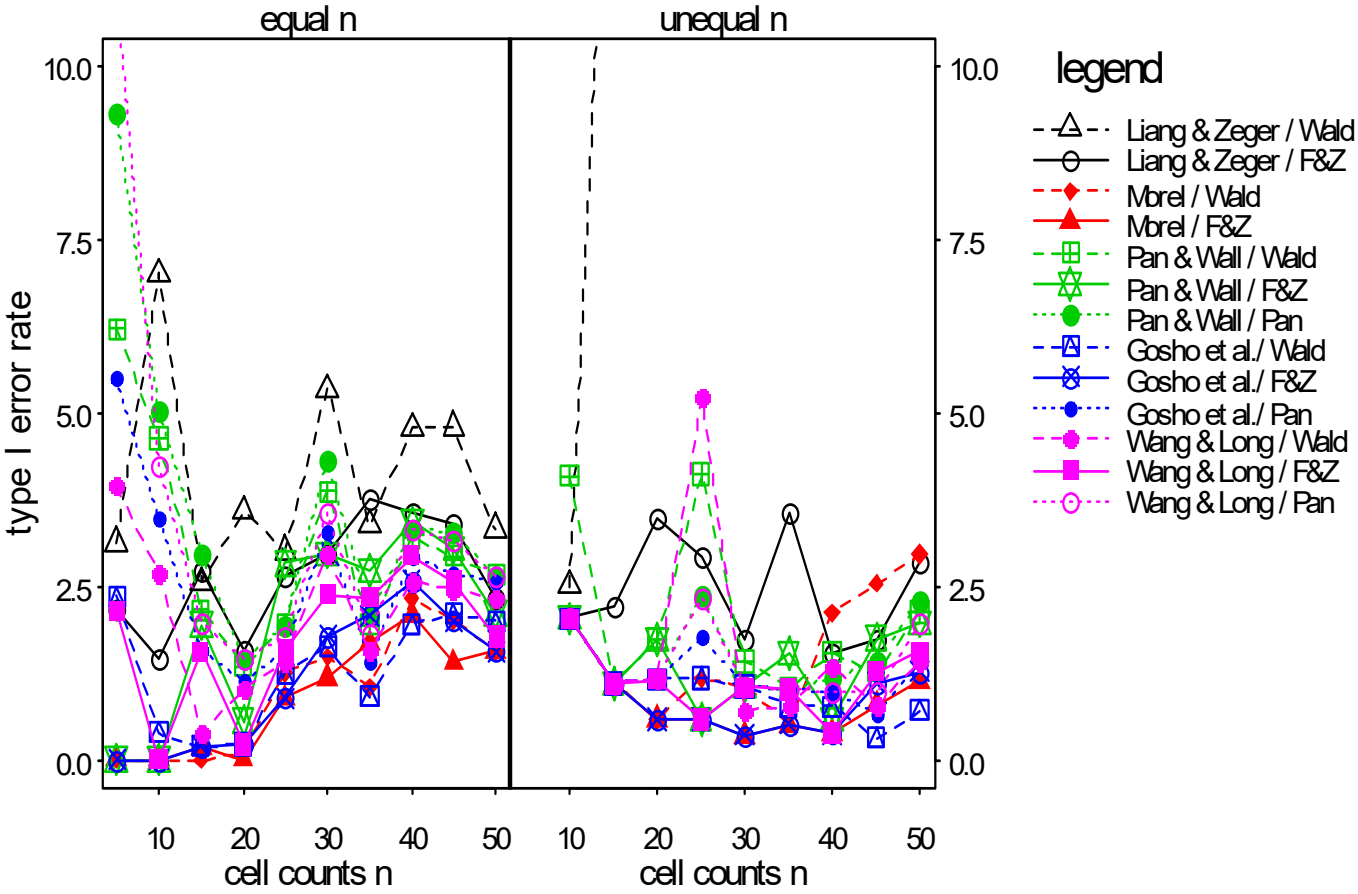
9. 8. 1. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	9.6	5.0	4.3	4.4	5.7	5.4	3.9	0.1	21.3	26.4	24.4	13.3	9.3	9.3
	Fan & Zhang	2.7	1.8	3.7	3.1	4.4	5.4	3.6	2.2	1.9	1.9	3.0	2.6	3.0	5.3
Morel et al.	Wald	0.5	0.1	0.3	0.5	1.6	2.8	1.9	2.2	1.0	0.3	0.4	1.0	2.3	2.7
	Fan & Zhang	0.5	0.1	0.3	0.8	1.9	3.3	2.3	2.2	1.0	0.3	0.1	1.0	1.7	2.4
Pan & Wall	Wald	11.4	2.7	2.9	2.9	4.7	4.2	3.5	2.2	1.9	1.7	1.9	2.1	2.6	3.1
	Fan & Zhang	1.6	1.4	3.6	2.7	3.8	5.3	3.2	2.2	1.0	1.1	1.4	1.8	3.1	4.4
	Pan	13.3	3.5	3.1	3.1	4.6	4.7	3.5	2.2	1.0	1.7	2.1	2.3	2.7	3.4
Gosho et al.	Wald	2.0	0.6	0.8	0.8	2.2	3.1	2.5		1.0	0.3	0.7	0.5	1.2	1.5
	Fan & Zhang	0.5	0.1	0.6	0.8	2.5	3.8	2.6		1.0	0.3	0.1	0.7	2.5	2.7
	Pan	5.2	1.7	2.0	2.3	3.8	4.0	3.1		1.0	0.8	1.2	1.5	2.1	2.8
Wang & Long	Wald	3.8	0.8	1.7	1.6	3.2	3.8	2.8	2.2	1.0	0.3	1.4	1.2	1.8	2.1
	Fan & Zhang	1.1	0.8	2.0	1.6	3.3	4.5	2.7	2.2	1.0	0.8	0.5	1.1	3.1	3.6
	Pan	10.9	2.7	2.6	2.7	4.2	4.2	3.4	2.2	1.0	1.7	1.9	2.1	2.2	3.3



9. 8. 1. 3 p = 0.9

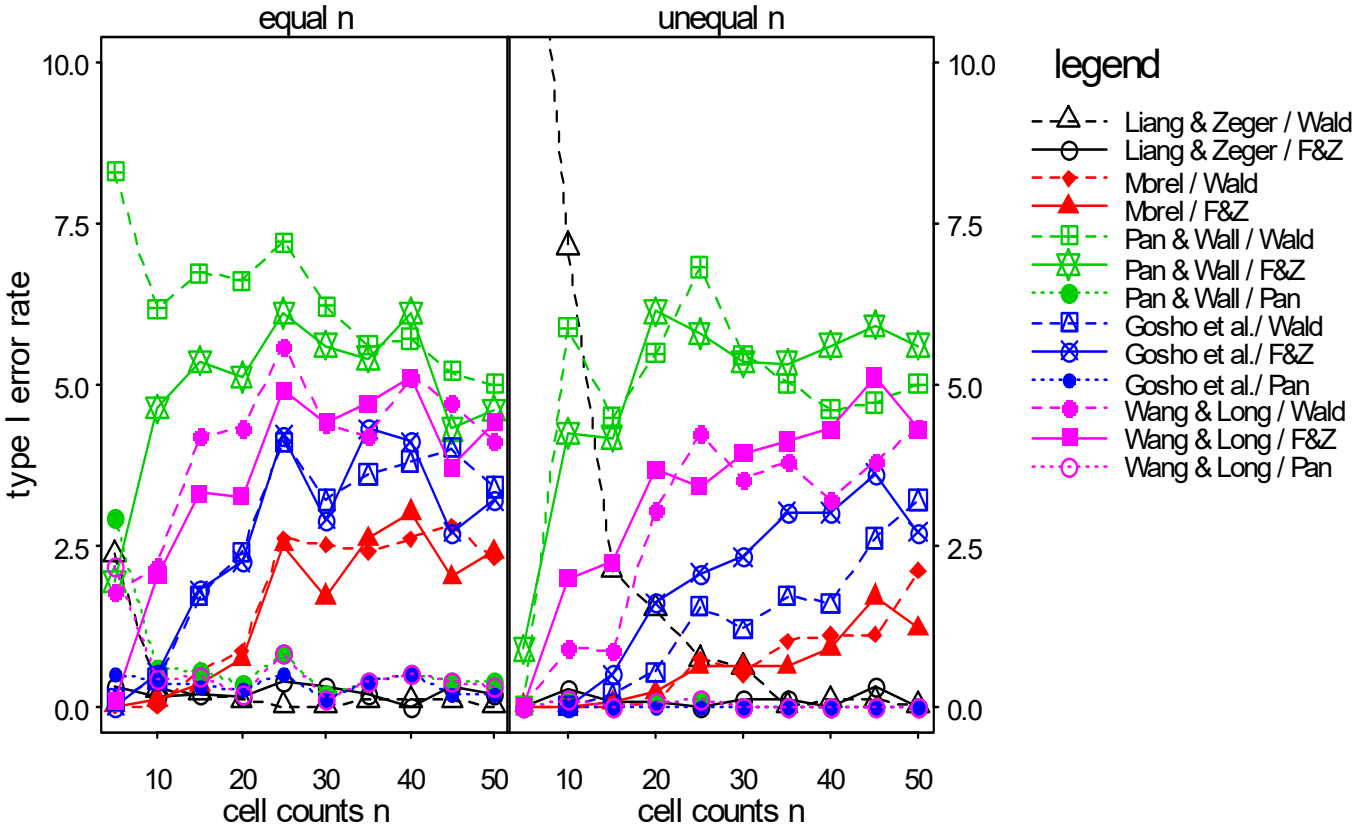
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	3.1	7.0	2.6	3.6	5.3	4.8	3.3		2.5	15.6	20.3	18.9	16.0	11.3
	Fan & Zhang	2.2	1.4	2.7	1.6	3.0	3.5	2.3		2.0	2.2	3.5	1.7	1.5	2.8
Morel et al.	Wald	0.0	0.0	0.0	0.1	1.5	2.3	1.6		2.0	1.1	0.6	1.0	2.1	3.0
	Fan & Zhang	0.0	0.0	0.2	0.0	1.2	2.1	1.6		2.0	1.1	0.6	0.3	0.4	1.1
Pan & Wall	Wald	6.2	4.6	2.2	1.3	3.9	3.2	2.7		4.1	1.1	1.7	1.4	1.6	2.1
	Fan & Zhang	0.0	0.0	1.9	0.6	3.0	3.4	2.1		2.0	1.1	1.7	1.0	0.6	2.0
	Pan	9.3	5.0	2.9	1.5	4.3	3.3	2.7		2.0	1.1	1.2	1.1	1.2	2.3
Gosho et al.	Wald	2.4	0.4	0.2	0.2	1.6	2.0	2.0		2.0	1.1	1.2	1.1	0.8	0.7
	Fan & Zhang	0.0	0.0	0.2	0.2	1.8	2.6	1.6		2.0	1.1	0.6	0.3	0.4	1.3
	Pan	5.5	3.5	1.6	1.1	3.3	2.9	2.6		2.0	1.1	1.2	1.1	1.0	1.4
Wang & Long	Wald	4.0	2.7	0.4	1.0	3.0	2.6	2.3		2.0	1.1	1.2	0.7	1.4	1.4
	Fan & Zhang	2.2	0.0	1.6	0.2	2.4	2.9	1.8		2.0	1.1	1.2	1.0	0.4	1.6
	Pan	11.1	4.2	2.0	1.5	3.6	3.3	2.7		2.0	1.1	1.2	1.1	1.0	2.0



9. 8. 2. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) ar1-structure assumed

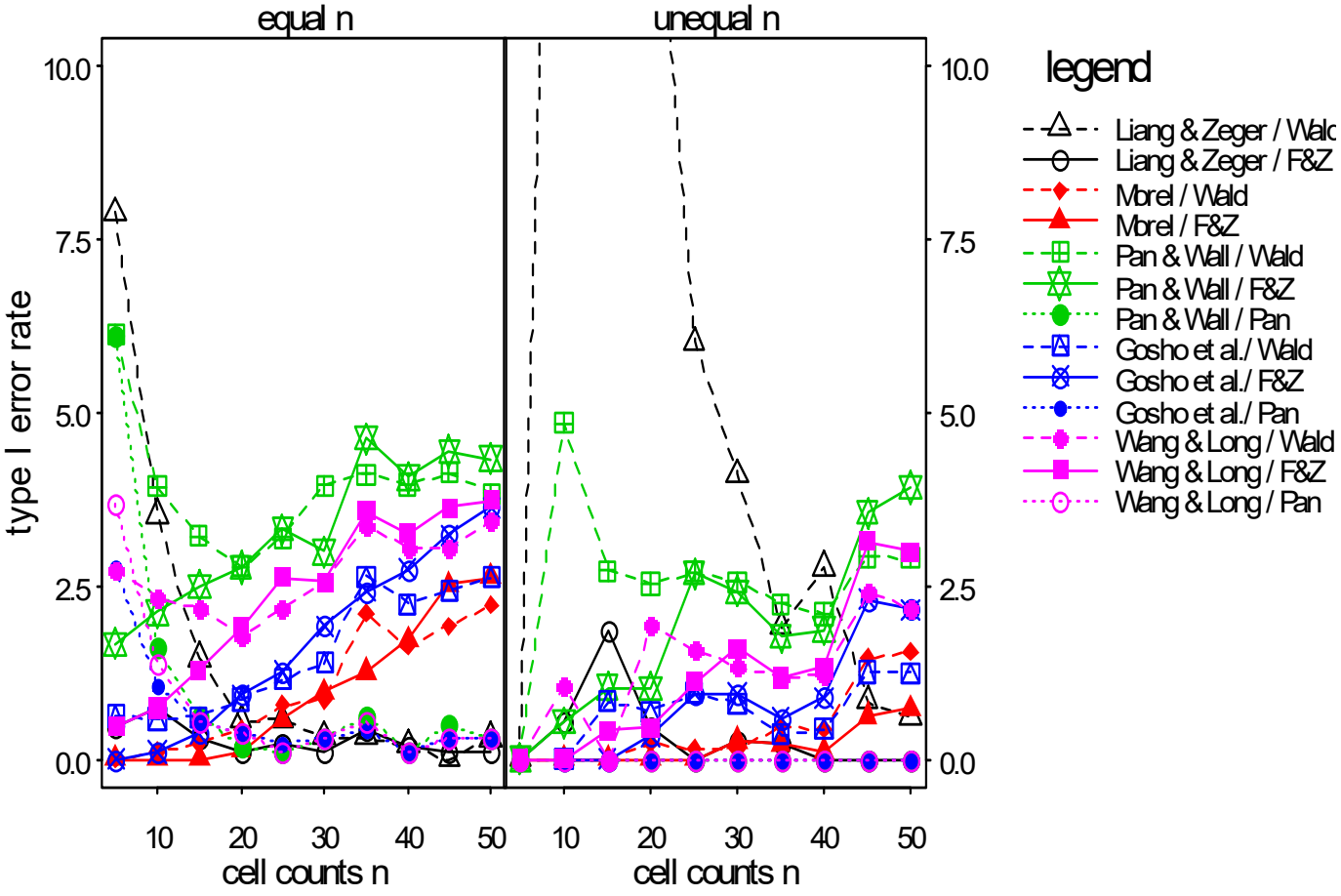
9. 8. 2. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	2.4	0.3	0.2	0.1	0.0	0.1	0.0	15.4	7.1	2.1	1.5	0.6	0.1	0.0
	Fan & Zhang	0.3	0.2	0.2	0.2	0.3	0.0	0.2	0.0	0.3	0.1	0.1	0.1	0.0	0.0
Morel et al.	Wald	0.0	0.0	0.6	0.9	2.5	2.6	2.3	0.0	0.0	0.0	0.1	0.5	1.1	2.1
	Fan & Zhang	0.0	0.1	0.4	0.8	1.7	3.0	2.4	0.0	0.0	0.1	0.2	0.6	0.9	1.2
Pan & Wall	Wald	8.3	6.2	6.7	6.6	6.2	5.7	5.0	0.0	5.9	4.5	5.5	5.4	4.6	5.0
	Fan & Zhang	1.9	4.6	5.4	5.1	5.6	6.1	4.6	0.9	4.2	4.2	6.1	5.3	5.6	5.6
	Pan	2.9	0.6	0.6	0.4	0.2	0.5	0.4	0.0	0.1	0.0	0.1	0.0	0.0	0.0
Gosho et al.	Wald	0.1	0.4	1.7	2.4	3.2	3.8	3.4		0.0	0.2	0.5	1.2	1.6	3.2
	Fan & Zhang	0.0	0.5	1.8	2.3	2.9	4.1	3.2		0.0	0.5	1.6	2.3	3.0	2.7
	Pan	0.5	0.4	0.3	0.3	0.1	0.5	0.2		0.0	0.0	0.0	0.0	0.0	0.0
Wang & Long	Wald	1.8	2.2	4.2	4.3	4.4	5.1	4.1	0.0	0.9	0.8	3.0	3.5	3.2	4.3
	Fan & Zhang	0.1	2.0	3.3	3.3	4.4	5.1	4.4	0.0	2.0	2.2	3.7	3.9	4.3	4.3
	Pan	2.2	0.4	0.5	0.2	0.1	0.5	0.3	0.0	0.1	0.0	0.1	0.0	0.0	0.0



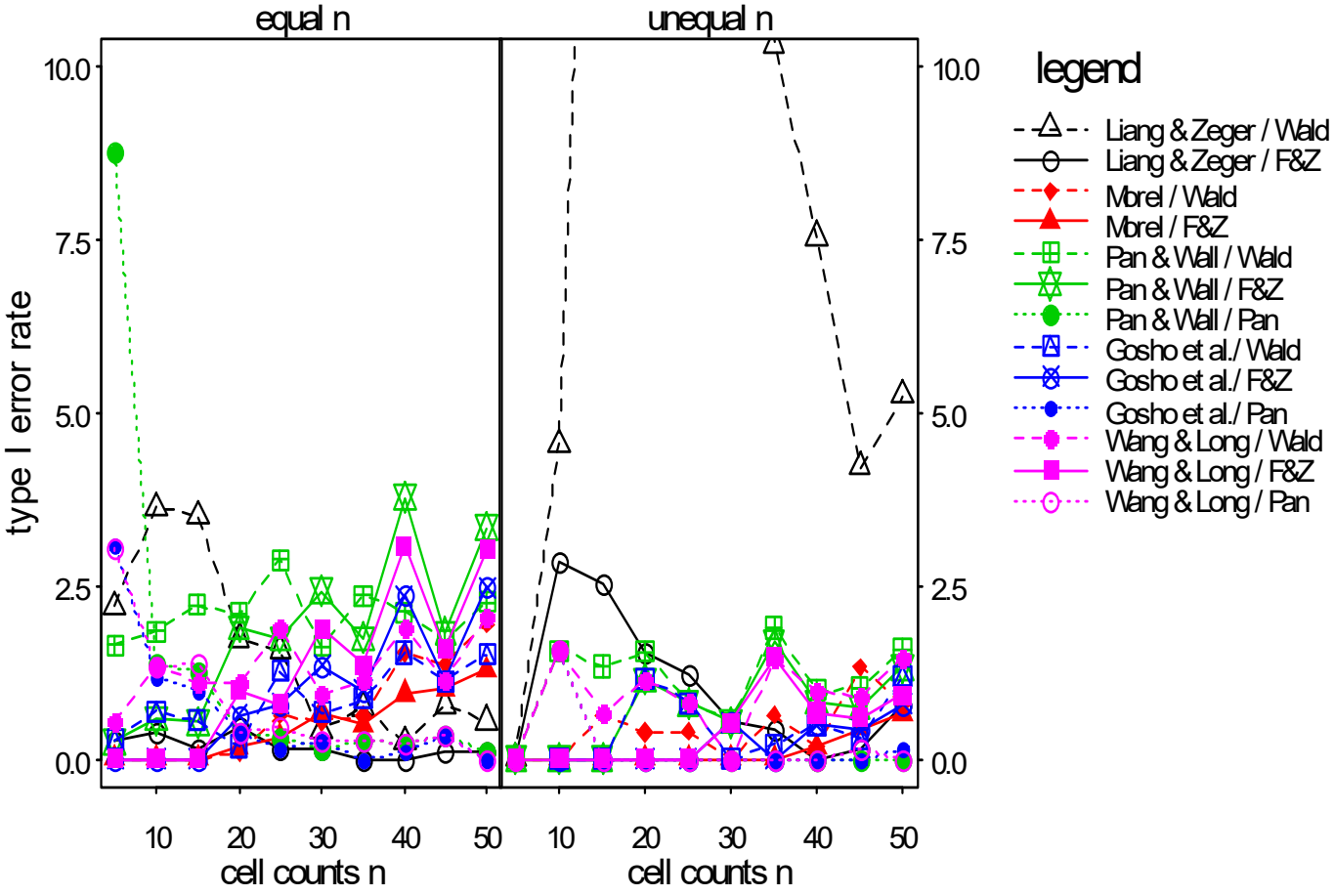
9. 8. 2. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	7.9	3.5	1.5	0.6	0.3	0.2	0.3		22.1	20.0	14.2	4.1	2.8	0.6
	Fan & Zhang	0.5	0.7	0.3	0.1	0.1	0.2	0.1		0.5	1.9	0.5	0.3	0.0	0.0
Morel et al.	Wald	0.0	0.1	0.2	0.4	0.9	1.6	2.2		0.0	0.0	0.2	0.1	0.4	1.5
	Fan & Zhang	0.0	0.0	0.0	0.1	1.0	1.7	2.6		0.0	0.0	0.0	0.3	0.1	0.7
Pan & Wall	Wald	6.1	3.9	3.2	2.8	3.9	4.0	3.8		4.8	2.7	2.5	2.5	2.1	2.9
	Fan & Zhang	1.7	2.1	2.5	2.8	3.0	4.1	4.3		0.5	1.0	1.0	2.4	1.9	3.9
	Pan	6.1	1.6	0.6	0.2	0.3	0.1	0.3		0.0	0.0	0.0	0.0	0.0	0.0
Gosho et al.	Wald	0.6	0.6	0.6	0.9	1.4	2.2	2.6		0.0	0.8	0.7	0.8	0.4	1.2
	Fan & Zhang	0.0	0.1	0.4	0.9	1.9	2.7	3.6		0.0	0.0	0.3	0.9	0.9	2.2
	Pan	2.8	1.0	0.5	0.4	0.3	0.1	0.3		0.0	0.0	0.0	0.0	0.0	0.0
Wang & Long	Wald	2.7	2.3	2.2	1.8	2.6	3.0	3.4		1.1	0.0	1.9	1.3	1.2	2.2
	Fan & Zhang	0.5	0.7	1.3	1.9	2.6	3.2	3.7		0.0	0.4	0.5	1.6	1.3	3.0
	Pan	3.7	1.4	0.5	0.4	0.3	0.1	0.3		0.0	0.0	0.0	0.0	0.0	0.0



9. 8. 2. 3 p = 0.9

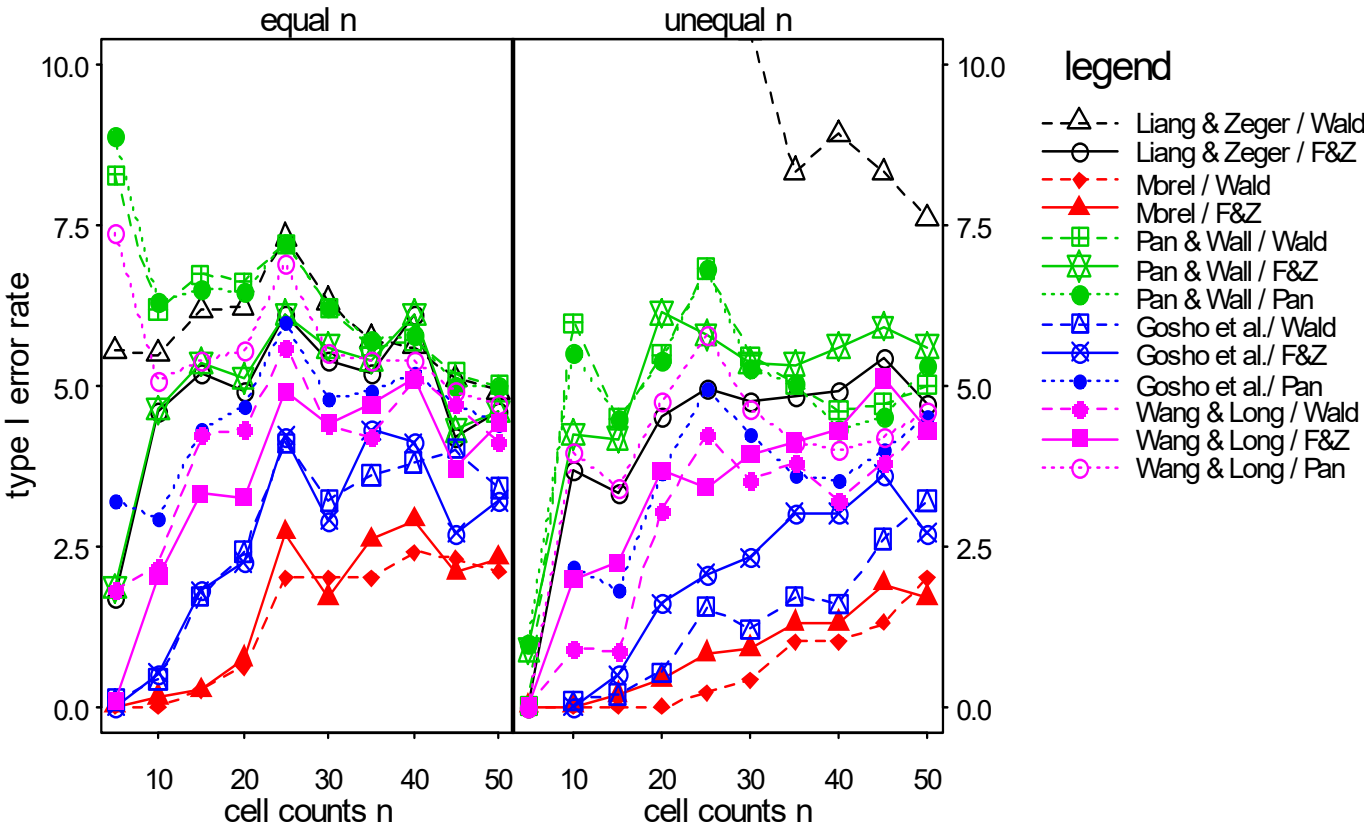
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	2.2	3.6	3.5	1.7	0.4	0.2	0.5		4.5	21.7	30.6	13.7	7.5	5.2
	Fan & Zhang	0.2	0.4	0.1	0.5	0.1	0.0	0.1		2.9	2.5	1.5	0.5	0.0	0.8
Morel et al.	Wald	0.0	0.0	0.0	0.1	0.5	1.5	1.9		0.0	0.6	0.4	0.0	0.2	0.8
	Fan & Zhang	0.0	0.0	0.0	0.2	0.7	0.9	1.3		0.0	0.0	0.0	0.0	0.2	0.7
Pan & Wall	Wald	1.6	1.8	2.2	2.1	1.6	2.1	2.3		1.6	1.3	1.6	0.5	1.0	1.6
	Fan & Zhang	0.2	0.6	0.5	1.9	2.4	3.8	3.3		0.0	0.0	1.1	0.5	0.8	1.3
	Pan	8.8	1.4	1.3	0.4	0.1	0.2	0.1		1.6	0.0	0.0	0.0	0.0	0.0
Gosho et al.	Wald	0.3	0.7	0.6	0.2	0.7	1.5	1.5		0.0	0.0	1.2	0.0	0.5	1.2
	Fan & Zhang	0.0	0.0	0.0	0.6	1.3	2.4	2.5		0.0	0.0	0.0	0.5	0.5	0.8
	Pan	3.1	1.2	1.0	0.4	0.3	0.1	0.0		1.6	0.0	0.0	0.0	0.0	0.1
Wang & Long	Wald	0.6	1.3	1.1	1.1	0.9	1.9	2.0		1.6	0.7	1.2	0.0	1.0	1.5
	Fan & Zhang	0.0	0.0	0.0	1.0	1.9	3.1	3.0		0.0	0.0	0.0	0.5	0.7	0.9
	Pan	3.0	1.3	1.4	0.4	0.3	0.2	0.0		1.6	0.0	0.0	0.0	0.0	0.0



9. 8. 3. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) exchangeable-structure assumed

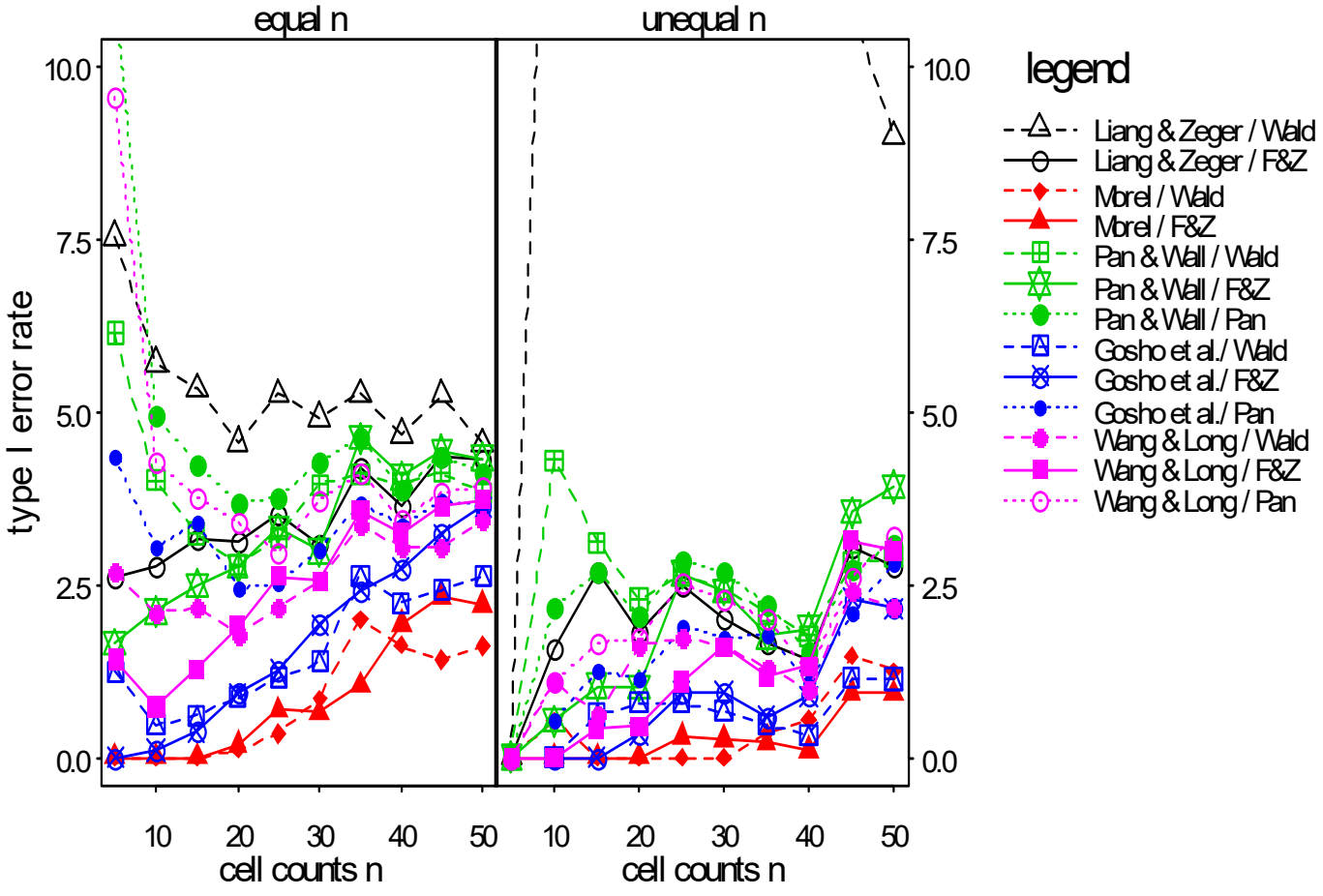
9. 8. 3. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	5.5	5.5	6.2	6.2	6.3	5.6	4.9		28.6	18.4	15.7	10.5	8.9	7.6
	Fan & Zhang	1.7	4.6	5.2	4.9	5.4	6.1	4.6	0.0	3.7	3.3	4.5	4.7	4.9	4.7
Morel et al.	Wald	0.0	0.0	0.3	0.6	2.0	2.4	2.1	0.0	0.0	0.0	0.0	0.4	1.0	2.0
	Fan & Zhang	0.0	0.2	0.3	0.8	1.7	2.9	2.3	0.0	0.0	0.2	0.4	0.9	1.3	1.7
Pan & Wall	Wald	8.3	6.2	6.7	6.6	6.2	5.7	5.0	0.0	6.0	4.5	5.5	5.4	4.6	5.0
	Fan & Zhang	1.8	4.6	5.4	5.1	5.6	6.1	4.6	0.9	4.2	4.2	6.1	5.3	5.6	5.6
	Pan	8.9	6.3	6.5	6.5	6.2	5.8	5.0	1.0	5.5	4.5	5.4	5.2	4.3	5.3
Gosho et al.	Wald	0.1	0.4	1.7	2.4	3.2	3.8	3.4		0.1	0.2	0.5	1.2	1.6	3.2
	Fan & Zhang	0.0	0.5	1.8	2.3	2.9	4.1	3.2		0.0	0.5	1.6	2.3	3.0	2.7
	Pan	3.2	2.9	4.3	4.7	4.8	5.2	4.4		2.2	1.8	3.6	4.2	3.5	4.5
Wang & Long	Wald	1.8	2.2	4.2	4.3	4.4	5.1	4.1	0.0	0.9	0.8	3.0	3.5	3.2	4.3
	Fan & Zhang	0.1	2.0	3.3	3.3	4.4	5.1	4.4	0.0	2.0	2.2	3.7	3.9	4.3	4.3
	Pan	7.4	5.1	5.4	5.6	5.5	5.4	4.7	0.0	4.0	3.4	4.7	4.6	4.0	4.6



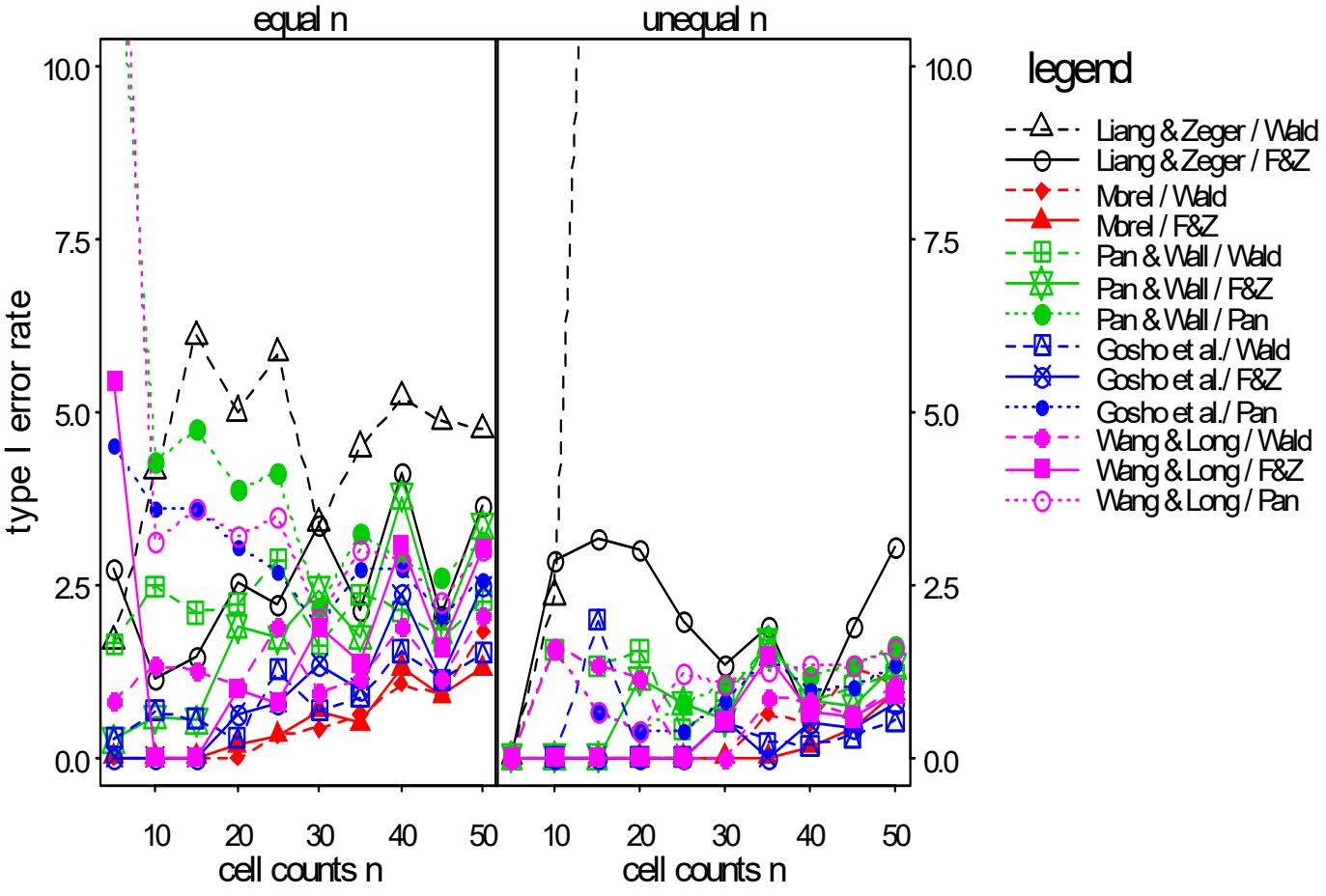
9. 8. 3. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	7.5	5.7	5.3	4.6	4.9	4.7	4.5		17.0	28.9	28.7	18.2	12.5	9.0
	Fan & Zhang	2.6	2.7	3.2	3.1	3.1	3.7	4.3		1.6	2.7	1.8	2.0	1.4	2.8
Morel et al.	Wald	0.0	0.0	0.0	0.1	0.9	1.6	1.6		0.5	0.0	0.0	0.0	0.5	1.2
	Fan & Zhang	0.0	0.0	0.0	0.2	0.6	1.9	2.2		0.0	0.0	0.0	0.3	0.1	0.9
Pan & Wall	Wald	6.1	4.0	3.2	2.8	3.9	4.0	3.8		4.3	3.1	2.3	2.4	1.8	2.9
	Fan & Zhang	1.6	2.1	2.5	2.8	3.0	4.1	4.3		0.5	1.0	1.0	2.4	1.9	3.9
	Pan	11.1	5.0	4.2	3.7	4.3	3.9	4.1		2.2	2.7	2.1	2.7	1.5	3.1
Gosho et al.	Wald	1.2	0.5	0.6	0.9	1.4	2.2	2.6		0.0	0.6	0.8	0.7	0.3	1.1
	Fan & Zhang	0.0	0.1	0.4	0.9	1.9	2.7	3.6		0.0	0.0	0.3	0.9	0.9	2.2
	Pan	4.4	3.0	3.4	2.5	3.0	3.4	3.6		0.5	1.2	1.1	1.7	1.1	2.8
Wang & Long	Wald	2.7	2.1	2.2	1.8	2.6	3.0	3.4		1.1	0.6	1.6	1.6	1.0	2.2
	Fan & Zhang	1.4	0.7	1.3	1.9	2.6	3.2	3.7		0.0	0.4	0.5	1.6	1.3	3.0
	Pan	9.6	4.3	3.8	3.4	3.7	3.5	3.9		1.1	1.7	1.7	2.3	1.2	3.2



9. 8. 3. 3 p = 0.9

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	1.7	4.1	6.1	5.0	3.4	5.2	4.7		2.3	16.7	41.7	24.3	18.7	15.6
	Fan & Zhang	2.7	1.2	1.4	2.5	3.4	4.1	3.7		2.9	3.1	3.0	1.3	0.5	3.0
Morel et al.	Wald	0.0	0.0	0.0	0.0	0.4	1.1	1.8		0.0	0.0	0.0	0.0	0.5	1.1
	Fan & Zhang	0.0	0.0	0.0	0.2	0.7	1.3	1.3		0.0	0.0	0.0	0.0	0.2	0.9
Pan & Wall	Wald	1.6	2.5	2.1	2.2	1.6	2.1	2.3		1.6	1.3	1.5	0.8	0.8	1.2
	Fan & Zhang	0.2	0.6	0.5	1.9	2.4	3.8	3.3		0.0	0.0	1.1	0.5	0.8	1.3
	Pan	12.8	4.3	4.7	3.9	2.2	2.8	3.1		1.6	0.7	0.4	1.1	1.2	1.6
Gosho et al.	Wald	0.3	0.7	0.6	0.3	0.7	1.5	1.5		0.0	2.0	0.0	0.5	0.2	0.5
	Fan & Zhang	0.0	0.0	0.0	0.6	1.3	2.4	2.5		0.0	0.0	0.0	0.5	0.5	0.8
	Pan	4.5	3.6	3.6	3.0	1.9	2.7	2.6		1.6	0.7	0.4	0.8	1.0	1.3
Wang & Long	Wald	0.8	1.3	1.2	1.0	0.9	1.9	2.0		1.6	1.3	1.1	0.0	0.8	1.1
	Fan & Zhang	5.4	0.0	0.0	1.0	1.9	3.1	3.0		0.0	0.0	0.0	0.5	0.7	0.9
	Pan	14.4	3.1	3.6	3.2	2.0	2.8	3.0		1.6	0.7	0.4	1.1	1.3	1.6

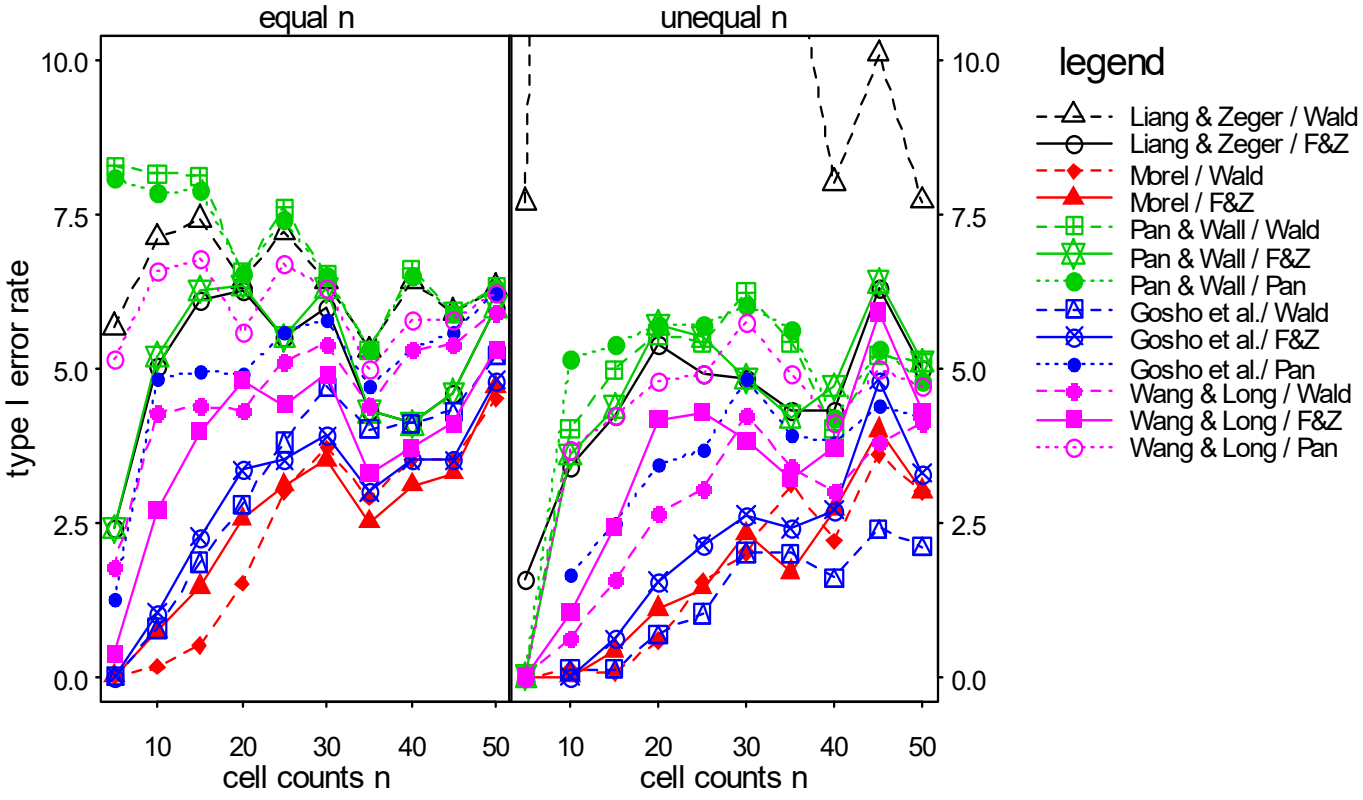


9. 9. Interaction effect AB - B significant (effects b_i = 0.4*s)

9. 9. 1. equal correlations on B (r=0.3)

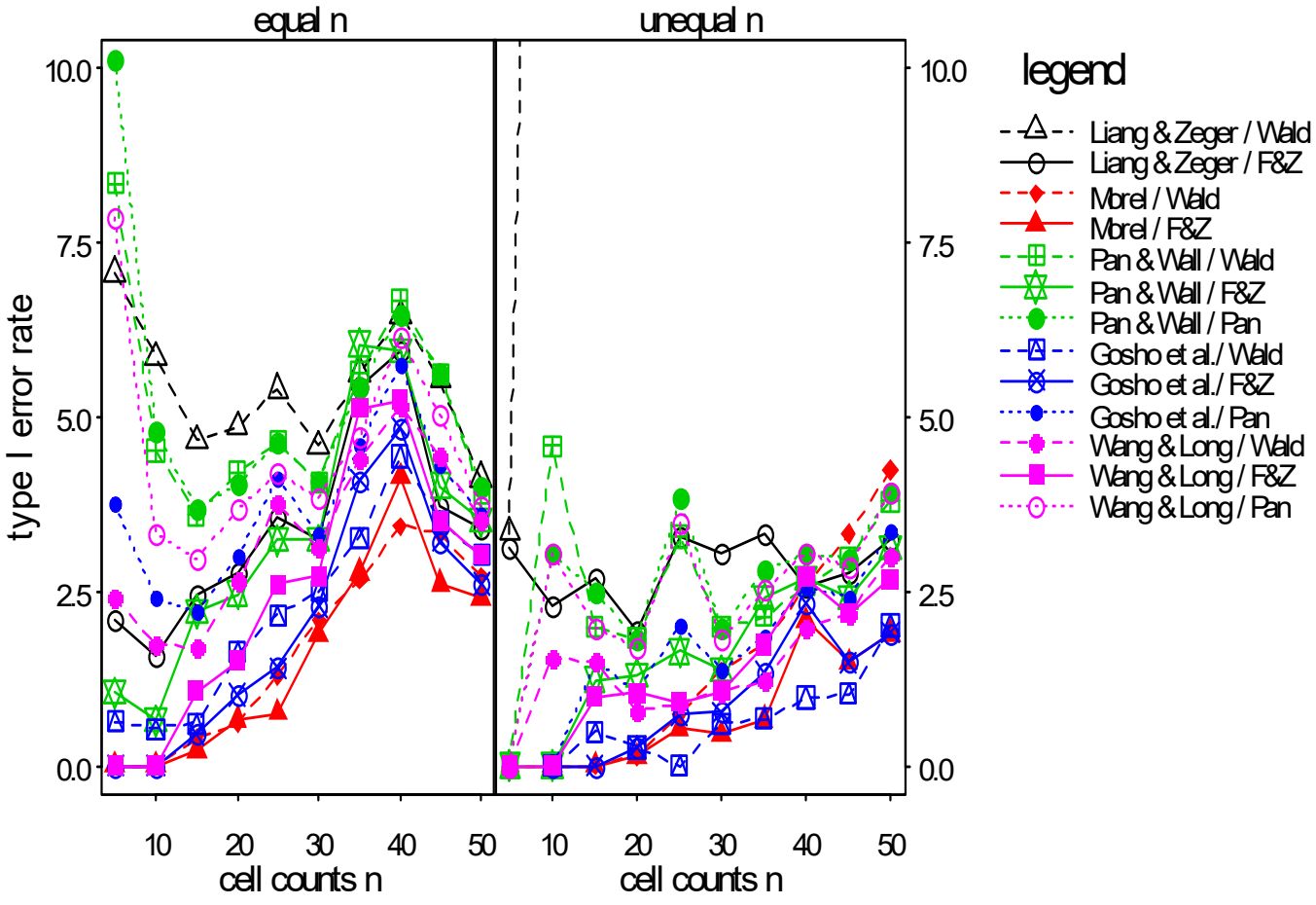
9. 9. 1. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	5.7	7.1	7.4	6.4	6.4	6.4	6.3	7.7	38.4	27.1	21.2	13.8	8.0	7.7
	Fan & Zhang	2.4	5.0	6.1	6.2	6.0	4.1	6.0	1.6	3.4	4.2	5.4	4.8	4.3	5.0
Morel et al.	Wald	0.0	0.2	0.5	1.5	3.7	3.5	4.5	0.0	0.1	0.1	0.6	2.0	2.2	3.0
	Fan & Zhang	0.0	0.7	1.5	2.5	3.5	3.1	4.7	0.0	0.0	0.4	1.1	2.3	2.7	3.0
Pan & Wall	Wald	8.3	8.1	8.1	6.5	6.5	6.6	6.3	0.0	4.0	5.0	5.5	6.2	4.0	5.1
	Fan & Zhang	2.4	5.2	6.3	6.3	6.3	4.1	6.0	0.0	3.6	4.4	5.7	4.8	4.7	5.1
	Pan	8.1	7.8	7.9	6.5	6.5	6.5	6.3	0.0	5.1	5.4	5.7	6.0	4.2	4.8
Gosho et al.	Wald	0.0	0.8	1.9	2.8	4.7	4.1	5.2		0.1	0.1	0.7	2.0	1.6	2.1
	Fan & Zhang	0.0	1.0	2.3	3.4	3.9	3.5	4.8		0.0	0.6	1.5	2.6	2.7	3.3
	Pan	1.3	4.8	5.0	4.9	5.8	5.3	6.2		1.6	2.5	3.4	4.8	3.8	4.2
Wang & Long	Wald	1.8	4.3	4.4	4.3	5.4	5.3	5.9	0.0	0.6	1.6	2.6	4.2	3.0	4.1
	Fan & Zhang	0.4	2.7	4.0	4.8	4.9	3.7	5.3	0.0	1.0	2.4	4.2	3.8	3.7	4.3
	Pan	5.2	6.6	6.8	5.6	6.3	5.8	6.2	0.0	3.7	4.3	4.8	5.7	4.1	4.7



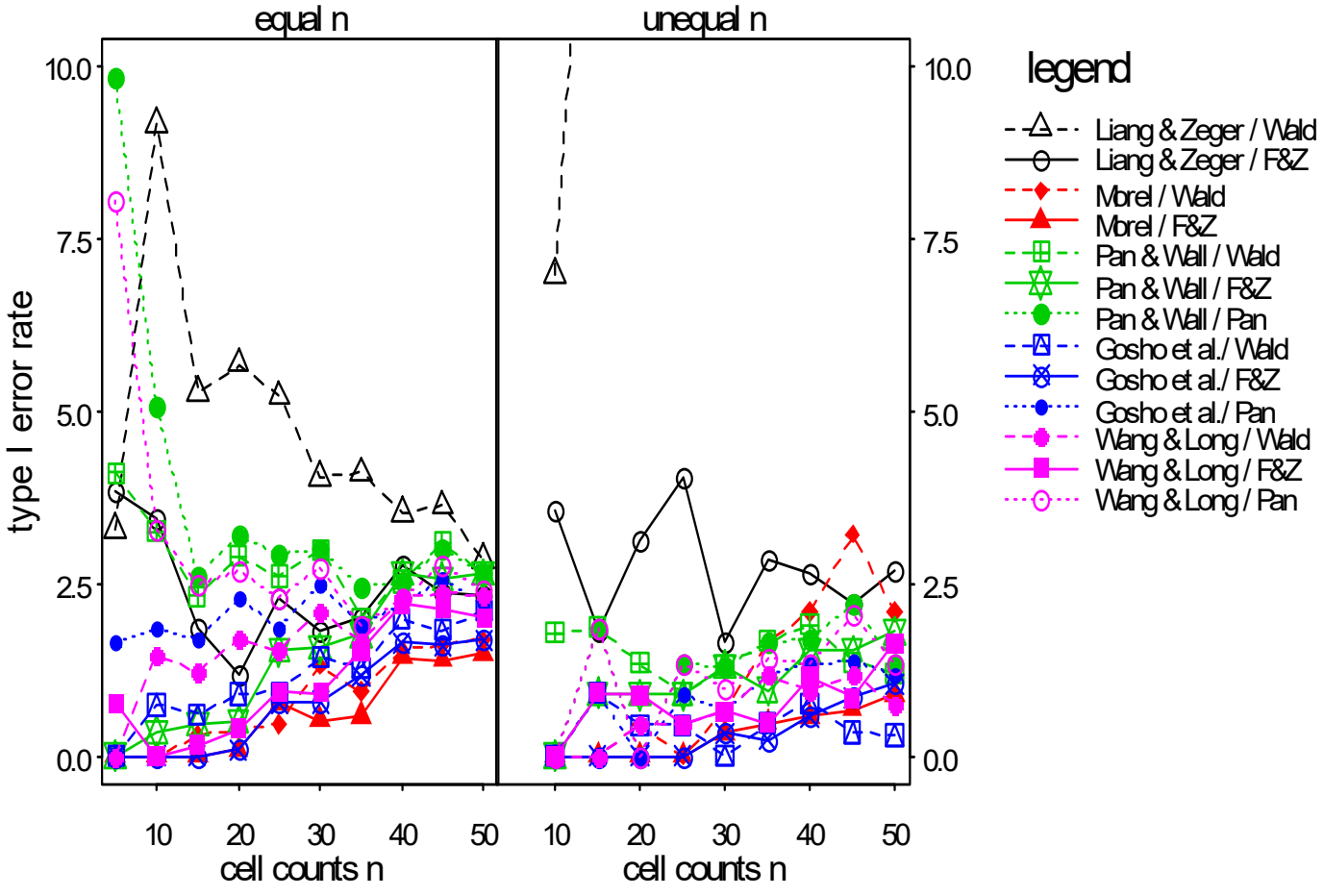
9. 9. 1. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	7.1	5.8	4.7	4.9	4.6	6.5	4.1	3.3	29.2	27.5	26.1	18.1	13.1	10.7
	Fan & Zhang	2.1	1.6	2.4	2.8	3.2	5.9	3.4	3.1	2.3	2.7	1.9	3.0	2.6	3.2
Morel et al.	Wald	0.0	0.0	0.4	0.6	2.1	3.4	2.7	0.0	0.0	0.0	0.1	1.4	2.6	4.2
	Fan & Zhang	0.0	0.0	0.2	0.7	1.9	4.1	2.4	0.0	0.0	0.0	0.1	0.5	2.1	1.9
Pan & Wall	Wald	8.3	4.5	3.6	4.2	4.1	6.7	3.9	0.0	4.6	2.0	1.8	2.0	2.6	3.8
	Fan & Zhang	1.0	0.7	2.2	2.5	3.2	5.9	3.5	0.0	0.0	1.2	1.3	1.4	2.7	3.1
	Pan	10.1	4.8	3.7	4.0	4.1	6.5	4.0	0.0	3.1	2.5	1.8	2.0	3.1	3.9
Gosho et al.	Wald	0.6	0.5	0.6	1.6	2.5	4.4	3.0		0.0	0.5	0.3	0.6	1.0	2.0
	Fan & Zhang	0.0	0.0	0.5	1.0	2.3	4.8	2.6		0.0	0.0	0.3	0.8	2.3	1.9
	Pan	3.8	2.4	2.2	3.0	3.3	5.7	3.6		0.0	1.5	1.0	1.4	2.6	3.3
Wang & Long	Wald	2.4	1.7	1.7	2.6	3.1	5.1	3.5	0.0	1.5	1.5	0.8	1.1	2.0	3.0
	Fan & Zhang	0.0	0.0	1.1	1.5	2.7	5.2	3.0	0.0	0.0	1.0	1.0	1.1	2.7	2.7
	Pan	7.8	3.3	3.0	3.7	3.9	6.1	3.7	0.0	3.1	2.0	1.7	1.8	3.1	3.9



9. 9. 1. 3 p = 0.9

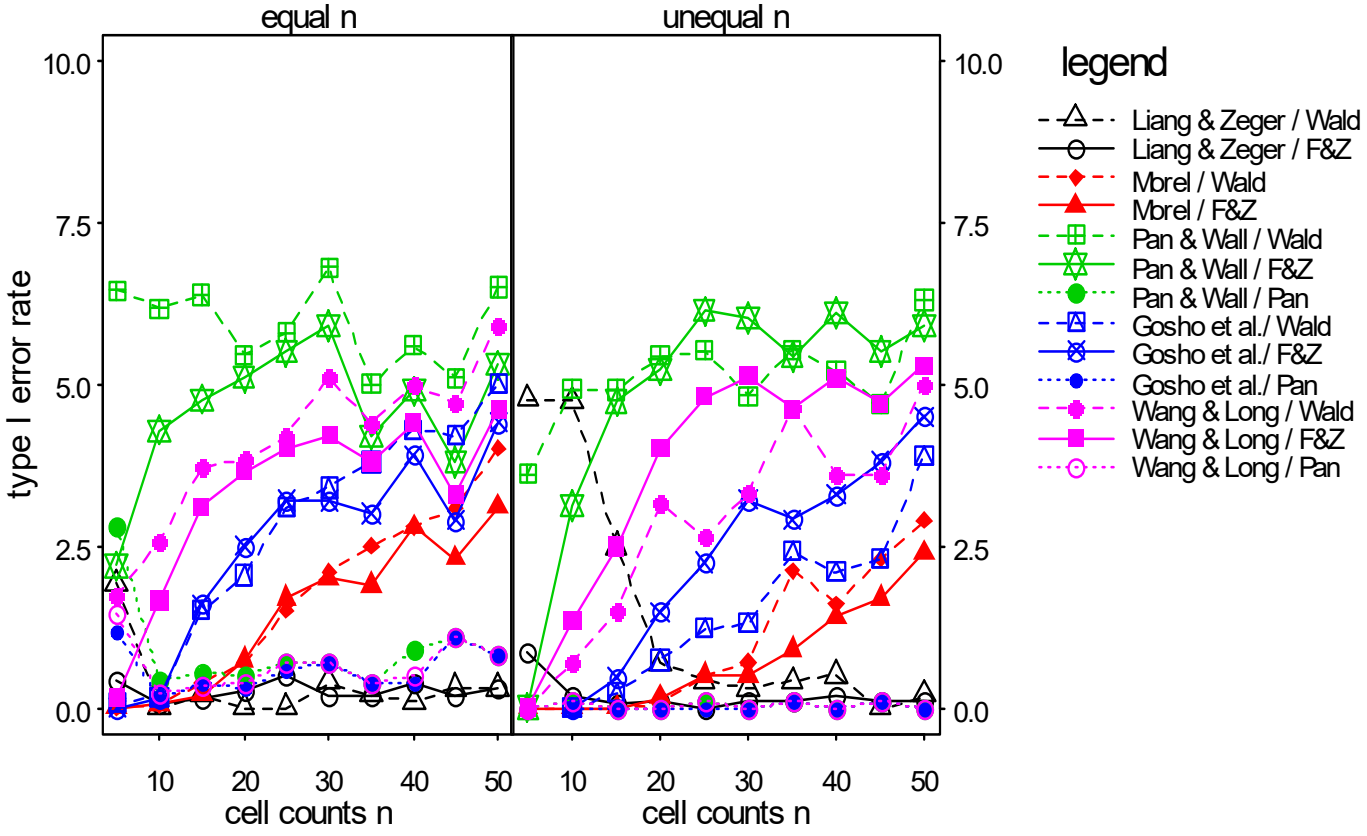
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	3.3	9.2	5.3	5.7	4.0	3.5	2.8		7.0	16.0	25.7	19.1	18.6	11.4
	Fan & Zhang	3.8	3.4	1.8	1.2	1.8	2.7	2.3		3.6	1.8	3.1	1.6	2.7	2.7
Morel et al.	Wald	0.0	0.0	0.3	0.4	1.3	1.5	1.7		0.0	0.0	0.4	0.7	2.1	2.1
	Fan & Zhang	0.0	0.0	0.0	0.1	0.5	1.4	1.5		0.0	0.0	0.0	0.3	0.6	0.9
Pan & Wall	Wald	4.1	3.3	2.3	2.9	3.0	2.5	2.6		1.8	1.9	1.3	1.3	1.9	1.2
	Fan & Zhang	0.0	0.3	0.5	0.5	1.6	2.6	2.6		0.0	0.9	0.9	1.3	1.5	1.8
	Pan	9.8	5.1	2.6	3.2	3.0	2.5	2.6		0.0	1.9	0.0	1.3	1.7	1.3
Gosho et al.	Wald	0.0	0.7	0.6	0.9	1.4	2.0	2.1		0.0	0.9	0.4	0.0	0.8	0.3
	Fan & Zhang	0.0	0.0	0.0	0.1	0.8	1.6	1.7		0.0	0.0	0.0	0.3	0.6	1.0
	Pan	1.6	1.8	1.7	2.3	2.5	2.2	2.2		0.0	0.9	0.0	0.7	1.3	1.2
Wang & Long	Wald	0.0	1.5	1.2	1.7	2.1	2.3	2.3		0.0	0.0	0.4	0.7	1.0	0.7
	Fan & Zhang	0.8	0.0	0.2	0.4	0.9	2.2	2.0		0.0	0.9	0.9	0.7	1.1	1.6
	Pan	8.1	3.3	2.5	2.7	2.7	2.3	2.4		0.0	1.8	0.0	1.0	1.3	1.3



9. 9. 2. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) ar1-structure assumed

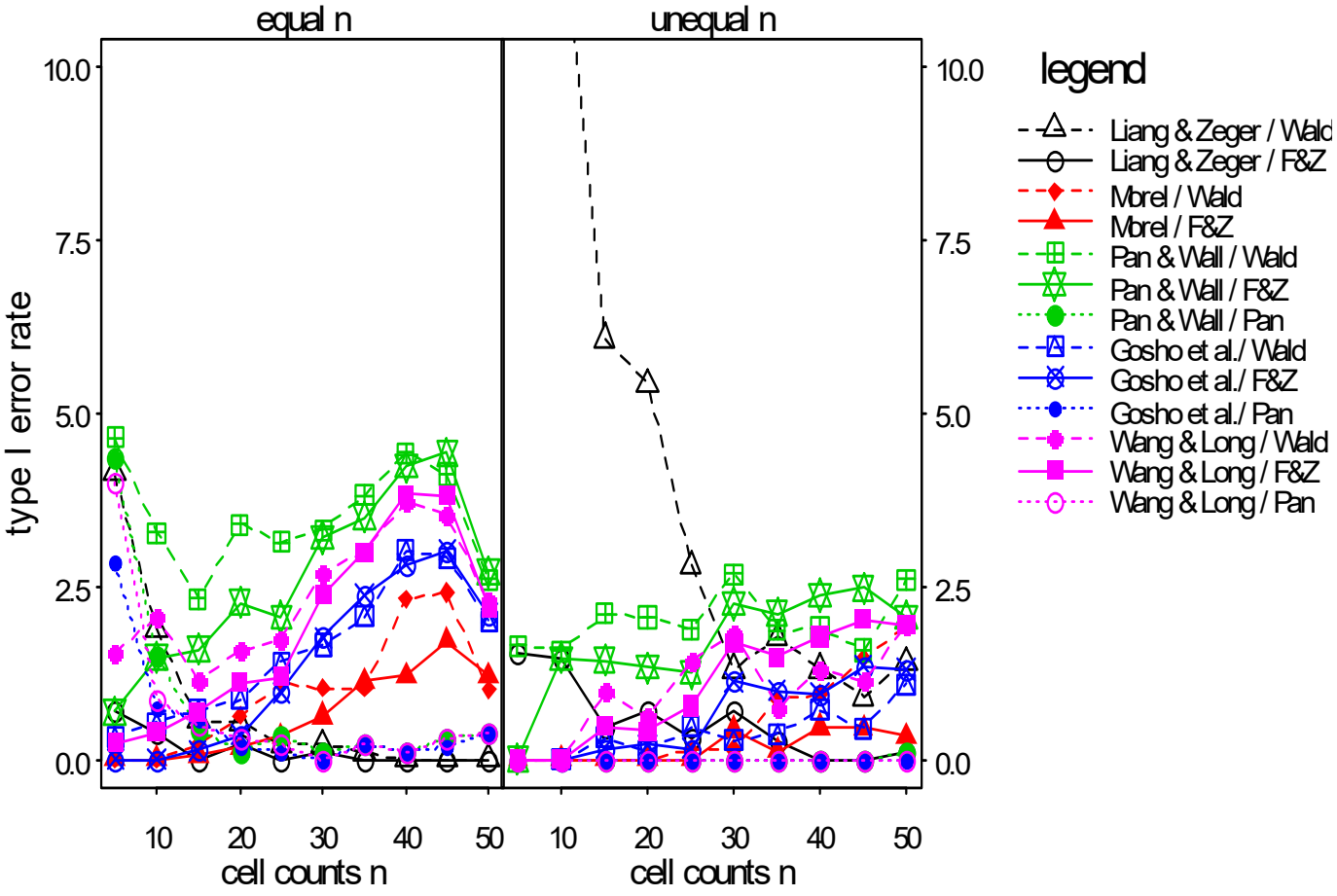
9. 9. 2. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	1.9	0.0	0.2	0.0	0.4	0.1	0.3	4.8	4.7	2.5	0.7	0.3	0.5	0.2
	Fan & Zhang	0.4	0.1	0.2	0.3	0.2	0.4	0.3	0.8	0.2	0.1	0.1	0.1	0.2	0.1
Morel et al.	Wald	0.0	0.1	0.4	0.7	2.1	2.8	4.0	0.0	0.0	0.0	0.1	0.7	1.6	2.9
	Fan & Zhang	0.0	0.1	0.2	0.8	2.0	2.8	3.1	0.0	0.0	0.0	0.2	0.5	1.4	2.4
Pan & Wall	Wald	6.4	6.2	6.4	5.5	6.8	5.6	6.5	3.6	4.9	4.9	5.4	4.8	5.2	6.3
	Fan & Zhang	2.2	4.3	4.8	5.1	5.9	4.9	5.3	0.0	3.1	4.7	5.2	6.0	6.1	5.9
	Pan	2.8	0.4	0.6	0.5	0.7	0.9	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Gosho et al.	Wald	0.1	0.2	1.5	2.1	3.4	4.3	5.0		0.0	0.2	0.7	1.3	2.1	3.9
	Fan & Zhang	0.0	0.2	1.6	2.5	3.2	3.9	4.4		0.0	0.5	1.5	3.2	3.3	4.5
	Pan	1.2	0.2	0.4	0.3	0.7	0.4	0.8		0.0	0.0	0.0	0.0	0.0	0.0
Wang & Long	Wald	1.7	2.6	3.7	3.9	5.1	5.0	5.9	0.0	0.7	1.5	3.2	3.3	3.6	5.0
	Fan & Zhang	0.2	1.7	3.1	3.7	4.2	4.4	4.6	0.0	1.3	2.5	4.0	5.1	5.1	5.3
	Pan	1.4	0.2	0.4	0.4	0.7	0.5	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0



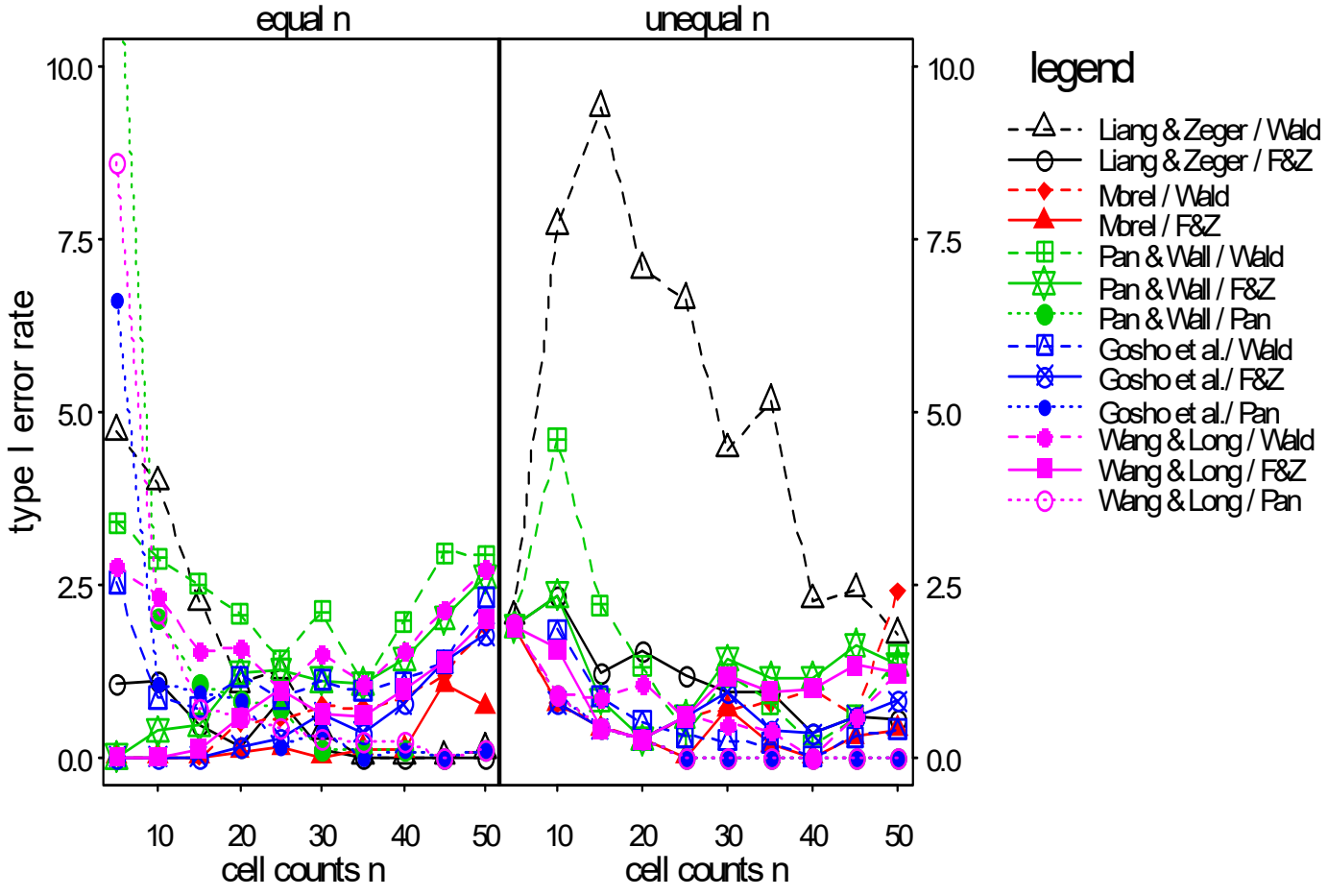
9. 9. 2. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	4.1	1.9	0.6	0.5	0.2	0.0	0.0		12.6	6.1	5.4	1.3	1.3	1.4
	Fan & Zhang	0.7	0.4	0.0	0.2	0.1	0.0	0.0	1.5	1.5	0.5	0.7	0.7	0.0	0.1
Morel et al.	Wald	0.0	0.0	0.2	0.6	1.0	2.3	1.0	0.0	0.0	0.0	0.0	0.1	0.9	1.9
	Fan & Zhang	0.0	0.0	0.1	0.2	0.6	1.2	1.2	0.0	0.0	0.0	0.0	0.4	0.5	0.3
Pan & Wall	Wald	4.6	3.3	2.3	3.4	3.3	4.4	2.6	1.6	1.6	2.1	2.0	2.7	1.9	2.6
	Fan & Zhang	0.7	1.5	1.6	2.3	3.2	4.2	2.7	0.0	1.5	1.4	1.3	2.2	2.4	2.1
	Pan	4.3	1.5	0.4	0.1	0.1	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Gosho et al.	Wald	0.3	0.5	0.7	0.9	1.7	3.0	2.0		0.0	0.3	0.1	0.3	0.7	1.1
	Fan & Zhang	0.0	0.0	0.1	0.3	1.8	2.8	2.1		0.0	0.2	0.2	1.1	0.9	1.3
	Pan	2.9	0.7	0.6	0.2	0.0	0.1	0.4		0.0	0.0	0.0	0.0	0.0	0.0
Wang & Long	Wald	1.5	2.0	1.1	1.6	2.7	3.7	2.3	0.0	0.0	1.0	0.6	1.8	1.3	1.9
	Fan & Zhang	0.2	0.4	0.7	1.1	2.4	3.8	2.2	0.0	0.0	0.5	0.4	1.7	1.8	1.9
	Pan	4.0	0.9	0.5	0.3	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0



9. 9. 2. 3 p = 0.9

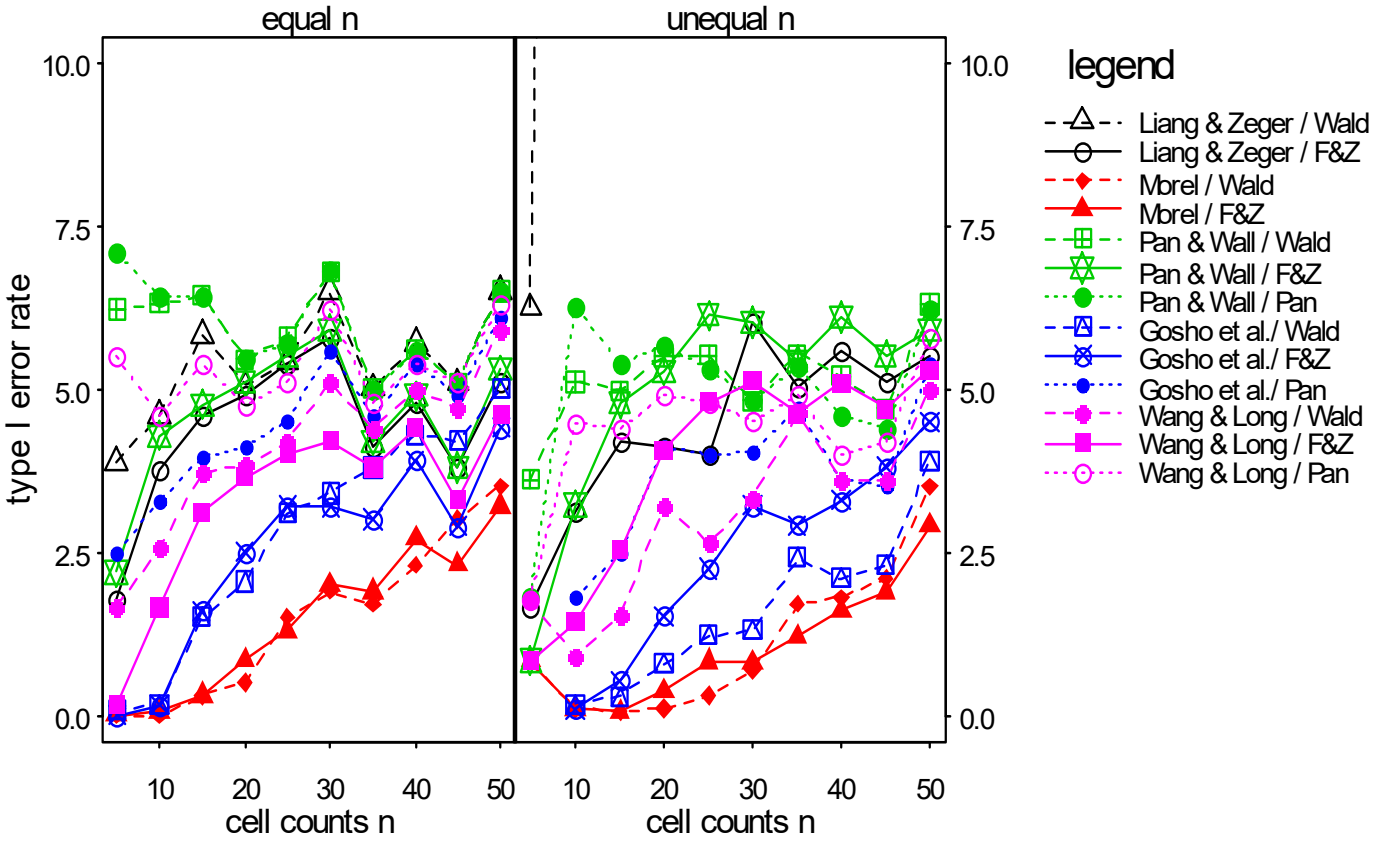
		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	4.7	4.0	2.2	1.1	0.4	0.0	0.1	2.0	7.7	9.4	7.1	4.5	2.3	1.8
	Fan & Zhang	1.0	1.1	0.5	0.2	0.1	0.0	0.0	1.9	2.3	1.2	1.5	0.9	0.3	0.5
Morel et al.	Wald	0.0	0.0	0.0	0.5	0.7	0.9	1.9	1.9	0.8	0.4	0.3	0.7	1.0	2.4
	Fan & Zhang	0.0	0.0	0.0	0.1	0.0	0.1	0.7	1.9	0.8	0.4	0.3	0.7	0.0	0.4
Pan & Wall	Wald	3.4	2.9	2.5	2.1	2.1	2.0	2.9	1.9	4.6	2.2	1.3	1.2	0.2	1.5
	Fan & Zhang	0.0	0.4	0.5	1.2	1.1	1.4	2.6	1.9	2.3	0.8	0.3	1.4	1.1	1.3
	Pan	12.0	2.0	1.1	0.8	0.1	0.1	0.1	1.9	0.9	0.4	0.3	0.0	0.0	0.0
Gosho et al.	Wald	2.5	0.9	0.7	1.2	1.1	1.1	2.3		1.8	0.9	0.5	0.2	0.0	0.4
	Fan & Zhang	0.0	0.0	0.0	0.2	0.6	0.8	1.8		0.8	0.4	0.3	0.9	0.3	0.8
	Pan	6.6	1.1	0.9	0.8	0.4	0.1	0.1		0.9	0.4	0.3	0.0	0.0	0.0
Wang & Long	Wald	2.8	2.3	1.5	1.6	1.5	1.5	2.7	1.9	0.9	0.9	1.0	0.5	0.0	1.2
	Fan & Zhang	0.0	0.0	0.1	0.6	0.6	1.0	2.0	1.9	1.6	0.4	0.3	1.2	1.0	1.2
	Pan	8.6	2.1	0.7	0.6	0.2	0.2	0.1	1.9	0.9	0.4	0.3	0.0	0.0	0.0



9. 9. 3. unequal correlations on B (r = 0.7, 0.5, 0.4, 0.2) exchangeable-structure assumed

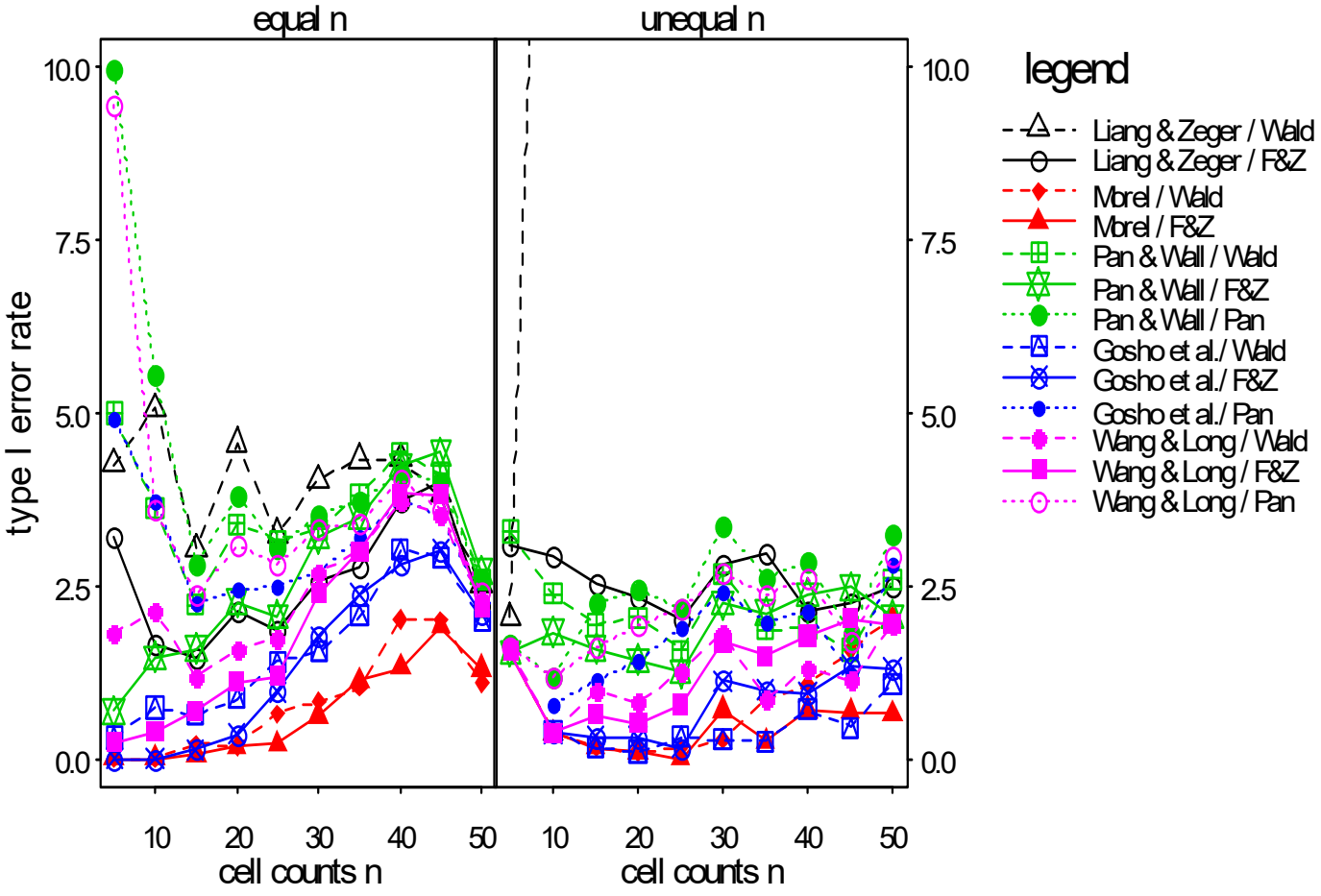
9. 9. 3. 1 p = 0.5

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	3.9	4.6	5.8	5.1	6.5	5.7	6.5	6.2	39.7	32.7	25.6	18.1	11.7	11.4
	Fan & Zhang	1.8	3.8	4.6	4.9	5.8	4.8	5.1	1.7	3.1	4.2	4.1	6.0	5.6	5.5
Morel et al.	Wald	0.0	0.0	0.3	0.5	1.9	2.3	3.5	0.8	0.1	0.1	0.1	0.7	1.8	3.5
	Fan & Zhang	0.0	0.1	0.3	0.9	2.0	2.7	3.2	0.8	0.1	0.1	0.4	0.8	1.6	2.9
Pan & Wall	Wald	6.2	6.3	6.4	5.5	6.8	5.6	6.5	3.6	5.1	5.0	5.5	4.8	5.2	6.3
	Fan & Zhang	2.2	4.3	4.8	5.1	5.9	4.9	5.3	0.8	3.2	4.8	5.3	6.0	6.1	5.9
	Pan	7.1	6.4	6.4	5.5	6.8	5.6	6.5	1.8	6.3	5.4	5.6	4.8	4.6	6.2
Gosho et al.	Wald	0.1	0.2	1.5	2.1	3.4	4.3	5.0		0.2	0.3	0.8	1.3	2.1	3.9
	Fan & Zhang	0.0	0.2	1.6	2.5	3.2	3.9	4.4		0.1	0.5	1.5	3.2	3.3	4.5
	Pan	2.5	3.3	4.0	4.1	5.6	5.4	6.1		1.8	2.5	4.1	4.0	3.6	5.4
Wang & Long	Wald	1.7	2.6	3.7	3.9	5.1	5.0	5.9	1.8	0.9	1.5	3.2	3.3	3.6	5.0
	Fan & Zhang	0.2	1.7	3.1	3.7	4.2	4.4	4.6	0.8	1.4	2.5	4.1	5.1	5.1	5.3
	Pan	5.5	4.6	5.4	4.8	6.2	5.4	6.3	1.8	4.5	4.4	4.9	4.5	4.0	5.8



9. 9. 3. 2 p = 0.8

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	4.2	5.1	3.0	4.6	4.0	4.3	2.5	2.0	21.7	30.9	28.4	29.9	21.2	16.7
	Fan & Zhang	3.2	1.7	1.4	2.1	2.6	3.7	2.2	3.1	2.9	2.5	2.3	2.8	2.1	2.5
Morel et al.	Wald	0.0	0.0	0.2	0.2	0.8	2.0	1.1	1.5	0.4	0.2	0.1	0.3	1.1	2.1
	Fan & Zhang	0.0	0.0	0.1	0.2	0.6	1.3	1.3	1.5	0.4	0.2	0.1	0.7	0.7	0.6
Pan & Wall	Wald	5.0	3.6	2.2	3.4	3.3	4.4	2.6	3.3	2.4	1.9	2.0	2.7	1.9	2.6
	Fan & Zhang	0.7	1.5	1.6	2.3	3.2	4.2	2.7	1.5	1.8	1.6	1.4	2.2	2.4	2.1
	Pan	10.0	5.6	2.8	3.8	3.5	4.1	2.6	1.6	1.2	2.3	2.5	3.4	2.8	3.2
Gosho et al.	Wald	0.3	0.7	0.6	0.9	1.5	3.0	2.0		0.4	0.2	0.1	0.3	0.7	1.1
	Fan & Zhang	0.0	0.0	0.1	0.3	1.8	2.8	2.1		0.4	0.3	0.3	1.1	0.9	1.3
	Pan	4.9	3.7	2.2	2.4	2.7	3.7	2.3		0.8	1.1	1.4	2.4	2.1	2.8
Wang & Long	Wald	1.8	2.1	1.2	1.6	2.7	3.7	2.3	1.6	0.4	1.0	0.8	1.8	1.3	1.9
	Fan & Zhang	0.2	0.4	0.7	1.1	2.4	3.8	2.2	1.5	0.4	0.6	0.5	1.7	1.8	1.9
	Pan	9.5	3.6	2.4	3.1	3.3	4.0	2.4	1.6	1.2	1.6	1.9	2.7	2.6	2.9



9. 9. 3. 3 p = 0.9

		equal cell counts							unequal cell counts						
method	Anova-type	5	10	15	20	30	40	50	5	10	15	20	30	40	50
Liang & Zeger	Wald	3.7	6.7	5.1	3.2	3.0	2.8	2.8	2.0	14.8	17.2	22.6	25.5	22.4	22.8
	Fan & Zhang	7.3	1.8	0.9	1.4	1.4	1.1	2.4	1.9	2.3	3.7	2.3	3.3	1.8	2.7
Morel et al.	Wald	0.0	0.0	0.0	0.1	0.4	0.3	1.5	1.9	0.8	0.4	0.3	0.5	0.8	2.3
	Fan & Zhang	0.0	0.0	0.0	0.1	0.0	0.0	0.6	1.9	0.8	0.4	0.3	0.9	0.0	0.7
Pan & Wall	Wald	3.8	3.5	2.4	2.1	2.1	2.0	2.9	1.9	4.5	2.6	1.6	1.2	0.2	1.3
	Fan & Zhang	0.0	0.4	0.4	1.2	1.1	1.4	2.6	1.9	2.3	0.8	0.3	1.4	1.1	1.3
	Pan	13.2	6.1	4.2	2.7	2.4	2.1	2.8	1.9	1.8	1.7	1.8	2.3	0.2	1.3
Gosho et al.	Wald	2.9	1.3	0.7	1.1	0.9	1.1	2.3		1.8	1.7	0.5	0.2	0.2	0.3
	Fan & Zhang	0.0	0.0	0.0	0.2	0.6	0.8	1.8		0.8	0.4	0.3	0.9	0.3	0.8
	Pan	5.4	5.1	2.6	2.2	2.7	1.6	2.6		0.9	0.9	1.0	1.9	0.2	1.2
Wang & Long	Wald	2.1	2.1	1.5	1.6	1.5	1.5	2.7	1.9	0.9	0.4	0.8	0.5	0.2	0.9
	Fan & Zhang	1.6	0.0	0.1	0.6	0.6	1.0	2.0	1.9	1.5	0.4	0.3	1.2	1.0	1.2
	Pan	11.7	5.1	3.6	3.0	2.9	1.9	2.9	1.9	1.9	1.7	2.1	2.1	0.2	1.3