

g006.sas: Random-effects analysis
Three random effects per study

The NLMIXED Procedure

Specifications	
Data Set	WORK.A
Dependent Variable	y00
Distribution for Dependent Variable	General
Random Effects	u1 u2 u3
Distribution for Random Effects	Normal
Subject Variable	id
Optimization Technique	Dual Quasi-Newton
Integration Method	Adaptive Gaussian Quadrature

Dimensions	
Observations Used	25
Observations Not Used	0
Total Observations	25
Subjects	25
Max Obs per Subject	1
Parameters	6
Quadrature Points	25

Initial Parameters						
beta1	beta2	beta3	log_g11	log_g22	log_g33	Negative Log Likelihood
2.331	1.8631	0.006937	0.8691	0.3527	2.1988	415.450772

Iteration History						
Iteration	Calls	Negative Log Likelihood	Difference	Maximum Gradient	Slope	
1	6	415.4508	1.62E-8	0.000125	-0.00004	
2	10	415.4508	9.67E-10	0.000066	-1.03E-6	

NOTE: GCONV convergence criterion satisfied.

Fit Statistics	
-2 Log Likelihood	830.9
AIC (smaller is better)	842.9
AICC (smaller is better)	847.6
BIC (smaller is better)	850.2

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Parameter Estimates								
Parameter	Estimate	Standard Error	DF	t Value	Pr > t	95% Confidence Limits		Gradient
beta1	2.3310	0.4790	22	4.87	<.0001	1.3375	3.3244	-0.00006
beta2	1.8631	0.3567	22	5.22	<.0001	1.1234	2.6027	-0.00007
beta3	0.006939	1.2507	22	0.01	0.9956	-2.5868	2.6007	-1.62E-6
log_g11	0.8691	0.5374	22	1.62	0.1201	-0.2454	1.9837	0.000030
log_g22	0.3527	0.4923	22	0.72	0.4812	-0.6682	1.3736	0.000019
log_g33	2.1988	0.8008	22	2.75	0.0118	0.5380	3.8597	-0.00003

Covariance Matrix of Parameter Estimates						
	beta1	beta2	beta3	log_g11	log_g22	log_g33
beta1	0.2295	0.005943	-0.03974	0.1422	0.008841	0.000977
beta2	0.005943	0.1272	-0.02649	0.006804	0.08421	0.000869
beta3	-0.03974	-0.02649	1.5642	-0.03087	-0.02811	-0.4254
log_g11	0.1422	0.006804	-0.03087	0.2888	0.01141	-0.00084
log_g22	0.008841	0.08421	-0.02811	0.01141	0.2423	-0.00085
log_g33	0.000977	0.000869	-0.4254	-0.00084	-0.00085	0.6414

Correlation Matrix of Parameter Estimates						
	beta1	beta2	beta3	log_g11	log_g22	log_g33
beta1	1.0000	0.0348	-0.0663	0.5524	0.0375	0.0025
beta2	0.0348	1.0000	-0.0594	0.0355	0.4796	0.0030
beta3	-0.0663	-0.0594	1.0000	-0.0459	-0.0457	-0.4247
log_g11	0.5524	0.0355	-0.0459	1.0000	0.0431	-0.0019
log_g22	0.0375	0.4796	-0.0457	0.0431	1.0000	-0.0022
log_g33	0.0025	0.0030	-0.4247	-0.0019	-0.0022	1.0000

Additional Estimates								
Label	Estimate	Standard Error	DF	t Value	Pr > t	Alpha	Lower	Upper
g11:	2.3848	1.2817	22	1.86	0.0762	0.05	-0.2732	5.0429
g22:	1.4230	0.7005	22	2.03	0.0545	0.05	-0.02974	2.8757
g33:	9.0143	7.2191	22	1.25	0.2249	0.05	-5.9572	23.9858

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*Covariance Matrix of Additional
Estimates*

<i>Label</i>	<i>Cov1</i>	<i>Cov2</i>	<i>Cov3</i>
g11:	1.6427	0.03871	-0.01800
g22:	0.03871	0.4907	-0.01096
g33:	-0.01800	-0.01096	52.1156

*Correlation Matrix of Additional
Estimates*

<i>Label</i>	<i>Corr1</i>	<i>Corr2</i>	<i>Corr3</i>
g11:	1.0000	0.0431	-0.0019
g22:	0.0431	1.0000	-0.0022
g33:	-0.0019	-0.0022	1.0000

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Obs	id	y11	y10	y01	y00	n	eta1	StdErrPred	DF	tValue	Probt	Alpha	eta1l	eta1u
1	Anzellotti 2010	1	0	0	0	1	2.50866	1.50555	22	1.66627	0.10984	0.05	-0.61367	5.63099
2	Song 2006	2	0	0	0	2	2.64316	1.43709	22	1.83924	0.07942	0.05	-0.33720	5.62351
3	Wang 2007	2	0	0	0	2	2.64316	1.43709	22	1.83924	0.07942	0.05	-0.33720	5.62351
4	Tavares 2017	3	0	0	0	3	2.75260	1.38883	22	1.98196	0.06011	0.05	-0.12765	5.63285
5	Weaver 2013	3	0	1	0	4	1.58766	1.02996	22	1.54148	0.13746	0.05	-0.54834	3.72367
6	Gnanadas 2017	4	1	1	0	6	1.85827	0.95876	22	1.93819	0.06554	0.05	-0.13009	3.84662
7	Morgan 2003	6	0	0	0	6	2.99811	1.29828	22	2.30929	0.03070	0.05	0.30564	5.69059
8	Stufflebeam 2011	5	0	1	0	6	1.87028	0.96785	22	1.93240	0.06629	0.05	-0.13692	3.87749
9	Zhao 2019	6	0	0	0	6	2.99811	1.29828	22	2.30929	0.03070	0.05	0.30564	5.69059
10	vanHoudt 2015	7	0	0	0	7	3.06282	1.27758	22	2.39737	0.02544	0.05	0.41329	5.71235
11	Jann 2008	8	0	0	0	8	3.12175	1.25964	22	2.47829	0.02135	0.05	0.50942	5.73408
12	Kang 2003	7	1	0	0	8	3.13003	1.24763	22	2.50878	0.01998	0.05	0.54260	5.71747
13	Hunyadi 2014	4	3	3	0	10	1.04014	0.67114	22	1.54980	0.13546	0.05	-0.35172	2.43200
14	Yang 2015	9	2	0	0	11	3.28084	1.20516	22	2.72232	0.01244	0.05	0.78148	5.78019
15	Hunyadi 2015b	9	3	0	0	12	3.32306	1.19492	22	2.78098	0.01090	0.05	0.84494	5.80119
16	Hunyadi 2015a	4	7	7	0	18	0.52171	0.47480	22	1.09881	0.28373	0.05	-0.46296	1.50639
17	Su 2015	21	0	0	0	21	3.62048	1.13488	22	3.19018	0.00423	0.05	1.26688	5.97409
18	Barron 2014	21	2	0	0	23	3.67978	1.11506	22	3.30007	0.00326	0.05	1.36729	5.99227
19	Lee 2014	21	2	5	1	29	1.42168	0.45090	22	3.15300	0.00461	0.05	0.48658	2.35678
20	Reyes 2016	28	3	3	0	34	2.33956	0.56622	22	4.13191	0.00044	0.05	1.16530	3.51382
21	Boerwinkle 2017	27	7	2	0	36	2.73953	0.64640	22	4.23810	0.00034	0.05	1.39897	4.08009
22	Chen 2017	30	2	6	4	42	1.22657	0.35674	22	3.43827	0.00235	0.05	0.48673	1.96640
23	Bettus 2010	16	10	6	12	44	0.47179	0.30466	22	1.54860	0.13574	0.05	-0.16003	1.10362
24	Khoo 2019	16	8	7	18	49	0.07620	0.28276	22	0.26948	0.79008	0.05	-0.51021	0.66260
25	Boerwinkle 2019	22	3	1	38	64	-0.28643	0.24982	22	-1.14654	0.26389	0.05	-0.80454	0.23167

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Obs	id	y11	y10	y01	y00	n	eta2	StdErrPred	DF	tValue	Probt	Alpha	eta2l	eta2u
1	Anzellotti 2010	1	0	0	0	1	2.02759	1.16926	22	1.73409	0.09690	0.05	-0.39730	4.45248
2	Song 2006	2	0	0	0	2	2.15582	1.12014	22	1.92459	0.06731	0.05	-0.16721	4.47886
3	Wang 2007	2	0	0	0	2	2.15582	1.12014	22	1.92459	0.06731	0.05	-0.16721	4.47886
4	Tavares 2017	3	0	0	0	3	2.26169	1.08468	22	2.08512	0.04887	0.05	0.01220	4.51118
5	Weaver 2013	3	0	1	0	4	2.35119	1.05625	22	2.22598	0.03657	0.05	0.16066	4.54172
6	Gnanadas 2017	4	1	1	0	6	1.71691	0.84098	22	2.04157	0.05337	0.05	-0.02717	3.46099
7	Morgan 2003	6	0	0	0	6	2.50214	1.01710	22	2.46007	0.02222	0.05	0.39280	4.61148
8	Stufflebeam 2011	5	0	1	0	6	2.50539	1.01271	22	2.47395	0.02156	0.05	0.40516	4.60561
9	Zhao 2019	6	0	0	0	6	2.50214	1.01710	22	2.46007	0.02222	0.05	0.39280	4.61148
10	vanHoudt 2015	7	0	0	0	7	2.56593	1.00158	22	2.56188	0.01778	0.05	0.48878	4.64308
11	Jann 2008	8	0	0	0	8	2.62413	0.98814	22	2.65562	0.01444	0.05	0.57485	4.67342
12	Kang 2003	7	1	0	0	8	1.90883	0.81082	22	2.35421	0.02790	0.05	0.22730	3.59036
13	Hunyadi 2014	4	3	3	0	10	1.05728	0.63639	22	1.66137	0.11082	0.05	-0.26251	2.37706
14	Yang 2015	9	2	0	0	11	1.61580	0.68237	22	2.36793	0.02710	0.05	0.20066	3.03095
15	Hunyadi 2015b	9	3	0	0	12	1.29021	0.61525	22	2.09705	0.04770	0.05	0.01426	2.56617
16	Hunyadi 2015a	4	7	7	0	18	0.57586	0.46602	22	1.23570	0.22960	0.05	-0.39060	1.54232
17	Su 2015	21	0	0	0	21	3.11878	0.89555	22	3.48254	0.00211	0.05	1.26153	4.97604
18	Barron 2014	21	2	0	0	23	2.21967	0.62053	22	3.57707	0.00168	0.05	0.93277	3.50656
19	Lee 2014	21	2	5	1	29	2.10661	0.53941	22	3.90536	0.00076	0.05	0.98793	3.22528
20	Reyes 2016	28	3	3	0	34	2.24182	0.53086	22	4.22302	0.00035	0.05	1.14089	3.34275
21	Boerwinkle 2017	27	7	2	0	36	1.47457	0.40384	22	3.65134	0.00141	0.05	0.63705	2.31209
22	Chen 2017	30	2	6	4	42	1.82495	0.41613	22	4.38554	0.00024	0.05	0.96195	2.68794
23	Bettus 2010	16	10	6	12	44	0.13024	0.29628	22	0.43958	0.66453	0.05	-0.48420	0.74468
24	Khoo 2019	16	8	7	18	49	0.01268	0.28113	22	0.04510	0.96444	0.05	-0.57036	0.59571
25	Boerwinkle 2019	22	3	1	38	64	-0.41159	0.25329	22	-1.62497	0.11841	0.05	-0.93688	0.11370

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Obs	id	y11	y10	y01	y00	n	eta3	StdErrPred	DF	tValue	Probt	Alpha	eta3l	eta3u
1	Anzellotti 2010	1	0	0	0	1	0.09050	3.34868	22	0.02703	0.97868	0.05	-6.85424	7.03524
2	Song 2006	2	0	0	0	2	0.14362	3.42680	22	0.04191	0.96695	0.05	-6.96313	7.25038
3	Wang 2007	2	0	0	0	2	0.14362	3.42680	22	0.04191	0.96695	0.05	-6.96313	7.25038
4	Tavares 2017	3	0	0	0	3	0.18003	3.49040	22	0.05158	0.95933	0.05	-7.05862	7.41868
5	Weaver 2013	3	0	1	0	4	-0.20746	3.03151	22	-0.06844	0.94606	0.05	-6.49442	6.07949
6	Gnanadas 2017	4	1	1	0	6	-0.79538	2.52819	22	-0.31460	0.75603	0.05	-6.03852	4.44776
7	Morgan 2003	6	0	0	0	6	0.23919	3.62044	22	0.06607	0.94792	0.05	-7.26914	7.74753
8	Stufflebeam 2011	5	0	1	0	6	-0.11450	3.10318	22	-0.03690	0.97090	0.05	-6.55011	6.32110
9	Zhao 2019	6	0	0	0	6	0.23919	3.62044	22	0.06607	0.94792	0.05	-7.26914	7.74753
10	vanHoudt 2015	7	0	0	0	7	0.24974	3.64942	22	0.06843	0.94606	0.05	-7.31870	7.81818
11	Jann 2008	8	0	0	0	8	0.25761	3.67325	22	0.07013	0.94472	0.05	-7.36024	7.87547
12	Kang 2003	7	1	0	0	8	0.01925	3.25709	22	0.00591	0.99534	0.05	-6.73554	6.77404
13	Hunyadi 2014	4	3	3	0	10	-2.02408	2.05035	22	-0.98719	0.33428	0.05	-6.27626	2.22809
14	Yang 2015	9	2	0	0	11	-0.04807	3.18606	22	-0.01509	0.98810	0.05	-6.65556	6.55942
15	Hunyadi 2015b	9	3	0	0	12	-0.11157	3.14009	22	-0.03553	0.97198	0.05	-6.62371	6.40057
16	Hunyadi 2015a	4	7	7	0	18	-3.28298	1.78891	22	-1.83518	0.08004	0.05	-6.99295	0.42699
17	Su 2015	21	0	0	0	21	0.26969	3.76041	22	0.07172	0.94347	0.05	-7.52891	8.06830
18	Barron 2014	21	2	0	0	23	0.06543	3.32946	22	0.01965	0.98450	0.05	-6.83944	6.97031
19	Lee 2014	21	2	5	1	29	0.61683	1.23949	22	0.49764	0.62367	0.05	-1.95372	3.18737
20	Reyes 2016	28	3	3	0	34	-0.98890	2.34863	22	-0.42105	0.67780	0.05	-5.85966	3.88186
21	Boerwinkle 2017	27	7	2	0	36	-1.23414	2.24258	22	-0.55032	0.58764	0.05	-5.88497	3.41668
22	Chen 2017	30	2	6	4	42	2.08867	0.91980	22	2.27078	0.03330	0.05	0.18111	3.99623
23	Bettus 2010	16	10	6	12	44	1.12055	0.62781	22	1.78486	0.08808	0.05	-0.18144	2.42255
24	Khoo 2019	16	8	7	18	49	1.57895	0.60706	22	2.60099	0.01631	0.05	0.31999	2.83792
25	Boerwinkle 2019	22	3	1	38	64	4.98846	1.01540	22	4.91282	0.00007	0.05	2.88266	7.09427

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Prediction

<i>Obs</i>	<i>id</i>	<i>n</i>	<i>p1</i>	<i>p2</i>	<i>oddsratio</i>	<i>p1l</i>	<i>p1u</i>	<i>p2l</i>	<i>p2u</i>	<i>or95pil</i>	<i>or95piu</i>
1	Anzellotti 2010	1	0.92475	0.88366	1.095	0.35122	0.99643	0.40196	0.98848	0.0011	1135.97
2	Song 2006	2	0.93359	0.89621	1.154	0.41649	0.99640	0.45829	0.98878	0.0009	1408.63
3	Wang 2007	2	0.93359	0.89621	1.154	0.41649	0.99640	0.45829	0.98878	0.0009	1408.63
4	Tavares 2017	3	0.94006	0.90565	1.197	0.46813	0.99643	0.50305	0.98913	0.0009	1666.84
5	Weaver 2013	4	0.83029	0.91303	0.813	0.36625	0.97642	0.54008	0.98946	0.0015	436.81
6	Gnanadas 2017	6	0.86509	0.84773	0.451	0.46752	0.97909	0.49321	0.96956	0.0024	85.44
7	Morgan 2003	6	0.95249	0.92429	1.270	0.57582	0.99663	0.59696	0.99016	0.0007	2315.84
8	Stufflebeam 2011	6	0.86649	0.92452	0.892	0.46582	0.97972	0.59993	0.99010	0.0014	556.18
9	Zhao 2019	6	0.95249	0.92429	1.270	0.57582	0.99663	0.59696	0.99016	0.0007	2315.84
10	vanHoudt 2015	7	0.95533	0.92864	1.284	0.60188	0.99671	0.61982	0.99046	0.0007	2485.37
11	Jann 2008	8	0.95778	0.93240	1.294	0.62467	0.99678	0.63988	0.99075	0.0006	2631.92
12	Kang 2003	8	0.95811	0.87089	1.019	0.63242	0.99672	0.55658	0.97315	0.0012	874.84
13	Hunyadi 2014	10	0.73888	0.74217	0.132	0.41296	0.91923	0.43475	0.91506	0.0019	9.28
14	Yang 2015	11	0.96377	0.83422	0.953	0.68600	0.99692	0.55000	0.95395	0.0013	705.86
15	Hunyadi 2015b	12	0.96521	0.78418	0.894	0.69951	0.99699	0.50356	0.92865	0.0013	602.19
16	Hunyadi 2015a	18	0.62755	0.64011	0.038	0.38628	0.81853	0.40357	0.82380	0.0009	1.53
17	Su 2015	21	0.97393	0.95766	1.310	0.78021	0.99746	0.77929	0.99315	0.0005	3191.67
18	Barron 2014	23	0.97539	0.90200	1.068	0.79694	0.99751	0.71764	0.97087	0.0011	1064.55
19	Lee 2014	29	0.80560	0.89154	1.853	0.61930	0.91347	0.72868	0.96177	0.1417	24.22
20	Reyes 2016	34	0.91210	0.90394	0.372	0.76229	0.97108	0.75784	0.96587	0.0029	48.51
21	Boerwinkle 2017	36	0.93932	0.81375	0.291	0.80202	0.98338	0.65409	0.90987	0.0028	30.47
22	Chen 2017	42	0.77322	0.86116	8.074	0.61934	0.87722	0.72351	0.93631	1.1986	54.39
23	Bettus 2010	44	0.61581	0.53251	3.067	0.46008	0.75094	0.38126	0.67802	0.8341	11.27
24	Khoo 2019	49	0.51904	0.50317	4.850	0.37514	0.65984	0.36115	0.64467	1.3771	17.08
25	Boerwinkle 2019	64	0.42888	0.39853	146.711	0.30906	0.55766	0.28153	0.52840	17.8617	1205.04

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Prediction. eta3 is the log odds ratio

Obs	id	n	p1	p2	eta3	p1l	p1u	p2l	p2u	eta3l	eta3u
1	Anzellotti 2010	1	0.92475	0.88366	0.09050	0.35122	0.99643	0.40196	0.98848	-6.85424	7.03524
2	Song 2006	2	0.93359	0.89621	0.14362	0.41649	0.99640	0.45829	0.98878	-6.96313	7.25038
3	Wang 2007	2	0.93359	0.89621	0.14362	0.41649	0.99640	0.45829	0.98878	-6.96313	7.25038
4	Tavares 2017	3	0.94006	0.90565	0.18003	0.46813	0.99643	0.50305	0.98913	-7.05862	7.41868
5	Weaver 2013	4	0.83029	0.91303	-0.20746	0.36625	0.97642	0.54008	0.98946	-6.49442	6.07949
6	Gnanadas 2017	6	0.86509	0.84773	-0.79538	0.46752	0.97909	0.49321	0.96956	-6.03852	4.44776
7	Morgan 2003	6	0.95249	0.92429	0.23919	0.57582	0.99663	0.59696	0.99016	-7.26914	7.74753
8	Stufflebeam 2011	6	0.86649	0.92452	-0.11450	0.46582	0.97972	0.59993	0.99010	-6.55011	6.32110
9	Zhao 2019	6	0.95249	0.92429	0.23919	0.57582	0.99663	0.59696	0.99016	-7.26914	7.74753
10	vanHoudt 2015	7	0.95533	0.92864	0.24974	0.60188	0.99671	0.61982	0.99046	-7.31870	7.81818
11	Jann 2008	8	0.95778	0.93240	0.25761	0.62467	0.99678	0.63988	0.99075	-7.36024	7.87547
12	Kang 2003	8	0.95811	0.87089	0.01925	0.63242	0.99672	0.55658	0.97315	-6.73554	6.77404
13	Hunyadi 2014	10	0.73888	0.74217	-2.02408	0.41296	0.91923	0.43475	0.91506	-6.27626	2.22809
14	Yang 2015	11	0.96377	0.83422	-0.04807	0.68600	0.99692	0.55000	0.95395	-6.65556	6.55942
15	Hunyadi 2015b	12	0.96521	0.78418	-0.11157	0.69951	0.99699	0.50356	0.92865	-6.62371	6.40057
16	Hunyadi 2015a	18	0.62755	0.64011	-3.28298	0.38628	0.81853	0.40357	0.82380	-6.99295	0.42699
17	Su 2015	21	0.97393	0.95766	0.26969	0.78021	0.99746	0.77929	0.99315	-7.52891	8.06830
18	Barron 2014	23	0.97539	0.90200	0.06543	0.79694	0.99751	0.71764	0.97087	-6.83944	6.97031
19	Lee 2014	29	0.80560	0.89154	0.61683	0.61930	0.91347	0.72868	0.96177	-1.95372	3.18737
20	Reyes 2016	34	0.91210	0.90394	-0.98890	0.76229	0.97108	0.75784	0.96587	-5.85966	3.88186
21	Boerwinkle 2017	36	0.93932	0.81375	-1.23414	0.80202	0.98338	0.65409	0.90987	-5.88497	3.41668
22	Chen 2017	42	0.77322	0.86116	2.08867	0.61934	0.87722	0.72351	0.93631	0.18111	3.99623
23	Bettus 2010	44	0.61581	0.53251	1.12055	0.46008	0.75094	0.38126	0.67802	-0.18144	2.42255
24	Khoo 2019	49	0.51904	0.50317	1.57895	0.37514	0.65984	0.36115	0.64467	0.31999	2.83792
25	Boerwinkle 2019	64	0.42888	0.39853	4.98846	0.30906	0.55766	0.28153	0.52840	2.88266	7.09427