

The Mixed Procedure

Model Information	
Data Set	WORK.MYDATA4
Dependent Variable	height
Covariance Structure	Variance Components
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Containment

Class Level Information		
Class	Levels	Values
blocks	3	1 2 3
geo_num	10	1 2 3 4 5 6 7 8 9 10
origin	2	Intro Nat

Dimensions	
Covariance Parameters	3
Columns in X	31
Columns in Z	33
Subjects	1
Max Obs per Subject	59

Number of Observations	
Number of Observations Read	240
Number of Observations Used	59
Number of Observations Not Used	181

Iteration History			
Iteration	Evaluations	-2 Res Log Like	Criterion
0	1	157.81643913	
1	3	156.25304163	0.00007473
2	1	156.24980116	0.00000107
3	1	156.24975725	0.00000000

Convergence criteria met.

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Covariance Parameter Estimates	
Cov Parm	Estimate
blocks	0.2838
blocks*geo_num	0.07028
Residual	1.5116

Fit Statistics	
-2 Res Log Likelihood	156.2
AIC (Smaller is Better)	162.2
AICC (Smaller is Better)	162.9
BIC (Smaller is Better)	159.5

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
geo_num	9	10	4.87	0.0106
origin	1	29	7.36	0.0111
geo_num*origin	7	29	2.93	0.0190

Least Squares Means							
Effect	origin	geo_num	Estimate	Standard Error	DF	t Value	Pr > |t|
geo_num		1	Non-est	.	.	.	.
geo_num		2	11.5018	0.6414	10	17.93	<.0001
geo_num		3	9.3262	0.6668	10	13.99	<.0001
geo_num		4	9.9768	0.6414	10	15.56	<.0001
geo_num		5	9.7393	0.6414	10	15.18	<.0001
geo_num		6	10.2393	0.6414	10	15.96	<.0001
geo_num		7	Non-est	.	.	.	.
geo_num		8	10.6643	0.6414	10	16.63	<.0001
geo_num		9	12.5268	0.6414	10	19.53	<.0001
geo_num		10	11.0643	0.6414	10	17.25	<.0001
origin	Intro		Non-est	.	.	.	.
origin	Nat		Non-est	.	.	.	.
geo_num*origin	Nat	1	12.7333	0.6082	29	20.93	<.0001
geo_num*origin	Intro	2	12.0464	0.7319	29	16.46	<.0001
geo_num*origin	Nat	2	10.9572	1.0163	29	10.78	<.0001
geo_num*origin	Intro	3	10.4953	0.8176	29	12.84	<.0001

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Least Squares Means							
Effect	origin	geo_num	Estimate	Standard Error	DF	t Value	Pr > t
geo_num*origin	Nat	3	8.1572	1.0163	29	8.03	<.0001
geo_num*origin	Intro	4	10.8464	0.7319	29	14.82	<.0001
geo_num*origin	Nat	4	9.1072	1.0163	29	8.96	<.0001
geo_num*origin	Intro	5	11.1072	1.0163	29	10.93	<.0001
geo_num*origin	Nat	5	8.3714	0.7319	29	11.44	<.0001
geo_num*origin	Intro	6	8.9572	1.0163	29	8.81	<.0001
geo_num*origin	Nat	6	11.5214	0.7319	29	15.74	<.0001
geo_num*origin	Intro	7	11.7833	0.6082	29	19.37	<.0001
geo_num*origin	Intro	8	12.1072	1.0163	29	11.91	<.0001
geo_num*origin	Nat	8	9.2214	0.7319	29	12.60	<.0001
geo_num*origin	Intro	9	11.8572	1.0163	29	11.67	<.0001
geo_num*origin	Nat	9	13.1964	0.7319	29	18.03	<.0001
geo_num*origin	Intro	10	11.9214	0.7319	29	16.29	<.0001
geo_num*origin	Nat	10	10.2072	1.0163	29	10.04	<.0001

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Differences of Least Squares Means									
Effect	origin	geo_num	_origin	_geo_num	Estimate	Standard Error	DF	t Value	Pr > t
geo_num		1		2	Non-est	.	.	.	.
geo_num		1		3	Non-est	.	.	.	.
geo_num		1		4	Non-est	.	.	.	.
geo_num		1		5	Non-est	.	.	.	.
geo_num		1		6	Non-est	.	.	.	.
geo_num		1		7	Non-est	.	.	.	.
geo_num		1		8	Non-est	.	.	.	.
geo_num		1		9	Non-est	.	.	.	.
geo_num		1		10	Non-est	.	.	.	.
geo_num		2		3	2.1756	0.8079	10	2.69	0.0226
geo_num		2		4	1.5250	0.7871	10	1.94	0.0814
geo_num		2		5	1.7625	0.7871	10	2.24	0.0491
geo_num		2		6	1.2625	0.7871	10	1.60	0.1398
geo_num		2		7	Non-est	.	.	.	.
geo_num		2		8	0.8375	0.7871	10	1.06	0.3123
geo_num		2		9	-1.0250	0.7871	10	-1.30	0.2220
geo_num		2		10	0.4375	0.7871	10	0.56	0.5905
geo_num		3		4	-0.6506	0.8079	10	-0.81	0.4394
geo_num		3		5	-0.4131	0.8079	10	-0.51	0.6203
geo_num		3		6	-0.9131	0.8079	10	-1.13	0.2848
geo_num		3		7	Non-est	.	.	.	.
geo_num		3		8	-1.3381	0.8079	10	-1.66	0.1287
geo_num		3		9	-3.2006	0.8079	10	-3.96	0.0027
geo_num		3		10	-1.7381	0.8079	10	-2.15	0.0569
geo_num		4		5	0.2375	0.7871	10	0.30	0.7690
geo_num		4		6	-0.2625	0.7871	10	-0.33	0.7456
geo_num		4		7	Non-est	.	.	.	.
geo_num		4		8	-0.6875	0.7871	10	-0.87	0.4029
geo_num		4		9	-2.5500	0.7871	10	-3.24	0.0089
geo_num		4		10	-1.0875	0.7871	10	-1.38	0.1972
geo_num		5		6	-0.5000	0.7871	10	-0.64	0.5395
geo_num		5		7	Non-est	.	.	.	.
geo_num		5		8	-0.9250	0.7871	10	-1.18	0.2671
geo_num		5		9	-2.7875	0.7871	10	-3.54	0.0053
geo_num		5		10	-1.3250	0.7871	10	-1.68	0.1232

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Differences of Least Squares Means									
Effect	origin	geo_num	_origin	_geo_num	Estimate	Standard Error	DF	t Value	Pr > t
geo_num		6		7	Non-est	.	.	.	.
geo_num		6		8	-0.4250	0.7871	10	-0.54	0.6010
geo_num		6		9	-2.2875	0.7871	10	-2.91	0.0157
geo_num		6		10	-0.8250	0.7871	10	-1.05	0.3192
geo_num		7		8	Non-est	.	.	.	.
geo_num		7		9	Non-est	.	.	.	.
geo_num		7		10	Non-est	.	.	.	.
geo_num		8		9	-1.8625	0.7871	10	-2.37	0.0395
geo_num		8		10	-0.4000	0.7871	10	-0.51	0.6223
geo_num		9		10	1.4625	0.7871	10	1.86	0.0928
origin	Intro		Nat		Non-est	.	.	.	.
geo_num*origin	Nat	1	Intro	2	0.6869	0.8464	29	0.81	0.4236
geo_num*origin	Nat	1	Nat	2	1.7761	1.1016	29	1.61	0.1177
geo_num*origin	Nat	1	Intro	3	2.2381	0.9216	29	2.43	0.0216
geo_num*origin	Nat	1	Nat	3	4.5761	1.1016	29	4.15	0.0003
geo_num*origin	Nat	1	Intro	4	1.8869	0.8464	29	2.23	0.0337
geo_num*origin	Nat	1	Nat	4	3.6261	1.1016	29	3.29	0.0026
geo_num*origin	Nat	1	Intro	5	1.6261	1.1016	29	1.48	0.1507
geo_num*origin	Nat	1	Nat	5	4.3619	0.8464	29	5.15	<.0001
geo_num*origin	Nat	1	Intro	6	3.7761	1.1016	29	3.43	0.0018
geo_num*origin	Nat	1	Nat	6	1.2119	0.8464	29	1.43	0.1629
geo_num*origin	Nat	1	Intro	7	0.9500	0.7421	29	1.28	0.2106
geo_num*origin	Nat	1	Intro	8	0.6261	1.1016	29	0.57	0.5742
geo_num*origin	Nat	1	Nat	8	3.5119	0.8464	29	4.15	0.0003
geo_num*origin	Nat	1	Intro	9	0.8761	1.1016	29	0.80	0.4329
geo_num*origin	Nat	1	Nat	9	-0.4631	0.8464	29	-0.55	0.5885
geo_num*origin	Nat	1	Intro	10	0.8119	0.8464	29	0.96	0.3453
geo_num*origin	Nat	1	Nat	10	2.5261	1.1016	29	2.29	0.0293
geo_num*origin	Intro	2	Nat	2	1.0892	1.2212	29	0.89	0.3798
geo_num*origin	Intro	2	Intro	3	1.5511	0.9793	29	1.58	0.1240
geo_num*origin	Intro	2	Nat	3	3.8892	1.2212	29	3.18	0.0035
geo_num*origin	Intro	2	Intro	4	1.2000	0.9089	29	1.32	0.1971
geo_num*origin	Intro	2	Nat	4	2.9392	1.2212	29	2.41	0.0227
geo_num*origin	Intro	2	Intro	5	0.9392	1.2212	29	0.77	0.4481
geo_num*origin	Intro	2	Nat	5	3.6750	0.9089	29	4.04	0.0004

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Differences of Least Squares Means									
Effect	origin	geo_num	_origin	_geo_num	Estimate	Standard Error	DF	t Value	Pr > t
geo_num*origin	Intro	2	Intro	6	3.0892	1.2212	29	2.53	0.0171
geo_num*origin	Intro	2	Nat	6	0.5250	0.9089	29	0.58	0.5680
geo_num*origin	Intro	2	Intro	7	0.2631	0.8464	29	0.31	0.7582
geo_num*origin	Intro	2	Intro	8	-0.06084	1.2212	29	-0.05	0.9606
geo_num*origin	Intro	2	Nat	8	2.8250	0.9089	29	3.11	0.0042
geo_num*origin	Intro	2	Intro	9	0.1892	1.2212	29	0.15	0.8780
geo_num*origin	Intro	2	Nat	9	-1.1500	0.9089	29	-1.27	0.2158
geo_num*origin	Intro	2	Intro	10	0.1250	0.9089	29	0.14	0.8916
geo_num*origin	Intro	2	Nat	10	1.8392	1.2212	29	1.51	0.1429
geo_num*origin	Nat	2	Intro	3	0.4620	1.2745	29	0.36	0.7196
geo_num*origin	Nat	2	Nat	3	2.8000	1.2854	29	2.18	0.0377
geo_num*origin	Nat	2	Intro	4	0.1108	1.2212	29	0.09	0.9283
geo_num*origin	Nat	2	Nat	4	1.8500	1.2854	29	1.44	0.1608
geo_num*origin	Nat	2	Intro	5	-0.1500	1.2854	29	-0.12	0.9079
geo_num*origin	Nat	2	Nat	5	2.5858	1.2212	29	2.12	0.0429
geo_num*origin	Nat	2	Intro	6	2.0000	1.2854	29	1.56	0.1306
geo_num*origin	Nat	2	Nat	6	-0.5642	1.2212	29	-0.46	0.6476
geo_num*origin	Nat	2	Intro	7	-0.8261	1.1016	29	-0.75	0.4594
geo_num*origin	Nat	2	Intro	8	-1.1500	1.2854	29	-0.89	0.3783
geo_num*origin	Nat	2	Nat	8	1.7358	1.2212	29	1.42	0.1659
geo_num*origin	Nat	2	Intro	9	-0.9000	1.2854	29	-0.70	0.4894
geo_num*origin	Nat	2	Nat	9	-2.2392	1.2212	29	-1.83	0.0770
geo_num*origin	Nat	2	Intro	10	-0.9642	1.2212	29	-0.79	0.4362
geo_num*origin	Nat	2	Nat	10	0.7500	1.2854	29	0.58	0.5641
geo_num*origin	Intro	3	Nat	3	2.3380	1.2745	29	1.83	0.0769
geo_num*origin	Intro	3	Intro	4	-0.3511	0.9793	29	-0.36	0.7225
geo_num*origin	Intro	3	Nat	4	1.3880	1.2745	29	1.09	0.2851
geo_num*origin	Intro	3	Intro	5	-0.6120	1.2745	29	-0.48	0.6347
geo_num*origin	Intro	3	Nat	5	2.1239	0.9793	29	2.17	0.0384
geo_num*origin	Intro	3	Intro	6	1.5380	1.2745	29	1.21	0.2373
geo_num*origin	Intro	3	Nat	6	-1.0261	0.9793	29	-1.05	0.3034
geo_num*origin	Intro	3	Intro	7	-1.2881	0.9216	29	-1.40	0.1728
geo_num*origin	Intro	3	Intro	8	-1.6120	1.2745	29	-1.26	0.2160
geo_num*origin	Intro	3	Nat	8	1.2739	0.9793	29	1.30	0.2036
geo_num*origin	Intro	3	Intro	9	-1.3620	1.2745	29	-1.07	0.2940

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Differences of Least Squares Means									
Effect	origin	geo_num	_origin	_geo_num	Estimate	Standard Error	DF	t Value	Pr > t
geo_num*origin	Intro	3	Nat	9	-2.7011	0.9793	29	-2.76	0.0100
geo_num*origin	Intro	3	Intro	10	-1.4261	0.9793	29	-1.46	0.1560
geo_num*origin	Intro	3	Nat	10	0.2880	1.2745	29	0.23	0.8228
geo_num*origin	Nat	3	Intro	4	-2.6892	1.2212	29	-2.20	0.0358
geo_num*origin	Nat	3	Nat	4	-0.9500	1.2854	29	-0.74	0.4658
geo_num*origin	Nat	3	Intro	5	-2.9500	1.2854	29	-2.30	0.0292
geo_num*origin	Nat	3	Nat	5	-0.2142	1.2212	29	-0.18	0.8620
geo_num*origin	Nat	3	Intro	6	-0.8000	1.2854	29	-0.62	0.5385
geo_num*origin	Nat	3	Nat	6	-3.3642	1.2212	29	-2.75	0.0100
geo_num*origin	Nat	3	Intro	7	-3.6261	1.1016	29	-3.29	0.0026
geo_num*origin	Nat	3	Intro	8	-3.9500	1.2854	29	-3.07	0.0046
geo_num*origin	Nat	3	Nat	8	-1.0642	1.2212	29	-0.87	0.3907
geo_num*origin	Nat	3	Intro	9	-3.7000	1.2854	29	-2.88	0.0074
geo_num*origin	Nat	3	Nat	9	-5.0392	1.2212	29	-4.13	0.0003
geo_num*origin	Nat	3	Intro	10	-3.7642	1.2212	29	-3.08	0.0045
geo_num*origin	Nat	3	Nat	10	-2.0500	1.2854	29	-1.59	0.1216
geo_num*origin	Intro	4	Nat	4	1.7392	1.2212	29	1.42	0.1651
geo_num*origin	Intro	4	Intro	5	-0.2608	1.2212	29	-0.21	0.8324
geo_num*origin	Intro	4	Nat	5	2.4750	0.9089	29	2.72	0.0108
geo_num*origin	Intro	4	Intro	6	1.8892	1.2212	29	1.55	0.1327
geo_num*origin	Intro	4	Nat	6	-0.6750	0.9089	29	-0.74	0.4637
geo_num*origin	Intro	4	Intro	7	-0.9369	0.8464	29	-1.11	0.2774
geo_num*origin	Intro	4	Intro	8	-1.2608	1.2212	29	-1.03	0.3104
geo_num*origin	Intro	4	Nat	8	1.6250	0.9089	29	1.79	0.0842
geo_num*origin	Intro	4	Intro	9	-1.0108	1.2212	29	-0.83	0.4146
geo_num*origin	Intro	4	Nat	9	-2.3500	0.9089	29	-2.59	0.0150
geo_num*origin	Intro	4	Intro	10	-1.0750	0.9089	29	-1.18	0.2465
geo_num*origin	Intro	4	Nat	10	0.6392	1.2212	29	0.52	0.6047
geo_num*origin	Nat	4	Intro	5	-2.0000	1.2854	29	-1.56	0.1306
geo_num*origin	Nat	4	Nat	5	0.7358	1.2212	29	0.60	0.5515
geo_num*origin	Nat	4	Intro	6	0.1500	1.2854	29	0.12	0.9079
geo_num*origin	Nat	4	Nat	6	-2.4142	1.2212	29	-1.98	0.0576
geo_num*origin	Nat	4	Intro	7	-2.6761	1.1016	29	-2.43	0.0216
geo_num*origin	Nat	4	Intro	8	-3.0000	1.2854	29	-2.33	0.0267
geo_num*origin	Nat	4	Nat	8	-0.1142	1.2212	29	-0.09	0.9262

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Differences of Least Squares Means									
Effect	origin	geo_num	_origin	_geo_num	Estimate	Standard Error	DF	t Value	Pr > t
geo_num*origin	Nat	4	Intro	9	-2.7500	1.2854	29	-2.14	0.0409
geo_num*origin	Nat	4	Nat	9	-4.0892	1.2212	29	-3.35	0.0023
geo_num*origin	Nat	4	Intro	10	-2.8142	1.2212	29	-2.30	0.0286
geo_num*origin	Nat	4	Nat	10	-1.1000	1.2854	29	-0.86	0.3991
geo_num*origin	Intro	5	Nat	5	2.7358	1.2212	29	2.24	0.0329
geo_num*origin	Intro	5	Intro	6	2.1500	1.2854	29	1.67	0.1051
geo_num*origin	Intro	5	Nat	6	-0.4142	1.2212	29	-0.34	0.7370
geo_num*origin	Intro	5	Intro	7	-0.6761	1.1016	29	-0.61	0.5442
geo_num*origin	Intro	5	Intro	8	-1.0000	1.2854	29	-0.78	0.4429
geo_num*origin	Intro	5	Nat	8	1.8858	1.2212	29	1.54	0.1334
geo_num*origin	Intro	5	Intro	9	-0.7500	1.2854	29	-0.58	0.5641
geo_num*origin	Intro	5	Nat	9	-2.0892	1.2212	29	-1.71	0.0978
geo_num*origin	Intro	5	Intro	10	-0.8142	1.2212	29	-0.67	0.5103
geo_num*origin	Intro	5	Nat	10	0.9000	1.2854	29	0.70	0.4894
geo_num*origin	Nat	5	Intro	6	-0.5858	1.2212	29	-0.48	0.6350
geo_num*origin	Nat	5	Nat	6	-3.1500	0.9089	29	-3.47	0.0017
geo_num*origin	Nat	5	Intro	7	-3.4119	0.8464	29	-4.03	0.0004
geo_num*origin	Nat	5	Intro	8	-3.7358	1.2212	29	-3.06	0.0047
geo_num*origin	Nat	5	Nat	8	-0.8500	0.9089	29	-0.94	0.3574
geo_num*origin	Nat	5	Intro	9	-3.4858	1.2212	29	-2.85	0.0079
geo_num*origin	Nat	5	Nat	9	-4.8250	0.9089	29	-5.31	<.0001
geo_num*origin	Nat	5	Intro	10	-3.5500	0.9089	29	-3.91	0.0005
geo_num*origin	Nat	5	Nat	10	-1.8358	1.2212	29	-1.50	0.1436
geo_num*origin	Intro	6	Nat	6	-2.5642	1.2212	29	-2.10	0.0446
geo_num*origin	Intro	6	Intro	7	-2.8261	1.1016	29	-2.57	0.0157
geo_num*origin	Intro	6	Intro	8	-3.1500	1.2854	29	-2.45	0.0205
geo_num*origin	Intro	6	Nat	8	-0.2642	1.2212	29	-0.22	0.8303
geo_num*origin	Intro	6	Intro	9	-2.9000	1.2854	29	-2.26	0.0318
geo_num*origin	Intro	6	Nat	9	-4.2392	1.2212	29	-3.47	0.0016
geo_num*origin	Intro	6	Intro	10	-2.9642	1.2212	29	-2.43	0.0217
geo_num*origin	Intro	6	Nat	10	-1.2500	1.2854	29	-0.97	0.3388
geo_num*origin	Nat	6	Intro	7	-0.2619	0.8464	29	-0.31	0.7592
geo_num*origin	Nat	6	Intro	8	-0.5858	1.2212	29	-0.48	0.6350
geo_num*origin	Nat	6	Nat	8	2.3000	0.9089	29	2.53	0.0171
geo_num*origin	Nat	6	Intro	9	-0.3358	1.2212	29	-0.28	0.7853

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Differences of Least Squares Means									
Effect	origin	geo_num	_origin	_geo_num	Estimate	Standard Error	DF	t Value	Pr > t
geo_num*origin	Nat	6	Nat	9	-1.6750	0.9089	29	-1.84	0.0756
geo_num*origin	Nat	6	Intro	10	-0.4000	0.9089	29	-0.44	0.6631
geo_num*origin	Nat	6	Nat	10	1.3142	1.2212	29	1.08	0.2908
geo_num*origin	Intro	7	Intro	8	-0.3239	1.1016	29	-0.29	0.7708
geo_num*origin	Intro	7	Nat	8	2.5619	0.8464	29	3.03	0.0051
geo_num*origin	Intro	7	Intro	9	-0.07390	1.1016	29	-0.07	0.9470
geo_num*origin	Intro	7	Nat	9	-1.4131	0.8464	29	-1.67	0.1058
geo_num*origin	Intro	7	Intro	10	-0.1381	0.8464	29	-0.16	0.8716
geo_num*origin	Intro	7	Nat	10	1.5761	1.1016	29	1.43	0.1632
geo_num*origin	Intro	8	Nat	8	2.8858	1.2212	29	2.36	0.0250
geo_num*origin	Intro	8	Intro	9	0.2500	1.2854	29	0.19	0.8471
geo_num*origin	Intro	8	Nat	9	-1.0892	1.2212	29	-0.89	0.3798
geo_num*origin	Intro	8	Intro	10	0.1858	1.2212	29	0.15	0.8801
geo_num*origin	Intro	8	Nat	10	1.9000	1.2854	29	1.48	0.1501
geo_num*origin	Nat	8	Intro	9	-2.6358	1.2212	29	-2.16	0.0393
geo_num*origin	Nat	8	Nat	9	-3.9750	0.9089	29	-4.37	0.0001
geo_num*origin	Nat	8	Intro	10	-2.7000	0.9089	29	-2.97	0.0059
geo_num*origin	Nat	8	Nat	10	-0.9858	1.2212	29	-0.81	0.4261
geo_num*origin	Intro	9	Nat	9	-1.3392	1.2212	29	-1.10	0.2819
geo_num*origin	Intro	9	Intro	10	-0.06416	1.2212	29	-0.05	0.9585
geo_num*origin	Intro	9	Nat	10	1.6500	1.2854	29	1.28	0.2094
geo_num*origin	Nat	9	Intro	10	1.2750	0.9089	29	1.40	0.1713
geo_num*origin	Nat	9	Nat	10	2.9892	1.2212	29	2.45	0.0207
geo_num*origin	Intro	10	Nat	10	1.7142	1.2212	29	1.40	0.1710