

The SAS System

Obs	Year	Tier	type	dmg_now	tot_nuts	pctNOW
1	2006	1	MD	159	9046	1.7576829538
2	2006	2	MD	30	5779	0.5191209552
3	2006	3	MD	138	9133	1.5110040512
4	2006	4	MD	56	12660	0.4423380727
5	2006	7	Conv	267	10172	2.6248525364
6	2006	8	Conv	127	10230	1.2414467253

The SAS System

The GLIMMIX Procedure

Model Information	
Data Set	WORK.INTERIOR2
Response Variable (Events)	dmg_now
Response Variable (Trials)	tot_nuts
Response Distribution	Binomial
Link Function	Logit
Variance Function	Default
Variance Matrix	Not blocked
Estimation Technique	Residual PL
Degrees of Freedom Method	Kenward-Roger
Fixed Effects SE Adjustment	Kenward-Roger

Class Level Information		
Class	Levels	Values
Year	10	2006 2007 2008 2009 2010 2011 2012 2013 2014 2015
Tier	10	1 2 3 4 5 6 7 8 9 10
type	3	CMD Conv MD

Number of Observations Read	97
Number of Observations Used	97
Number of Events	7173
Number of Trials	517624

Dimensions	
G-side Cov. Parameters	3
Columns in X	4
Columns in Z	116
Subjects (Blocks in V)	1
Max Obs per Subject	97

Optimization Information	
Optimization Technique	Dual Quasi-Newton
Parameters in Optimization	3

Lower Boundaries	3
Upper Boundaries	0
Fixed Effects	Profiled
Starting From	Data

Iteration History					
Iteration	Restarts	Subiterations	Objective Function	Change	Max Gradient
0	0	3	216.7442811	0.08837414	0.012109
1	0	3	217.01049573	0.00069044	0.000122
2	0	1	217.01345584	0.00000508	6.249E-6
3	0	0	217.01346278	0.00000000	6.122E-6

Convergence criterion (PCONV=1.11022E-8) satisfied.

Fit Statistics	
-2 Res Log Pseudo-Likelihood	217.01
Generalized Chi-Square	95.88
Gener. Chi-Square / DF	1.02

Covariance Parameter Estimates		
Cov Parm	Estimate	Standard Error
Year	0.6662	0.3304
Tier	0.1907	0.1060
Year*Tier	0.2934	0.05302

Type III Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
type	2	91.98	14.06	<.0001

type Least Squares Means					
type	Estimate	Standard Error	DF	t Value	Pr > t
CMD	-5.1700	0.3118	15.62	-16.58	<.0001
Conv	-4.4057	0.3209	17.29	-13.73	<.0001
MD	-4.5279	0.3065	14.63	-14.78	<.0001

Differences of type Least Squares Means

Adjustment for Multiple Comparisons: Tukey-Kramer							
type	_type	Estimate	Standard Error	DF	t Value	Pr > t 	Adj P
CMD	Conv	-0.7643	0.1818	89.42	-4.20	<.0001	0.0002
CMD	MD	-0.6420	0.1328	94	-4.83	<.0001	<.0001
Conv	MD	0.1223	0.1670	82.75	0.73	0.4661	0.7452

Tukey-Kramer Grouping for type Least Squares Means (Alpha=0.05)		
LS-means with the same letter are not significantly different.		
type	Estimate	
Conv	-4.4057	A
		A
MD	-4.5279	A
CMD	-5.1700	B