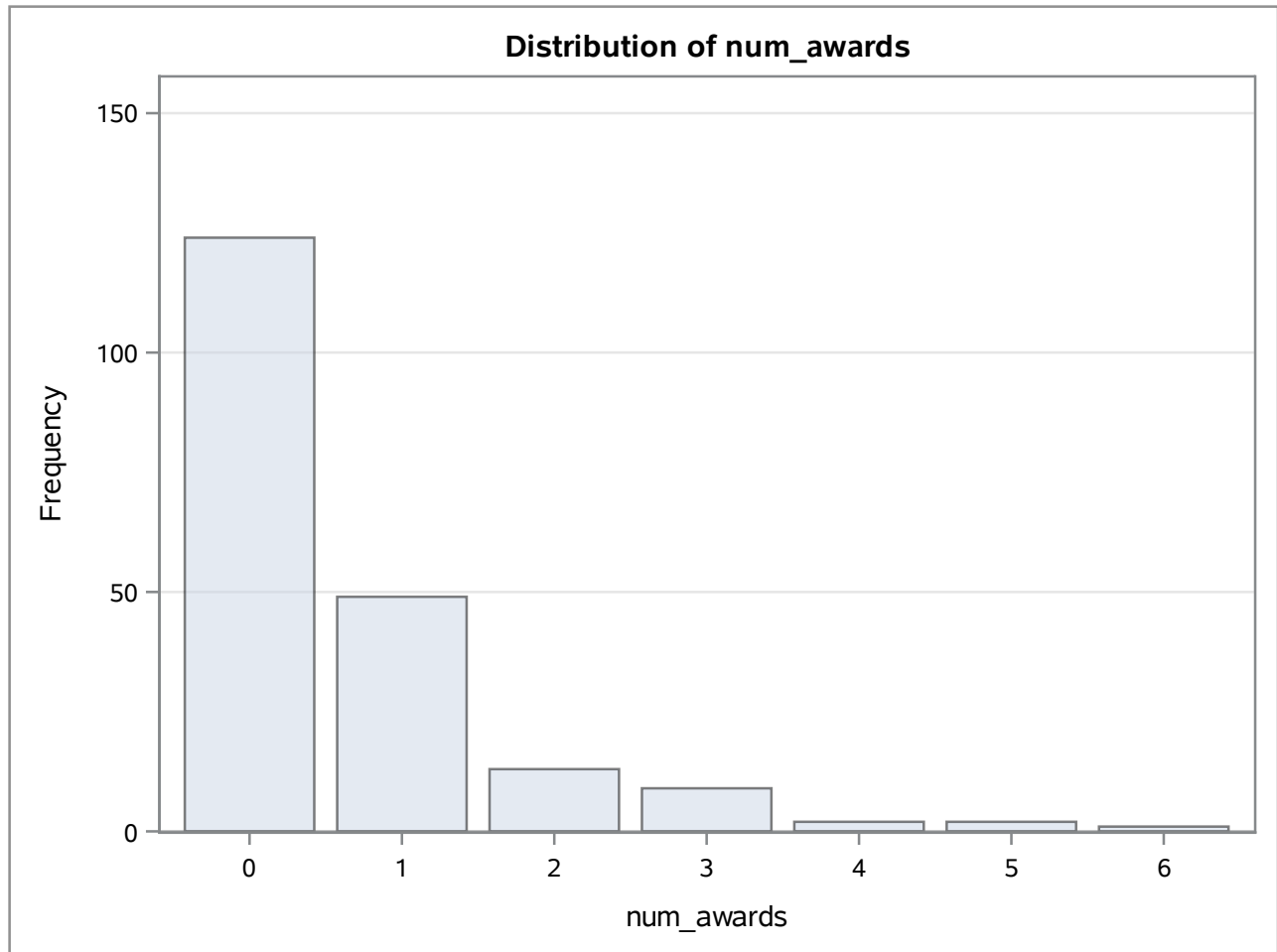


The FREQ Procedure

num_awards	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	124	62.00	124	62.00
1	49	24.50	173	86.50
2	13	6.50	186	93.00
3	9	4.50	195	97.50
4	2	1.00	197	98.50
5	2	1.00	199	99.50
6	1	0.50	200	100.00



The GENMOD Procedure

Model Information	
Data Set	WORK.POISSON_SIM
Distribution	Poisson
Link Function	Log
Dependent Variable	num_awards

Number of Observations Read	200
Number of Observations Used	200

Class Level Information		
Class	Levels	Values
prog	3	1 2 3

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance	196	189.4496	0.9666
Scaled Deviance	196	189.4496	0.9666
Pearson Chi-Square	196	212.1437	1.0824
Scaled Pearson X2	196	212.1437	1.0824
Log Likelihood		-135.1052	
Full Log Likelihood		-182.7523	
AIC (smaller is better)		373.5045	
AICC (smaller is better)		373.7096	
BIC (smaller is better)		386.6978	

Algorithm converged.

Analysis Of Maximum Likelihood Parameter Estimates								
Parameter		DF	Estimate	Standard Error	Wald 95% Confidence Limits		Wald Chi-Square	Pr > ChiSq
Intercept		1	-4.8773	0.6282	-6.1085	-3.6461	60.28	<.0001
prog	1	1	-0.3698	0.4411	-1.2343	0.4947	0.70	0.4018
prog	2	1	0.7140	0.3200	0.0868	1.3413	4.98	0.0257
prog	3	0	0.0000	0.0000	0.0000	0.0000	.	.
math		1	0.0702	0.0106	0.0494	0.0909	43.81	<.0001
Scale		0	1.0000	0.0000	1.0000	1.0000		

Note: The scale parameter was held fixed.

The GENMOD Procedure

LR Statistics For Type 3 Analysis			
Source	DF	Chi-Square	Pr > ChiSq
prog	2	14.57	0.0007
math	1	45.01	<.0001

df	chisq	pvalue
196	189.450	0.61823

The GENMOD Procedure

Model Information	
Data Set	WORK.POISSON_SIM
Distribution	Poisson
Link Function	Log
Dependent Variable	num_awards

Number of Observations Read	200
Number of Observations Used	200

Class Level Information		
Class	Levels	Values
prog	3	1 2 3
id	200	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 ...

Parameter Information		
Parameter	Effect	prog
Prm1	Intercept	
Prm2	prog	1
Prm3	prog	2
Prm4	prog	3
Prm5	math	

Algorithm converged.

GEE Model Information	
Correlation Structure	Independent
Subject Effect	id (200 levels)
Number of Clusters	200
Correlation Matrix Dimension	1
Maximum Cluster Size	1
Minimum Cluster Size	1

Algorithm converged.

GEE Fit Criteria	
QIC	256.8581
QICu	257.6478

The GENMOD Procedure

Analysis Of GEE Parameter Estimates							
Empirical Standard Error Estimates							
Parameter		Estimate	Standard Error	95% Confidence Limits		Z	Pr > Z
Intercept		-4.8773	0.6297	-6.1116	-3.6430	-7.74	<.0001
prog	1	-0.3698	0.4004	-1.1546	0.4150	-0.92	0.3557
prog	2	0.7140	0.2986	0.1287	1.2994	2.39	0.0168
prog	3	0.0000	0.0000	0.0000	0.0000	.	.
math		0.0702	0.0104	0.0497	0.0906	6.72	<.0001

The PLM Procedure

Store Information	
Item Store	WORK.P1
Data Set Created From	WORK.POISSON_SIM
Created By	PROC Genmod
Date Created	29AUG21:15:45:41
Response Variable	num_awards
Link Function	Log
Distribution	Poisson
Class Variable	prog
Model Effects	Intercept prog math

Class Level Information		
Class	Levels	Values
prog	3	1 2 3

Parameter Estimates		
Parameter	Estimate	Standard Error
Intercept	-4.8773	0.6282
type of program 1	-0.3698	0.4411
type of program 2	0.7140	0.3200
type of program 3	0	.
math score	0.07015	0.01060

Obs	Parameter	prog	Estimate	StdErr	irr
1	type of program 1	1	-0.3698	0.4411	0.69087
2	type of program 2	2	0.7140	0.3200	2.04225
3	type of program 3	3	0	.	1.00000
4	math score	—	0.07015	0.01060	1.07267

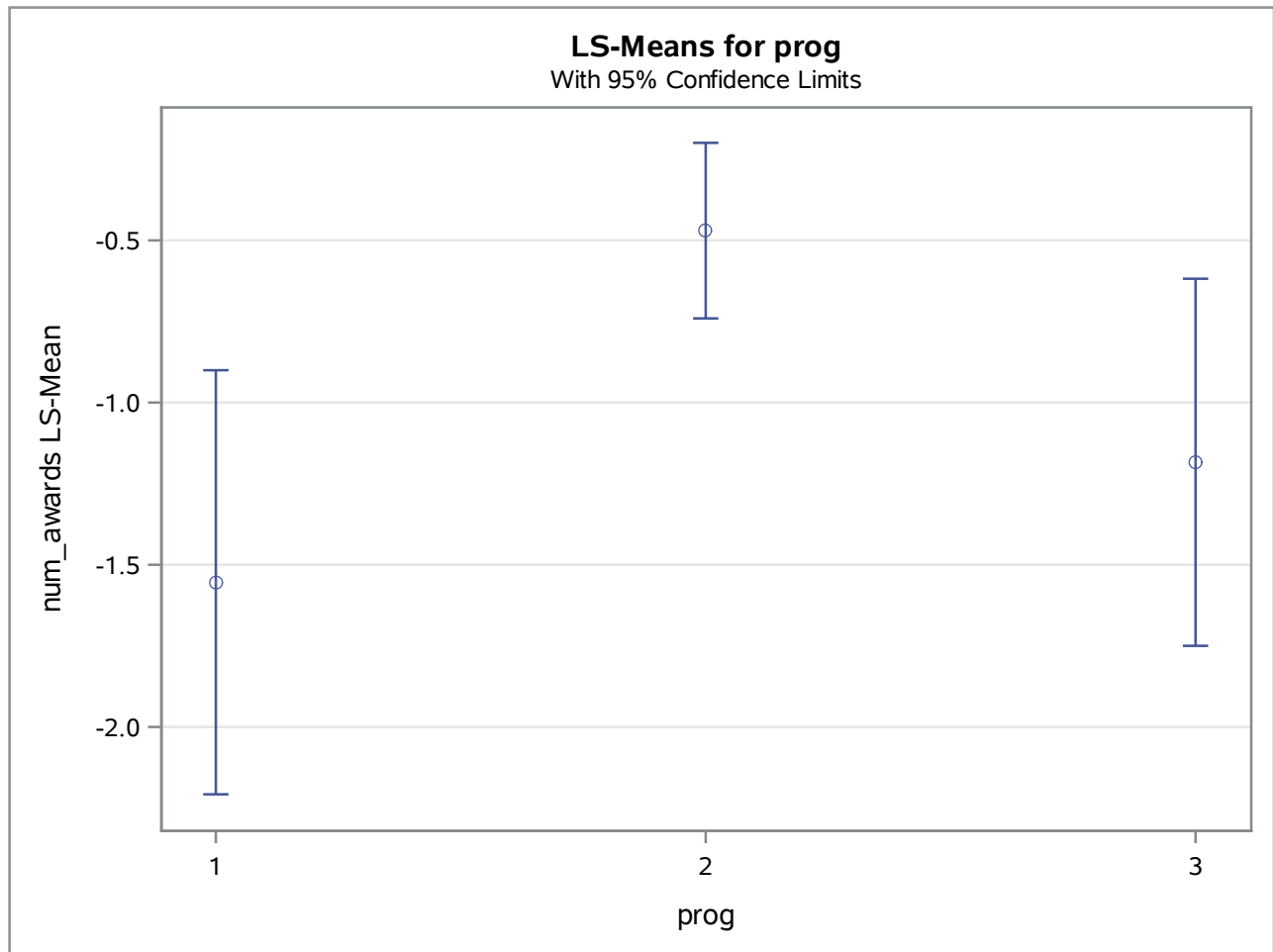
The PLM Procedure

Store Information	
Item Store	WORK.P1
Data Set Created From	WORK.POISSON_SIM
Created By	PROC Genmod
Date Created	29AUG21:15:45:41
Response Variable	num_awards
Link Function	Log
Distribution	Poisson
Class Variable	prog
Model Effects	Intercept prog math

Class Level Information		
Class	Levels	Values
prog	3	1 2 3

prog Least Squares Means											
type of program	Estimate	Standard Error	z Value	Pr > z	Alpha	Lower	Upper	Mean	Standard Error of Mean	Lower Mean	Upper Mean
1	-1.5540	0.3335	-4.66	<.0001	0.05	-2.2076	-0.9003	0.2114	0.07050	0.1100	0.4064
2	-0.4701	0.1381	-3.40	0.0007	0.05	-0.7407	-0.1995	0.6249	0.08628	0.4768	0.8191
3	-1.1841	0.2887	-4.10	<.0001	0.05	-1.7499	-0.6183	0.3060	0.08834	0.1738	0.5388

The PLM Procedure



The PLM Procedure

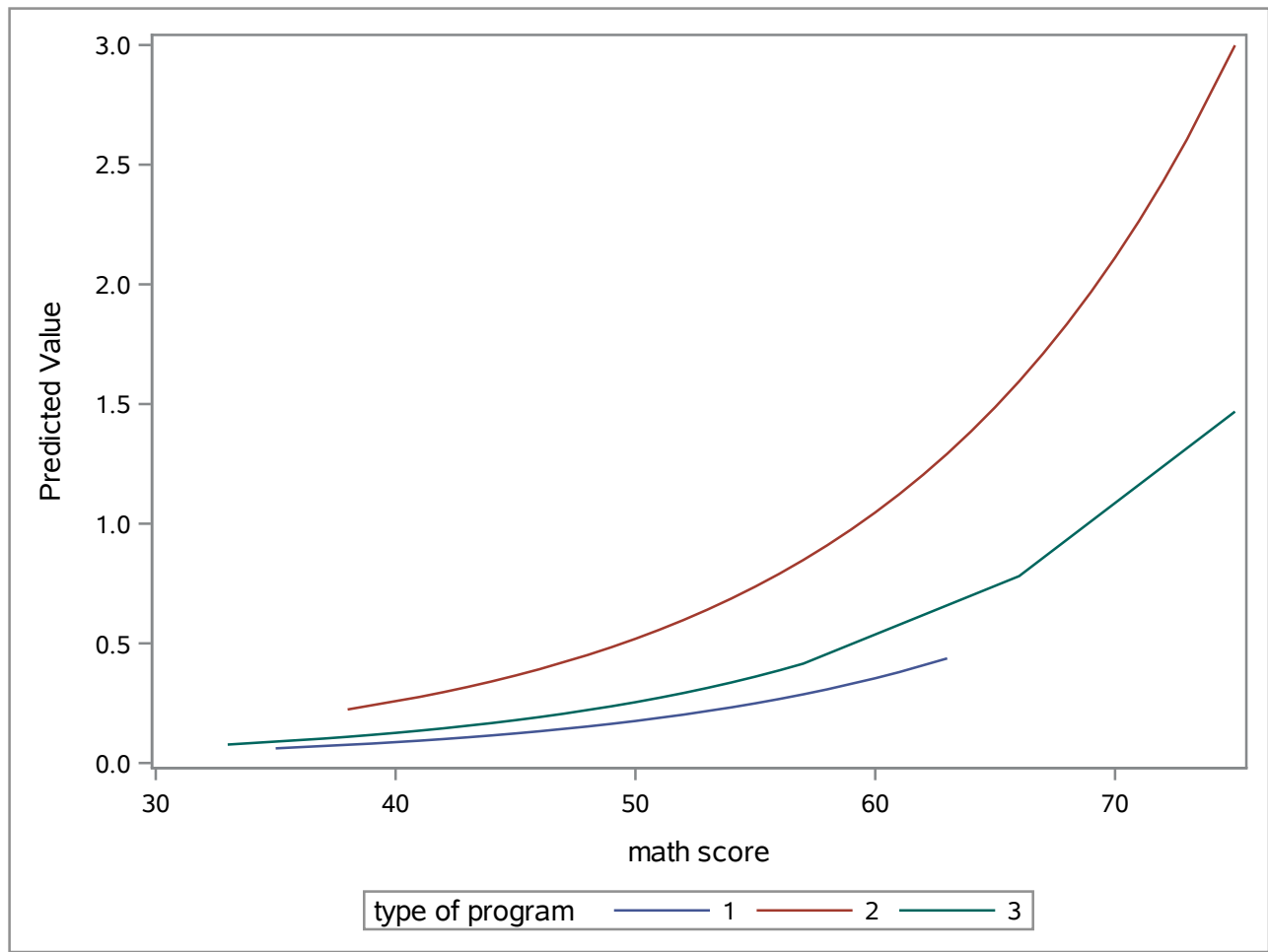
Store Information	
Item Store	WORK.P1
Data Set Created From	WORK.POISSON_SIM
Created By	PROC Genmod
Date Created	29AUG21:15:45:41
Response Variable	num_awards
Link Function	Log
Distribution	Poisson
Class Variable	prog
Model Effects	Intercept prog math

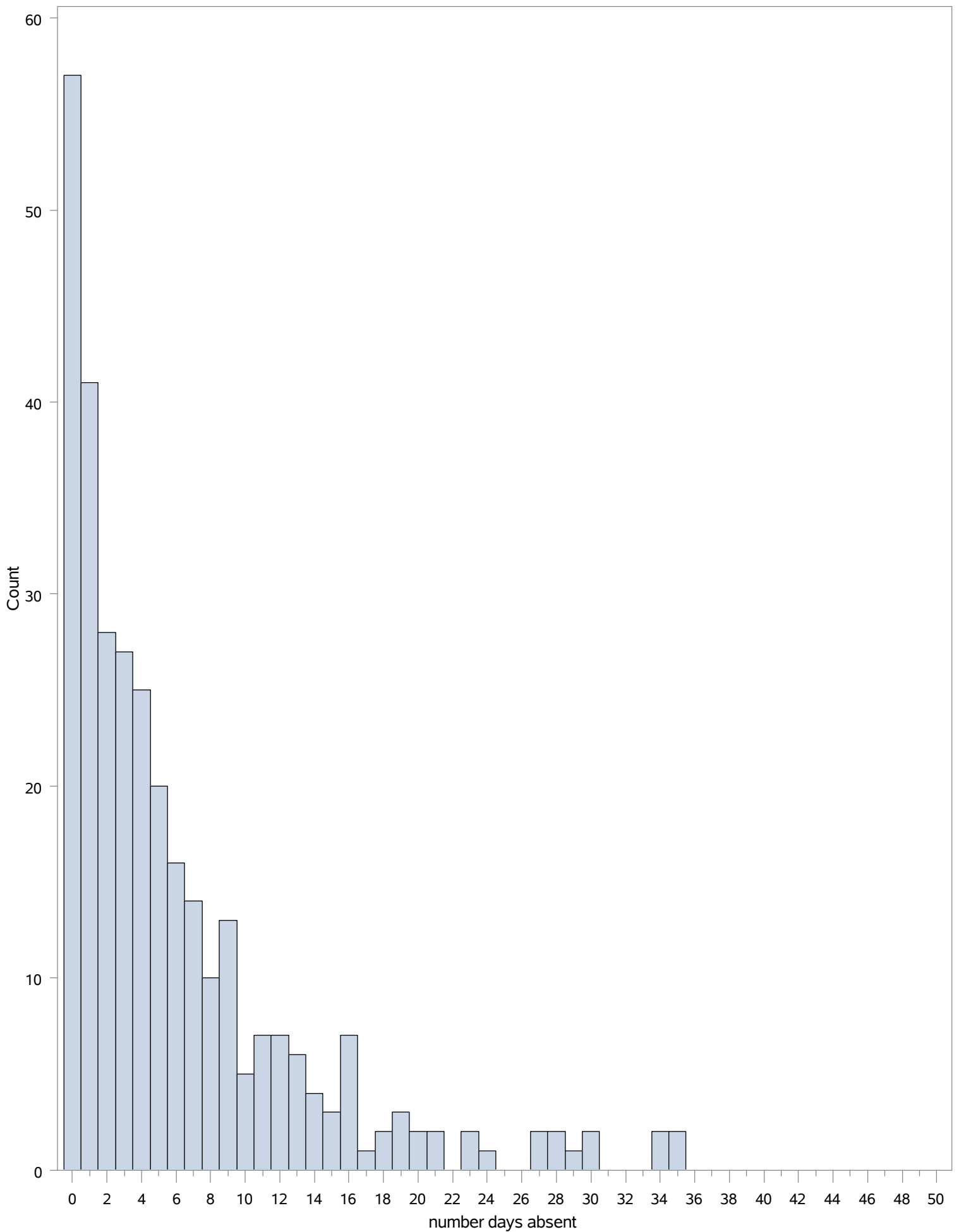
The MEANS Procedure

Analysis Variable : Predicted Predicted Value		
math_cat	N Obs	Mean
35	200	0.1311326
45	200	0.2644714
55	200	0.5333923
65	200	1.0757584
75	200	2.1696153

The PLM Procedure

Store Information	
Item Store	WORK.P1
Data Set Created From	WORK.POISSON_SIM
Created By	PROC Genmod
Date Created	29AUG21:15:45:41
Response Variable	num_awards
Link Function	Log
Distribution	Poisson
Class Variable	prog
Model Effects	Intercept prog math





The GENMOD Procedure

Model Information		
Data Set	WORK.NB_DATA	
Distribution	Negative Binomial	
Link Function	Log	
Dependent Variable	DAYSABS	number days absent

Number of Observations Read	314
Number of Observations Used	314

Class Level Information			
Class	Value	Design Variables	
PROG	1	0	0
	2	1	0
	3	0	1

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance	310	358.5193	1.1565
Scaled Deviance	310	358.5193	1.1565
Pearson Chi-Square	310	339.8771	1.0964
Scaled Pearson X2	310	339.8771	1.0964
Log Likelihood		2151.5227	
Full Log Likelihood		-865.6289	
AIC (smaller is better)		1741.2578	
AICC (smaller is better)		1741.4526	
BIC (smaller is better)		1760.0048	

Algorithm converged.

Analysis Of Maximum Likelihood Parameter Estimates								
Parameter		DF	Estimate	Standard Error	Wald 95% Confidence Limits		Wald Chi-Square	Pr > ChiSq
Intercept		1	2.6153	0.1964	2.2304	3.0001	177.40	<.0001
MATH		1	-0.0060	0.0025	-0.0109	-0.0011	5.71	0.0168
PROG	2	1	-0.4408	0.1826	-0.7986	-0.0829	5.83	0.0158
PROG	3	1	-1.2787	0.2020	-1.6745	-0.8828	40.08	<.0001
Dispersion		1	0.9683	0.0995	0.7916	1.1844		

The GENMOD Procedure

Note: The negative binomial dispersion parameter was estimated by maximum likelihood.

LR Statistics For Type 3 Analysis			
Source	DF	Chi-Square	Pr > ChiSq
MATH	1	5.61	0.0179
PROG	2	45.05	<.0001

Obs	pval
1	0.11703

The GENMOD Procedure

Model Information		
Data Set	WORK.NB_DATA	
Distribution	Negative Binomial	
Link Function	Log	
Dependent Variable	DAYSABS	number days absent

Number of Observations Read	314
Number of Observations Used	314

Class Level Information			
Class	Value	Design Variables	
PROG	1	0	0
	2	1	0
	3	0	1

Parameter Information		
Parameter	Effect	PROG
Prm1	Intercept	
Prm2	MATH	
Prm3	PROG	2
Prm4	PROG	3

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance	310	358.5193	1.1565
Scaled Deviance	310	358.5193	1.1565
Pearson Chi-Square	310	339.8771	1.0964
Scaled Pearson X2	310	339.8771	1.0964
Log Likelihood		2151.5227	
Full Log Likelihood		-865.6289	
AIC (smaller is better)		1741.2578	
AICC (smaller is better)		1741.4526	
BIC (smaller is better)		1760.0048	

Algorithm converged.

The GENMOD Procedure

Analysis Of Maximum Likelihood Parameter Estimates								
Parameter		DF	Estimate	Standard Error	Wald 95% Confidence Limits		Wald Chi-Square	Pr > ChiSq
Intercept		1	2.6153	0.1964	2.2304	3.0001	177.40	<.0001
MATH		1	-0.0060	0.0025	-0.0109	-0.0011	5.71	0.0168
PROG	2	1	-0.4408	0.1826	-0.7986	-0.0829	5.83	0.0158
PROG	3	1	-1.2787	0.2020	-1.6745	-0.8828	40.08	<.0001
Dispersion		1	0.9683	0.0995	0.7916	1.1844		

Note: The negative binomial dispersion parameter was estimated by maximum likelihood.

LR Statistics For Type 3 Analysis			
Source	DF	Chi-Square	Pr > ChiSq
MATH	1	5.61	0.0179
PROG	2	45.05	<.0001

Contrast Estimate Results										
Label	Mean Estimate	Mean		L'Beta Estimate	Standard Error	Alpha	L'Beta		Chi-Square	Pr > ChiSq
		Confidence Limits					Confidence Limits			
prog 2	0.6435	0.4500	0.9204	-0.4408	0.1826	0.05	-0.7986	-0.0829	5.83	0.0158
Exp(prog 2)				0.6435	0.1175	0.05	0.4500	0.9204		
prog 3	0.2784	0.1874	0.4136	-1.2787	0.2020	0.05	-1.6745	-0.8828	40.08	<.0001
Exp(prog 3)				0.2784	0.0562	0.05	0.1874	0.4136		
math	0.9940	0.9892	0.9989	-0.0060	0.0025	0.05	-0.0109	-0.0011	5.71	0.0168
Exp(math)				0.9940	0.0025	0.05	0.9892	0.9989		

The GENMOD Procedure

Model Information		
Data Set	WORK.NB_DATA	
Distribution	Negative Binomial	
Link Function	Log	
Dependent Variable	DAYSABS	number days absent

Number of Observations Read	314
Number of Observations Used	314

Class Level Information			
Class	Value	Design Variables	
PROG	1	0	0
	2	1	0
	3	0	1

Parameter Information		
Parameter	Effect	PROG
Prm1	Intercept	
Prm2	MATH	
Prm3	PROG	2
Prm4	PROG	3

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance	310	358.5193	1.1565
Scaled Deviance	310	358.5193	1.1565
Pearson Chi-Square	310	339.8771	1.0964
Scaled Pearson X2	310	339.8771	1.0964
Log Likelihood		2151.5227	
Full Log Likelihood		-865.6289	
AIC (smaller is better)		1741.2578	
AICC (smaller is better)		1741.4526	
BIC (smaller is better)		1760.0048	

Algorithm converged.

The GENMOD Procedure

Analysis Of Maximum Likelihood Parameter Estimates								
Parameter		DF	Estimate	Standard Error	Wald 95% Confidence Limits		Wald Chi-Square	Pr > ChiSq
Intercept		1	2.6153	0.1964	2.2304	3.0001	177.40	<.0001
MATH		1	-0.0060	0.0025	-0.0109	-0.0011	5.71	0.0168
PROG	2	1	-0.4408	0.1826	-0.7986	-0.0829	5.83	0.0158
PROG	3	1	-1.2787	0.2020	-1.6745	-0.8828	40.08	<.0001
Dispersion		1	0.9683	0.0995	0.7916	1.1844		

Note: The negative binomial dispersion parameter was estimated by maximum likelihood.

LR Statistics For Type 3 Analysis			
Source	DF	Chi-Square	Pr > ChiSq
MATH	1	5.61	0.0179
PROG	2	45.05	<.0001

Contrast Estimate Results										
Label	Mean Estimate	Mean		L'Beta Estimate	Standard Error	Alpha	L'Beta		Chi-Square	Pr > ChiSq
		Confidence Limits					Confidence Limits			
prog 1	10.2369	7.4291	14.1058	2.3260	0.1636	0.05	2.0054	2.6466	202.22	<.0001
Exp(prog 1)				10.2369	1.6744	0.05	7.4291	14.1058		
prog 2	6.5879	5.5916	7.7618	1.8852	0.0837	0.05	1.7213	2.0492	507.76	<.0001
Exp(prog 2)				6.5879	0.5512	0.05	5.5916	7.7618		
prog 3	2.8501	2.2720	3.5753	1.0473	0.1157	0.05	0.8207	1.2740	82.00	<.0001
Exp(prog 3)				2.8501	0.3296	0.05	2.2720	3.5753		

The GENMOD Procedure

Model Information		
Data Set	WORK.NB_DATA	
Distribution	Negative Binomial	
Link Function	Log	
Dependent Variable	DAYSABS	number days absent

Number of Observations Read	314
Number of Observations Used	314

Class Level Information			
Class	Value	Design Variables	
PROG	1	0	0
	2	1	0
	3	0	1

Parameter Information		
Parameter	Effect	PROG
Prm1	Intercept	
Prm2	MATH	
Prm3	PROG	2
Prm4	PROG	3

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance	310	358.5193	1.1565
Scaled Deviance	310	358.5193	1.1565
Pearson Chi-Square	310	339.8771	1.0964
Scaled Pearson X2	310	339.8771	1.0964
Log Likelihood		2151.5227	
Full Log Likelihood		-865.6289	
AIC (smaller is better)		1741.2578	
AICC (smaller is better)		1741.4526	
BIC (smaller is better)		1760.0048	

Algorithm converged.

The GENMOD Procedure

Analysis Of Maximum Likelihood Parameter Estimates								
Parameter		DF	Estimate	Standard Error	Wald 95% Confidence Limits		Wald Chi-Square	Pr > ChiSq
Intercept		1	2.6153	0.1964	2.2304	3.0001	177.40	<.0001
MATH		1	-0.0060	0.0025	-0.0109	-0.0011	5.71	0.0168
PROG	2	1	-0.4408	0.1826	-0.7986	-0.0829	5.83	0.0158
PROG	3	1	-1.2787	0.2020	-1.6745	-0.8828	40.08	<.0001
Dispersion		1	0.9683	0.0995	0.7916	1.1844		

Note: The negative binomial dispersion parameter was estimated by maximum likelihood.

LR Statistics For Type 3 Analysis			
Source	DF	Chi-Square	Pr > ChiSq
MATH	1	5.61	0.0179
PROG	2	45.05	<.0001

Contrast Estimate Results										
Label	Mean Estimate	Mean		L'Beta Estimate	Standard Error	Alpha	L'Beta		Chi-Square	Pr > ChiSq
		Confidence Limits					Confidence Limits			
math 20	12.1267	8.6305	17.0391	2.4954	0.1735	0.05	2.1553	2.8355	206.80	<.0001
Exp(math 20)				12.1267	2.1043	0.05	8.6305	17.0391		
math 40	10.7569	7.8092	14.8172	2.3755	0.1634	0.05	2.0553	2.6958	211.38	<.0001
Exp(math 40)				10.7569	1.7576	0.05	7.8092	14.8172		

The GENMOD Procedure

Model Information		
Data Set	WORK.NB_DATA	
Distribution	Negative Binomial	
Link Function	Log	
Dependent Variable	DAYSABS	number days absent

Number of Observations Read	314
Number of Observations Used	314

Class Level Information			
Class	Value	Design Variables	
PROG	1	0	0
	2	1	0
	3	0	1

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance	310	358.5193	1.1565
Scaled Deviance	310	358.5193	1.1565
Pearson Chi-Square	310	339.8771	1.0964
Scaled Pearson X2	310	339.8771	1.0964
Log Likelihood		2151.5227	
Full Log Likelihood		-865.6289	
AIC (smaller is better)		1741.2578	
AICC (smaller is better)		1741.4526	
BIC (smaller is better)		1760.0048	

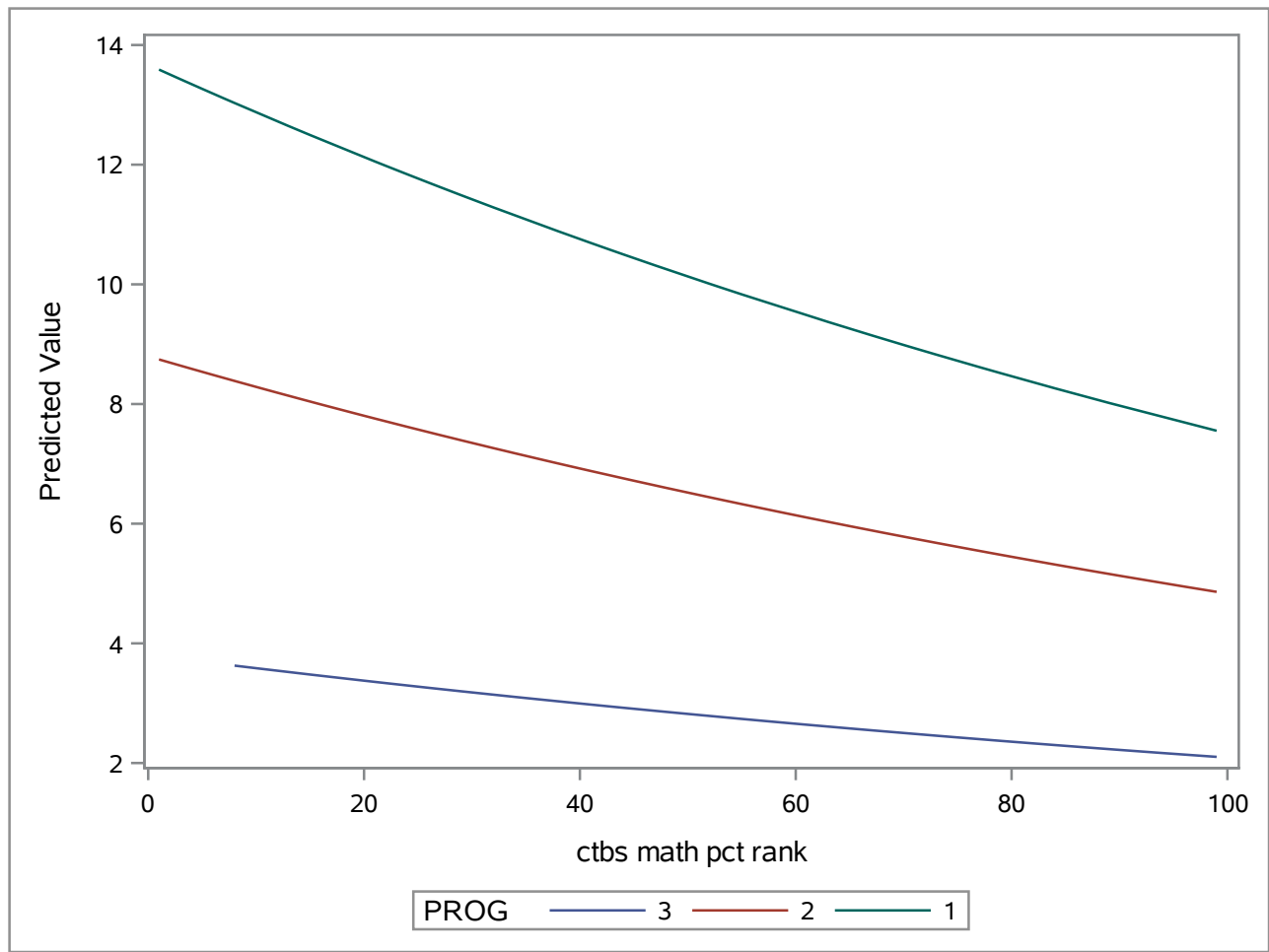
Algorithm converged.

Analysis Of Maximum Likelihood Parameter Estimates								
Parameter		DF	Estimate	Standard Error	Wald 95% Confidence Limits		Wald Chi-Square	Pr > ChiSq
Intercept		1	2.6153	0.1964	2.2304	3.0001	177.40	<.0001
MATH		1	-0.0060	0.0025	-0.0109	-0.0011	5.71	0.0168
PROG	2	1	-0.4408	0.1826	-0.7986	-0.0829	5.83	0.0158
PROG	3	1	-1.2787	0.2020	-1.6745	-0.8828	40.08	<.0001
Dispersion		1	0.9683	0.0995	0.7916	1.1844		

The GENMOD Procedure

Note: The negative binomial dispersion parameter was estimated by maximum likelihood.

LR Statistics For Type 3 Analysis			
Source	DF	Chi-Square	Pr > ChiSq
MATH	1	5.61	0.0179
PROG	2	45.05	<.0001



The GENMOD Procedure

Model Information	
Data Set	WORK.FISH
Distribution	Zero Inflated Poisson
Link Function	Log
Dependent Variable	count

Number of Observations Read	250
Number of Observations Used	250

Class Level Information		
Class	Levels	Values
camper	2	0 1

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance		2063.2168	
Scaled Deviance		2063.2168	
Pearson Chi-Square	245	1543.4597	6.2998
Scaled Pearson X2	245	1543.4597	6.2998
Log Likelihood		774.8999	
Full Log Likelihood		-1031.6084	
AIC (smaller is better)		2073.2168	
AICC (smaller is better)		2073.4627	
BIC (smaller is better)		2090.8241	

Algorithm converged.

Analysis Of Maximum Likelihood Parameter Estimates								
Parameter		DF	Estimate	Standard Error	Wald 95% Confidence Limits		Wald Chi-Square	Pr > ChiSq
Intercept		1	2.4319	0.0413	2.3510	2.5128	3472.23	<.0001
child		1	-1.0428	0.1000	-1.2388	-0.8469	108.78	<.0001
camper	0	1	-0.8340	0.0936	-1.0175	-0.6505	79.35	<.0001
camper	1	0	0.0000	0.0000	0.0000	0.0000	.	.
Scale		0	1.0000	0.0000	1.0000	1.0000		

Note: The scale parameter was held fixed.

The GENMOD Procedure

Analysis Of Maximum Likelihood Zero Inflation Parameter Estimates							
Parameter	DF	Estimate	Standard Error	Wald 95% Confidence Limits		Wald Chi-Square	Pr > ChiSq
Intercept	1	1.2974	0.3739	0.5647	2.0302	12.04	0.0005
persons	1	-0.5643	0.1630	-0.8838	-0.2449	11.99	0.0005

The GENMOD Procedure

Model Information	
Data Set	WORK.FISH
Distribution	Zero Inflated Poisson
Link Function	Log
Dependent Variable	count

Number of Observations Read	250
Number of Observations Used	250

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance		2254.0459	
Scaled Deviance		2254.0459	
Pearson Chi-Square	248	1918.7890	7.7371
Scaled Pearson X2	248	1918.7890	7.7371
Log Likelihood		679.4854	
Full Log Likelihood		-1127.0229	
AIC (smaller is better)		2258.0459	
AICC (smaller is better)		2258.0945	
BIC (smaller is better)		2265.0888	

Algorithm converged.

Analysis Of Maximum Likelihood Parameter Estimates							
Parameter	DF	Estimate	Standard Error	Wald 95% Confidence Limits		Wald Chi-Square	Pr > ChiSq
Intercept	1	2.0316	0.0349	1.9631	2.1000	3388.16	<.0001
Scale	0	1.0000	0.0000	1.0000	1.0000		

Note: The scale parameter was held fixed.

Analysis Of Maximum Likelihood Zero Inflation Parameter Estimates							
Parameter	DF	Estimate	Standard Error	Wald 95% Confidence Limits		Wald Chi-Square	Pr > ChiSq
Intercept	1	0.2728	0.1277	0.0225	0.5232	4.56	0.0327