Common Probability - Regression

The GENMOD Procedure

Model Information	
Data Set	WORK.SHAQ
Distribution	Binomial
Link Function	Identity
Response Variable (Events)	made
Response Variable (Trials)	attempt

Number of Observations Read	23
Number of Observations Used	23
Number of Events	135
Number of Trials	296

Response Profile		
Ordered Value	Binary Outcome	Total Frequency
1	Event	135
2	Nonevent	161

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance	22	40.0206	1.8191
Scaled Deviance	22	40.0206	1.8191
Pearson Chi-Square	22	35.5109	1.6141
Scaled Pearson X2	22	35.5109	1.6141
Log Likelihood		-204.0282	
Full Log Likelihood		-50.6537	
AIC (smaller is better)		103.3073	
AICC (smaller is better)		103.4978	
BIC (smaller is better)		104.4428	

Algorithm converged.

Analysis Of Maximum Likelihood Parameter Estimates							
Parameter	DF	Estimate	Standard Error	Wald 95% Confidence Limits		Wald Chi-Square	Pr > ChiSq
Intercept	1	0.4561	0.0289	0.3993	0.5128	248.20	<.0001
Scale	0	1.0000	0.0000	1.0000	1.0000		

Note: The scale parameter was held fixed.

Common Probability - Regression

Obs	made	attempt	game	fv	stdresid
1	4	5	1	0.45608	1.55723
2	5	11	2	0.45608	-0.01042
3	5	14	3	0.45608	-0.76148
4	5	12	4	0.45608	-0.27986
5	2	7	5	0.45608	-0.91589

Obs	made	attempt	game	fv	stdresid
6	7	10	6	0.45608	1.57551
7	6	14	7	0.45608	-0.21173
8	9	15	8	0.45608	1.14860
9	4	12	9	0.45608	-0.87157
10	1	4	10	0.45608	-0.83317
11	13	27	11	0.45608	0.27797
12	5	17	12	0.45608	-1.38101
13	6	12	13	0.45608	0.31185
14	9	9	14	0.45608	3.32715
15	7	12	15	0.45608	0.90356
16	3	10	16	0.45608	-1.00815
17	8	12	17	0.45608	1.49526
18	1	6	18	0.45608	-1.43799
19	18	39	19	0.45608	0.07344
20	3	13	20	0.45608	-1.66809
21	10	17	21	0.45608	1.12684
22	1	6	22	0.45608	-1.43799
23	3	12	23	0.45608	-1.46328

Create 23x2 table of counts

The FREQ Procedure

Frequency

Table of game by outcome

	outcome		
game	0	1	Total
1	1	4	5
2	6	5	11
3	9	5	14
4	7	5	12
5	5	2	7
6	3	7	10
7	8	6	14
8	6	9	15
9	8	4	12
10	3	1	4
11	14	13	27
12	12	5	17
13	6	6	12
14	0	9	9
15	5	7	12
16	7	3	10
17	4	8	12
18	5	1	6
19	21	18	39
20	10	3	13
21	7	10	17
22	5	1	6
23	9	3	12
Total	161	135	296

Statistics for Table of game by outcome

Statistic	DF	Value	Prob
Chi-Square	22	35.5109	0.0342
Likelihood Ratio Chi-Square	22	40.0206	0.0108
Mantel-Haenszel Chi-Square	1	0.7010	0.4025
Phi Coefficient		0.3464	
Contingency Coefficient		0.3273	
Cramer's V		0.3464	
WARNING: 30% of the cells have expected counts less than 5. (Asymptotic) Chi-Square may not be a valid test.			

Pearson Chi-Square Test	
Chi-Square	35.5109
DF	22
Asymptotic Pr > ChiSq	0.0342

Monte Carlo Estimate for the Exact Test	
Pr >= ChiSq	0.0293
99% Lower Conf Limit	0.0250
99% Upper Conf Limit	0.0336
Number of Samples	10000
Initial Seed	779583618

Likelihood Ratio Chi-Square Test	
Chi-Square	40.0206
DF	22
Asymptotic Pr > ChiSq	0.0108

Monte Carlo Estimate for the Exact Test	
Pr >= ChiSq	0.0255
99% Lower Conf Limit	0.0214
99% Upper Conf Limit	0.0296
Number of Samples	10000
Initial Seed	1274559416

Mantel-Haenszel Chi-Square Test	
Chi-Square	0.7010
DF	1
Asymptotic Pr > ChiSq	0.4025

Monte Carlo Estimate for the Exact Test	
Pr >= ChiSq	0.3982
99% Lower Conf Limit	0.3856
99% Upper Conf Limit	0.4108
Number of Samples	10000
Initial Seed	1591190420

Sample Size = 296

Over-dispersion

The GENMOD Procedure

Model Information	
Data Set	WORK.SHAQ
Distribution	Binomial
Link Function	Identity
Response Variable (Events)	made
Response Variable (Trials)	attempt

Number of Observations Read	23
Number of Observations Used	23
Number of Events	135
Number of Trials	296

Response Profile		
Ordered Value	Binary Outcome	Total Frequency
1	Event	135
2	Nonevent	161

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance	22	40.0206	1.8191
Scaled Deviance	22	24.7939	1.1270
Pearson Chi-Square	22	35.5109	1.6141
Scaled Pearson X2	22	22.0000	1.0000
Log Likelihood		-126.4013	
Full Log Likelihood		-50.6537	
AIC (smaller is better)		103.3073	
AICC (smaller is better)		103.4978	
BIC (smaller is better)		104.4428	

Algorithm converged.

Analysis Of Maximum Likelihood Parameter Estimates							
Parameter	DF	Estimate	Standard Error	Wald 95% Confidence Limits		Wald Chi-Square	Pr > ChiSq
Intercept	1	0.4561	0.0368	0.3840	0.5282	153.77	<.0001
Scale	0	1.2705	0.0000	1.2705	1.2705		

Note: The scale parameter was estimated by the square root of Pearson's Chi-Square/DOF.

Over-dispersion

Obs	made	attempt	game	fv	stdresid
1	4	5	1	0.45608	1.22570
2	5	11	2	0.45608	-0.00820

Obs	made	attempt	game	fv	stdresid
3	5	14	3	0.45608	-0.59937
4	5	12	4	0.45608	-0.22028
5	2	7	5	0.45608	-0.72090
6	7	10	6	0.45608	1.24008
7	6	14	7	0.45608	-0.16665
8	9	15	8	0.45608	0.90406
9	4	12	9	0.45608	-0.68601
10	1	4	10	0.45608	-0.65579
11	13	27	11	0.45608	0.21879
12	5	17	12	0.45608	-1.08700
13	6	12	13	0.45608	0.24545
14	9	9	14	0.45608	2.61880
15	7	12	15	0.45608	0.71119
16	3	10	16	0.45608	-0.79352
17	8	12	17	0.45608	1.17692
18	1	6	18	0.45608	-1.13184
19	18	39	19	0.45608	0.05780
20	3	13	20	0.45608	-1.31296
21	10	17	21	0.45608	0.88694
22	1	6	22	0.45608	-1.13184
23	3	12	23	0.45608	-1.15175