Opened Variable As A Function Of Subject Line, Weekend And Holiday Using Logistic Regression

The LOGISTIC Procedure

Model Information		
Data Set	SASUSER.EMAIL_DATA	
Response Variable	OPENED	OPENED
Number of Response Levels	2	
Model	binary logit	
Optimization Technique	Fisher's scoring	

Number of Observations Read	65535
Number of Observations Used	65535

Response Profile		
Ordered Value	OPENED	Total Frequency
1	1	22377
2	0	43158

Probability modeled is OPENED=1.

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	84148.064	84146.219
SC	84157.154	84182.580
-2 Log L	84146.064	84138.219

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	7.8454	3	0.0493
Score	7.8253	3	0.0498
Wald	7.8234	3	0.0498

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.5683	0.0389	213.3540	<.0001
SUBJECT_LENGTH	1	-0.00137	0.000609	5.0756	0.0243
WEEKEND	1	-0.00196	0.0434	0.0020	0.9639
HOLIDAY	1	-0.0776	0.0455	2.9129	0.0879

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
SUBJECT_LENGTH	0.999	0.997	1.000
WEEKEND	0.998	0.917	1.087
HOLIDAY	0.925	0.846	1.012

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	49.4	Somers' D	0.008
Percent Discordant	48.6	Gamma	0.008
Percent Tied	1.9	Tau-a	0.004
Pairs	965746566	c	0.504

Linear Regression on Log of Fraction of Emails Opened as a Function of Subject Line, Weekend and Holiday

The REG Procedure
Model: MODEL1
Dependent Variable: log_fraction

Number of Observations Read	65535
Number of Observations Used	65502
Number of Observations with Missing Values	33

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	791.12285	263.70762	62.81	<.0001
Error	65498	274994	4.19851		
Corrected Total	65501	275785			

Root MSE	2.04903	R-Square	0.0029
Dependent Mean	-1.06686	Adj R-Sq	0.0028
Coeff Var	-192.06059		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	-1.44569	0.03785	-38.20	<.0001
SUBJECT_LENGTH	SUBJECT_LENGTH	1	0.00628	0.00059152	10.62	<.0001
WEEKEND	WEEKEND	1	-0.03752	0.04207	-0.89	0.3725
HOLIDAY	HOLIDAY	1	-0.36418	0.04370	-8.33	<.0001

Opt Out Modelled As A Function of Pi, Weekend and Holiday Using Logistic Regression

The LOGISTIC Procedure

Model Information		
Data Set	SASUSER.EMAIL_DATA1	
Response Variable	OPTOUT	OPTOUT
Number of Response Levels	2	
Model	binary logit	
Optimization Technique	Fisher's scoring	

Number of Observations Read	65535
Number of Observations Used	65535

Response Profile		
Ordered Value	OPTOUT	Total Frequency
1	1	14852
2	0	50683

Probability modeled is OPTOUT=1.

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	70146.531	62728.162
SC	70155.621	62764.523
-2 Log L	70144.531	62720.162

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	7424.3695	3	<.0001
Score	6370.3670	3	<.0001
Wald	5518.0850	3	<.0001

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.2974	0.0141	443.0963	<.0001
pi	1	-3.3944	0.0458	5481.8876	<.0001
WEEKEND	1	-0.2252	0.0537	17.5658	<.0001
HOLIDAY	1	0.1608	0.0508	10.0040	0.0016

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
pi	0.034	0.031	0.037
WEEKEND	0.798	0.719	0.887
HOLIDAY	1.174	1.063	1.298

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	73.4	Somers' D	0.483
Percent Discordant	25.1	Gamma	0.490
Percent Tied	1.4	Tau-a	0.169
Pairs	752743916	c	0.741

Total Store Visits Modelled As A Function Of Pi, Opt Out, Weekend And Holiday Using Linear Regression

The REG Procedure
Model: MODEL1
Dependent Variable: TOTAL_VISITS TOTAL_VISITS

Number of Observations Read	65535
Number of Observations Used	65535

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	490123	122531	429.27	<.0001
Error	65530	18704738	285.43779		
Corrected Total	65534	19194861			

Root MSE	16.89490	R-Square	0.0255
Dependent Mean	10.13509	Adj R-Sq	0.0255
Coeff Var	166.69716		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	12.28427	0.12251	100.27	<.0001
pi		1	-1.87281	0.24072	-7.78	<.0001
OPTOUT	OPTOUT	1	-6.65408	0.16591	-40.11	<.0001
WEEKEND	WEEKEND	1	2.07180	0.34573	5.99	<.0001
HOLIDAY	HOLIDAY	1	-2.08981	0.36024	-5.80	<.0001