

LOGISTIC REGRESSION

Logistic Regression

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	60	60.0
	Missing Cases	0	.0
	Total	60	60.0
Unselected Cases		40	40.0
Total		100	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
USA/North America	0
Outside North America	1

Block 0: Beginning Block

Iteration History^{a,b,c}

Iteration		-2 Log likelihood	Coefficients
			Constant
Step 0	1	82.108	.267
	2	82.108	.268
	3	82.108	.268

- a. Constant is included in the model.
- b. Initial -2 Log Likelihood: 82.108
- c. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Classification Table^{c,d}

Observed			Predicted		
			Selected Cases ^a		
			X4 - Region		Percentage Correct
			USA/North America	Outside North America	
Step 0	X4 - Region	USA/North America	0	26	.0
		Outside North America	0	34	100.0
	Overall Percentage				56.7

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Classification Table^{c,d}

Observed			Predicted		
			Unselected Cases ^b		
			X4 - Region		Percentage Correct
			USA/North America	Outside North America	
Step 0	X4 - Region	USA/North America	0	13	.0
		Outside North America	0	27	100.0
	Overall Percentage				67.5

- a. Selected cases Sample Split -- 60/40 EQ 0
- b. Unselected cases Sample Split -- 60/40 NE 0
- c. Constant is included in the model.
- d. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	.268	.261	1.060	1	.303	1.308

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	x6	11.925	1	.001
		x7	2.052	1	.152
		x8	1.609	1	.205
		x9	.866	1	.352
		x10	.791	1	.374
		x11	18.323	1	.000
		x12	8.622	1	.003
		x13	21.330	1	.000
		x14	.465	1	.495
		x15	.614	1	.433
		x16	.090	1	.764
		x17	21.204	1	.000
		x18	.157	1	.692
	Overall Statistics		42.350	13	.000

Block 1: Method = Forward Stepwise (Wald)

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Iteration History^{a,b,c,d,e}

Iteration		-2 Log likelihood	Coefficients		
			Constant	x13	x17
Step 1	1	58.793	-4.920	.782	
	2	57.040	-6.589	1.058	
	3	56.972	-6.988	1.125	
	4	56.971	-7.008	1.129	
	5	56.971	-7.008	1.129	
Step 2	1	46.868	-7.047	.577	.798
	2	41.251	-10.722	.848	1.302
	3	40.073	-13.089	1.009	1.664
	4	39.962	-14.058	1.071	1.822
	5	39.960	-14.190	1.079	1.844
	6	39.960	-14.192	1.079	1.844
	7	39.960	-14.192	1.079	1.844

- a. Method: Forward Stepwise (Wald)
- b. Constant is included in the model.
- c. Initial -2 Log Likelihood: 82.108
- d. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.
- e. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	25.136	1	.000
	Block	25.136	1	.000
	Model	25.136	1	.000
Step 2	Step	17.011	1	.000
	Block	42.148	2	.000
	Model	42.148	2	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	56.971 ^a	.342	.459
2	39.960 ^b	.505	.677

- a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.
- b. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

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Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	17.329	8	.027
2	5.326	8	.722

Contingency Table for Hosmer and Lemeshow Test

		X4 - Region = USA/North America		X4 - Region = Outside North America		Total
		Observed	Expected	Observed	Expected	
Step 1	1	4	5.263	2	.737	6
	2	6	4.900	0	1.100	6
	3	5	4.458	1	1.542	6
	4	4	3.675	2	2.325	6
	5	0	2.876	6	3.124	6
	6	3	2.010	3	3.990	6
	7	4	1.479	3	5.521	7
	8	0	.742	6	5.258	6
	9	0	.483	7	6.517	7
	10	0	.113	4	3.887	4
Step 2	1	6	5.752	0	.248	6
	2	4	5.251	2	.749	6
	3	5	4.927	1	1.073	6
	4	5	4.634	2	2.366	7
	5	5	3.372	1	2.628	6
	6	1	1.554	5	4.446	6
	7	0	.291	6	5.709	6
	8	0	.131	6	5.869	6
	9	0	.084	7	6.916	7
	10	0	.006	4	3.994	4

Classification Table^c

Observed			Predicted		
			Selected Cases ^a		
			X4 - Region		Percentage Correct
			USA/North America	Outside North America	
Step 1	X4 - Region	USA/North America	19	7	73.1
		Outside North America	9	25	73.5
	Overall Percentage				73.3
Step 2	X4 - Region	USA/North America	25	1	96.2
		Outside North America	6	28	82.4
	Overall Percentage				88.3

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Classification Table^c

Observed			Predicted		
			Unselected Cases ^b		
			X4 - Region		Percentage Correct
			USA/North America	Outside North America	
Step 1	X4 - Region	USA/North America	4	9	30.8
		Outside North America	1	26	96.3
	Overall Percentage				75.0
Step 2	X4 - Region	USA/North America	9	4	69.2
		Outside North America	2	25	92.6
	Overall Percentage				85.0

- a. Selected cases Sample Split -- 60/40 EQ 0
b. Unselected cases Sample Split -- 60/40 NE 0
c. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
								Lower	Upper
Step 1	x13	1.129	.287	15.471	1	.000	3.092	1.762	5.426
	Constant	-7.008	1.836	14.570	1	.000	.001		
Step 2	x13	1.079	.357	9.115	1	.003	2.942	1.460	5.928
	x17	1.844	.639	8.331	1	.004	6.321	1.807	22.110
	Constant	-14.192	3.712	14.614	1	.000	.000		

- a. Variable(s) entered on step 1: x13.
b. Variable(s) entered on step 2: x17.

Correlation Matrix

		Constant	x13	x17
Step 1	Constant	1.000	-.984	
	x13	-.984	1.000	
Step 2	Constant	1.000	-.750	-.808
	x13	-.750	1.000	.231
	x17	-.808	.231	1.000

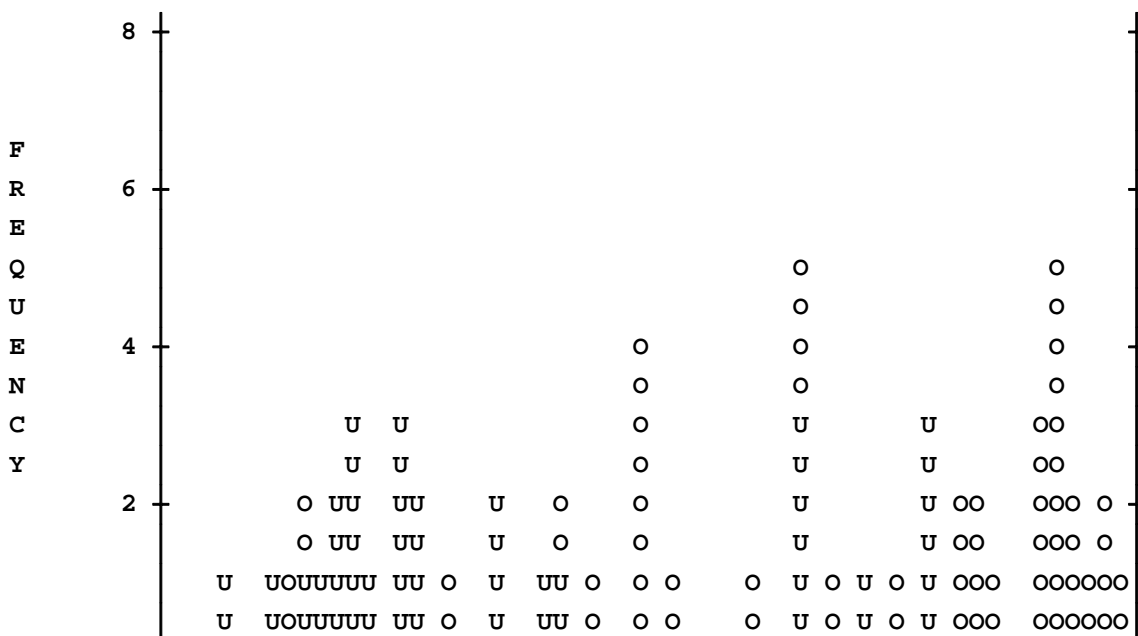
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Variables not in the Equation

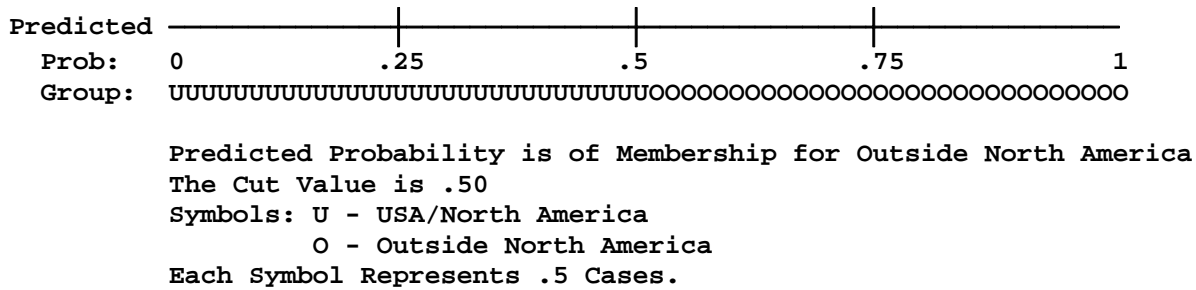
			Score	df	Sig.
Step 1	Variables	x6	4.859	1	.028
		x7	.132	1	.716
		x8	.007	1	.931
		x9	1.379	1	.240
		x10	.129	1	.719
		x11	6.154	1	.013
		x12	2.745	1	.098
		x14	.640	1	.424
		x15	.344	1	.557
		x16	2.528	1	.112
		x17	13.723	1	.000
		x18	1.206	1	.272
	Overall Statistics		27.315	12	.007
Step 2	Variables	x6	.656	1	.418
		x7	3.501	1	.061
		x8	.006	1	.937
		x9	.693	1	.405
		x10	.091	1	.762
		x11	3.409	1	.065
		x12	.849	1	.357
		x14	2.327	1	.127
		x15	.026	1	.873
		x16	.010	1	.919
		x18	2.907	1	.088
		Overall Statistics		20.216	11

Step number: 1

Observed Groups and Predicted Probabilities

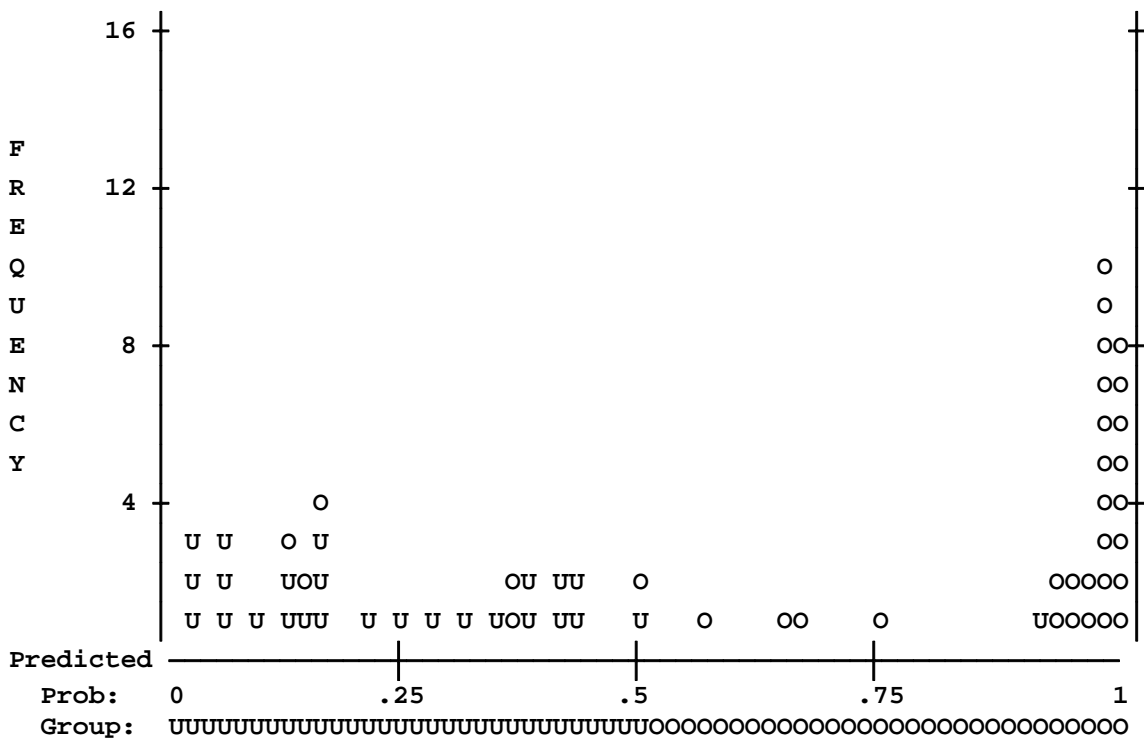


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Step number: 2

Observed Groups and Predicted Probabilities



Predicted Probability is of Membership for Outside North America
The Cut Value is .50
Symbols: U - USA/North America
 O - Outside North America
Each Symbol Represents 1 Case.

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Casewise List^b

Case	Selected Status ^a	Observed	Predicted	Predicted Group	Temporary Variable	
		X4 - Region			Resid	ZResid
3	S	O**	.123	U	.877	2.664
34	S	O**	.144	U	.856	2.441
71	S	U**	.907	O	-.907	-3.120

a. S = Selected, U = Unselected cases, and ** = Misclassified cases.

b. Cases with studentized residuals greater than 2.000 are listed.