Catherine Johnson and Tim Edwards Com 631 Spring 2014

Logistic Regression

Goal: Use the Jeffres National Community Study data set to predict the probability of a person circulating or signing a petition.

I. The Model

Variables: In Logistic Regression you must choose a DV that is a binary or can be dummy coded. Running frequency tests lead us to select if a person had ever circulated or signed a petition. Demographics was the obvious name given to the first block of predictors, since we included education level, race (dummy coded white= 1; all others= 0), age, and gender (dummy coded femaleness= 1; male= 0) as our variables. Block two was named community participation; and we included "I generally discuss political candidates and issues with neighbors at election time," "have you worked with others in your community to solve some community problem in the past couple years," and "attended meetings of your town or city council," because these variables dealt with participating in community activities. We titled Block three sense of government security, and put the variables "public officials in my community seem receptive to views of residents," and "other than voting, people like me have little influence over local government actions." Lastly, Block four was called political involvement and had the variables membership in political clubs or organizations, worn a button or put a sticker on your car, voted in the 2004 presidential election, and contributed money to a party or candidate put in since they show political activeness.

II. Running SPSS

SPSS allows a hierarchical ordering of the blocks, where contribution increases

downward, and automatically dummy codes the dependent variable for you...

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DEPENDENT: Insert dependent variable

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97 693 Numeric 1 0 089:Solicited p (0, no) 2 - 9 8 # Right Scale Input 8 q40 Numeric 1 0 090 Contribute (0, no) 2 - 9 8 # Right Scale Input 9 q41 Numeric 1 0 090 Contribute (0, no) 2 - 9 8 # Right Scale Input 00 q52 Numeric 1 0 093:Contacted (0, no) 2 - 9 8 # Right Scale Input 01 q63 Numeric 2 0 093:Contacted None 11 - 99 8 # Right Scale Input 9 q41 Numeric 2 0 093:Contacted None 11 - 99 # Right Scale Input		4								
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9 q91 Numeric 1 0 O91:Contacted(0, no) 2 - 9 8 Tail Right # Scale Ninput 00 e92 Numeric 1 0 092:Contacted(0, no) 2 - 9 8 Tail Right # Scale Ninput 01 q90 Numeric 2 0 093:Contacted(0, no) 2 - 9 8 Tail Right # Scale Ninput 01 q90 Numeric 2 0 093:Contacted(0, no) 1 - 99 8 Tail Right # Scale Ninput		4								
00 qf2 Numeric 1 0 092:Contacted (0, no) 2 - 9 8 Tail Right Scale Input 01 q93 Numeric 2 0 093:Confident None 11 - 99 0 Tail Right Scale Input 04 Mumeric 2 0 093:Confident None 11 - 99 0 Tail Right Scale Input		4								
01 q63 Numeric 2 0 093:Confident None 11-99 8 30 Right # Scale Input				-			-			
17 n94 Numeric 2 D 094/Public offic None 11,99 8 要 Bioht # Scale Nonet										
		4								
		4	 							
										IBM SPSS Statistics Processor is ready

REPEAT: Do same as above for Block 3 and Block 4 respectively

CLICK: OPTIONS

	Narrie	Type	Width	Decim	als Label	Values	Missing	Columinus	Align	Measure	Role	
72	q64	Numeric	1	0	O64 Freq visit	(D, never b		8	3 Right	& Scale	S Input	
73	q65	Numeric.	1	0	Q65:Freq visit b.	(D, never b	8. 6-9	8	理 Right	/ Scale	> Input	
74	q66	Numeric:	1	0	G66 Freq visit #			8	ill Right	/ Scale	S Input	
75	q67	Numeric.	1	0	O67:Freq visit p.			8	Ill Right	/ Scale	> Irout	
76	q68	Numeric	1	0	OF LANDING	The Address of	1. 2. 0.	- C		A Cash wal	> Input	
77	q69	Numeric.	1	0		Internet	grownian: Options	-	_		> Input	
78	970	Numeric	1	0							Input	
79	971	Numeric	1	0	OT VARD	Distribute a	end Photo				> input	
80	972	Nameric	1	0	Q7 depet	V Desal	ferallion plots	12	Currenations of ex	trudes 1	S Input	
01	973	Numeric	1	0	Q7 status	W ream	- Lanashow goodre	11-11-11 E	beration history		S Input	
82	474	Numeric	1	0	Q7 dires		the lating of residue		Ci for eigedity		> Input	
83	975	Numeric	1	0	07 Steer				and the second s		S input	
64	976	Numeric	1	0	G7 paint		risten 2	52. Ber			S input	
05	q77	Numeric	1	0	07 J 01 W	Charley					S Input	
06	978	Numeric	8	0	Q7 2 02 1m		tittep () At just ite				S input	
67	479	Numeria	2	0	07 💑 00 fm	- ve eso	a none - of here upo	-			S Input	
88	400	Numeric	1	0	QE 04.00	Probability	for Depretate		Casolication cu	eatt as	> Input	
69	q81	Numeric	1	0	OE OS No	Egery out	Removal 010		1000 A (2001)	States and a state of the state	S Input	
90	482	Numeric	1	Ó	0E # 07 VA				Maximum Baradio	ent 20	> Input	
91	q63	Numeric.	5	0	OE -	V relate	congrant is model				> input	
92	q84	Numeric:	1	0	QE		Cortran	Cantel			> Input	
93	q85	Numeric.	1	0	GGS WORTDON				_		> Input	
94	496	Numeric	1	0	Q86 Voted in 2	(D, ne)	2-9	8	Ill Right	# Scale	> Input	
96	q87	Numeric.	1	0	Q67 Participate	(D, no)	2-9	8	I Right	& Scale	> Input	
96	498	Numeric.	1	0	Q88 Helped cir	(D, no)	2-9	8	I Ruh	# Scale	> Input	
97	469	Mumeric	1	0	Q89 Selicited p	(0, ne)	2.9	8	III Right	/ Scale	> Input	
98	490	Numeric	1	0	Q90 Contribute	(0, na)	2+9	0	I Right	/ Scale	> input	
99	q91	Mameric	18	0	O91 Contacted	(D, ne)	2.9	0	IN Ruht	/ Scale	> input	
100	492	Mutheric	1	0	092 Contacted	(D, no)	2-9	8	I Right	/ Scale	> input	
101	993	Numeric	2	0	093 Confident	None	11 - 99	0	III Ruht	/ Scale	> Input	
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	141											

SELECT (Classification Plots, Hosmer-Lemeshow, and CI for exp(B) at 95%)

CLICK: CONTINUE



CLICK: OK

III. SPSS Output

LOGISTIC REGRESSION VARIABLES q88 /METHOD=ENTER q104 q105 whiteness femaleness /METHOD=ENTER q24 q52 q83 /METHOD=ENTER q23 q32 /METHOD=ENTER q46 q85 q86 q90 /CLASSPLOT /PRINT=GOODFIT CI(95) /CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

Logistic Regression

	Notes	
Output Created		28-Mar-2014 13:15:46
Comments		
Input	Data	C:\Users\gaoffice\AppData\Local\Temp
		atcom.sav
	Active Dataset	DataSet1
	File Label	CP05
	Filter	<none></none>
	Weight	<none></none>
	Split File	<none></none>
	N of Rows in Working Data File	477
Missing Value Handling	Definition of Missing	User-defined missing values are treated as
		missing

Syntax		LOGISTIC REGRESSION VARIABLES
		q88
		/METHOD=ENTER q104 q105 whiteness
		femaleness
		/METHOD=ENTER q24 q52 q83
		/METHOD=ENTER q23 q32
		/METHOD=ENTER q46 q85 q86 q90
		/CLASSPLOT
		/PRINT=GOODFIT CI(95)
		/CRITERIA=PIN(0.05) POUT(0.10)
		ITERATE(20) CUT(0.5).
Resources	Processor Time	00 00:00:00.031
	Elapsed Time	00 00:00:00.063

[DataSet1] C:\Users\gaoffice\AppData\Local\Temp\natcom.sav

	Case Processing Sum	mary	
Unweighted Cases	a	Ν	Percent
Selected Cases	Included in Analysis	397	83.2
	Missing Cases	80	16.8
	Total	477	100.0
Unselected Cases		0	.0
Total		477	100.0

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

Dependent Variable Encoding

Original Value	Internal Value
no	0
yes	1

Block 0: Political Action

		Classification T	able ^{a,b}		
				Predicted	
			Q88:Helped circula	ate,signed petition	Percentage
	Observed		no	yes	Correct
Step 0	Q88:Helped circulate,signed	no	0	184	.0
	petition	yes	0	213	100.0
	Overall Percentage				53.7

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		В	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	.146	.101	2.115	1	.146	1.158

Variables not in the Equation							
			Score	df	Sig.		
Step 0	Variables	q104	.243	1	.622		
		q105	8.046	1	.005		
		whiteness	.638	1	.425		
		femaleness	2.344	1	.126		
	Overall Stati	stics	11.096	4	.026		

Variables not in the Equation

Block 1: Demographics

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	11.226	4	.024
	Block	11.226	4	.024
	Model	11.226	4	.024

Model Summary

		Cox & Snell R	Nagelkerke R
Step	-2 Log likelihood	Square	Square
1	537.013 ^a	.028	.037

a. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.	
1	9.522	8	.300	

Contingency Table for Hosmer and Lemeshow Test

r		, j				
		Q88:Helped circulat	e,signed petition =	Q88:Helped circulat		
		nc)	уе	S	
		Observed	Expected	Observed	Expected	Total
Step 1	1	29	24.390	11	15.610	40
	2	19	23.210	23	18.790	42
	3	20	22.754	24	21.246	44
	4	20	20.456	21	20.544	41
	5	16	18.498	24	21.502	40
	6	23	19.265	20	23.735	43
	7	17	15.935	21	22.065	38
	8	12	15.763	28	24.237	40
	9	18	14.657	23	26.343	41
	10	10	9.072	18	18.928	28

Classification Table^a

			Predicted		
			Q88:Helped circula	Percentage	
	Observed		no	yes	Correct
Step 1	Q88:Helped circulate,signed	no	79	105	42.9
	petition	yes	70	143	67.1
	Overall Percentage				55.9

a. The cut value is .500

	Variables in the Equation											
								95% C.I.for	EXP(B)			
		В	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper			
Step 1 ^a	q104	022	.063	.116	1	.734	.979	.864	1.108			
	q105	.223	.078	8.093	1	.004	1.249	1.072	1.456			
	whiteness	210	.247	.726	1	.394	.810	.499	1.315			
	femaleness	280	.205	1.872	1	.171	.755	.506	1.129			
	Constant	363	.441	.678	1	.410	.695					

a. Variable(s) entered on step 1: q104, q105, whiteness, femaleness.

			Observed	Groups	and	Predicted	Probab	ilities				
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+ Prol Grow	b: (up: nnnr) .1	.2.3.4	-+ .5 .6	.7.8							
		Dr	edicted D	robabil	itv -	is of Memb	erchin	for veg				

Predicted Probability is of Membership for yes The Cut Value is .50 Symbols: n - no y - yes Each Symbol Represents 2.5 Cases.

Step number: 1

Block 2: Community Participation

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	29.481	3	.000
	Block	29.481	3	.000
	Model	40.707	7	.000

Model Summary

		Cox & Snell R	Nagelkerke R
Step	-2 Log likelihood	Square	Square
1	507.532 ^a	.097	.130

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.	
1	5.761	8	.674	

		Q88:Helped circulat	e,signed petition =	Q88:Helped circula		
		nc	D	ує		
		Observed	Expected	Observed	Expected	Total
Step 1	1	32	28.209	8	11.791	40
	2	23	25.687	17	14.313	40
	3	22	23.833	18	16.167	40
	4	22	21.864	18	18.136	40
	5	16	19.850	24	20.150	40
	6	21	17.596	19	22.404	40
	7	16	15.467	24	24.533	40
	8	14	13.333	26	26.667	40
	9	10	10.818	31	30.182	41
	10	8	7.343	28	28.657	36

Contingency Table for Hosmer and Lemeshow Test

Classification Table^a

			Predicted Q88:Helped circulate,signed petition Percentage		
	Observed		no	yes	Correct
Step 1	Q88:Helped circulate,signed	no	106	78	57.6
	petition	yes	71	142	66.7
	Overall Percentage				62.5

a. The cut value is .500

-			Var	iables in the	Equation				
								95% C.I.for	EXP(B)
		В	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 ^a	q104	025	.066	.144	1	.705	.975	.856	1.111
	q105	.155	.082	3.576	1	.059	1.167	.994	1.370
	whiteness	206	.255	.657	1	.418	.814	.494	1.340
	femaleness	113	.215	.276	1	.599	.893	.586	1.362
	q24	.074	.033	5.053	1	.025	1.077	1.010	1.149
	q52	.808	.233	12.037	1	.001	2.244	1.421	3.543
	q83	.356	.245	2.110	1	.146	1.428	.883	2.309
	Constant	931	.470	3.919	1	.048	.394		

Variables in the Equation

a. Variable(s) entered on step 1: q24, q52, q83.

Step number: 1 Observed Groups and Predicted Probabilities 16 + + Т Ι Ι Ι F Ι У У Ι R 12 + y y УУ + Е Ι У ууу у УУ Ι Q Ι ууу уууу у у У УУ Ι U I ууу уууу уу уу уу У Ι Е 8 + y yy n y yyyy yy yy y y yy + Ν I y n yyyn n yy yyyy yy yyy yy yyy Ι У у уууу С Т n y n yyyn n yy nynyyy yy nyy yyy Ι уу ууу ууууу nyn n nyynyn nnynnnyyyyyy nyy yyynynyy Υ I уууууу ууууу у Ι nnn nyynnnnynynnynnnyyyyn 4 + nnyyynynynyyyyyyyyyyyyy yy y + Ι Ι I n Ι Т n nn Ι Prob: 0 .1 .2 .3 .4 .5 .6 .7 .8 .9 1 Group: УУУУУУУУУУУУУУУУУУУУУУ

Block 3: Sense of Government Security

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	2.243	2	.326
	Block	2.243	2	.326
	Model	42.949	9	.000

Model Summary

		Cox & Snell R	Nagelkerke R
Step	-2 Log likelihood	Square	Square
1	505.289 ^a	.103	.137

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.	
1	12.591	8	.127	

		Q88:Helped circulat	te,signed petition =	Q88:Helped circula	te,signed petition =	
		nc	D	ує	S	
		Observed	Expected	Observed	Expected	Total
Step 1	1	32	28.592	8	11.408	40
	2	19	25.897	21	14.103	40
	3	25	23.800	15	16.200	40
	4	25	21.846	15	18.154	40
	5	16	19.894	24	20.106	40
	6	20	17.851	20	22.149	40
	7	19	15.035	21	24.965	40
	8	12	13.250	28	26.750	40
	9	11	10.489	29	29.511	40
	10	5	7.347	32	29.653	37

Contingency Table for Hosmer and Lemeshow Test

Classification Table^a

			Predicted Q88:Helped circulate,signed petition Percentage		
	Observed		no	yes	Correct
Step 1	Q88:Helped circulate,signed	no	108	76	58.7
	petition	yes	70	143	67.1
	Overall Percentage				63.2

a. The cut value is .500

			V	ariables in th	e Equation				
								95% C.I.fo	or EXP(B)
		В	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 ^a	q104	006	.068	.007	1	.934	.994	.870	1.136
	q105	.157	.084	3.470	1	.062	1.170	.992	1.380
	whiteness	217	.256	.721	1	.396	.805	.488	1.328
	femaleness	088	.217	.165	1	.685	.916	.598	1.401
	q24	.082	.034	5.889	1	.015	1.085	1.016	1.160
	q52	.781	.235	11.040	1	.001	2.183	1.377	3.461
	q83	.354	.247	2.047	1	.153	1.424	.877	2.312
	q23	051	.039	1.721	1	.190	.950	.880	1.026
	q32	036	.035	1.030	1	.310	.965	.900	1.034
	Constant	566	.550	1.059	1	.304	.568		

a. Variable(s) entered on step 1: q23, q32.

Variables in the Equation

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Observed Groups and Predicted Probabilities

Predicted Probability is of Membership for yes The Cut Value is .50 Symbols: n - no y - yes Each Symbol Represents 1 Case.

Step number: 1

Block 4: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	29.206	4	.000
	Block	29.206	4	.000
	Model	72.155	13	.000

Model Summary

		Cox & Snell R	Nagelkerke R
Step	-2 Log likelihood	Square	Square
1	476.083 ^a	.166	.222

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.	
1	10.043	8	.262	

		Q88:Helped circulat	te,signed petition =	Q88:Helped circula	te,signed petition =	
		nc	D	ує	S	
		Observed	Expected	Observed	Expected	Total
Step 1	1	31	30.605	9	9.395	40
	2	31	27.469	9	12.531	40
	3	27	25.123	13	14.877	40
	4	21	22.878	19	17.122	40
	5	16	20.309	24	19.691	40
	6	12	18.167	28	21.833	40
	7	17	15.758	23	24.242	40
	8	16	12.143	24	27.857	40
	9	9	8.085	31	31.915	40
	10	4	3.463	33	33.537	37

Contingency Table for Hosmer and Lemeshow Test

Classification Table^a

		Predicted			
			Q88:Helped circulate, signed petition Percentage		
	Observed		no	yes	Correct
Step 1	Q88:Helped circulate,signed	no	123	61	66.8
	petition	yes	65	148	69.5
	Overall Percentage				68.3

a. The cut value is .500

Variables in the Equation											
								95% C.I.for EXP(B)			
		В	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper		
Step 1 ^a	q104	021	.073	.079	1	.778	.980	.849	1.131		
	q105	.146	.093	2.445	1	.118	1.157	.964	1.390		
	whiteness	181	.271	.444	1	.505	.835	.491	1.420		
	femaleness	040	.228	.030	1	.862	.961	.615	1.503		
	q24	.033	.036	.796	1	.372	1.033	.962	1.110		
	q52	.507	.247	4.207	1	.040	1.660	1.023	2.696		
	q83	.324	.258	1.580	1	.209	1.383	.834	2.292		
	q23	038	.041	.877	1	.349	.963	.889	1.043		
	q32	015	.038	.163	1	.686	.985	.915	1.060		
	q46	1.127	.398	8.016	1	.005	3.085	1.414	6.729		
	q85	.625	.246	6.458	1	.011	1.868	1.154	3.025		
	q86	.392	.334	1.378	1	.240	1.481	.769	2.851		
	q90	.426	.288	2.195	1	.138	1.531	.872	2.690		
	Constant	-1.189	.635	3.504	1	.061	.305				

Variables in the Equation

a. Variable(s) entered on step 1: q46, q85, q86, q90.

```
Step number: 1
```

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Observed Groups and Predicted Probabilities
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                I
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yyn
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Prob: 0 .1 .2 .3 .4 .5 .6 .7 .8 .9 1
 Group:
ууууууууууууууууууууу
     Predicted Probability is of Membership for yes
     The Cut Value is .50
     Symbols: n - no
```

Symbols: n - no y - yes Each Symbol Represents 1 Case.

Table 1: Prediction of signing or circulating a petition via Logistic Regression

					Model Statistics				
	r	Exp	Final	Block	Model	Model	Cox	Nag.	Hosmer &
		(B) in	Exp	Chi-Sq	Chi-Sq	-2LL	&Snell	R^2	Lemeshow
			(B)				R^2		Chi-Sq
Block1:				11.23*	11.23*	537.01	.03	.04	9.52
Demographics									
Education	.14**	1.25**	1.16						
Whiteness	04	.81	.84						
Age	03	.98	.98						
Femaleness	08	.76	.96						
Block2:									
Community				29.48**	40.71**	507.53	.10	.13	5.76
Participation									
Q24	.16**	1.08*	1.03						
Q52	.25**	2.24**	1.66*						
Q83	.20**	1.43	1.38						
Block3:									
Sense of Gov.				2.24	42.95**	505.29	.10	.14	12.59
Security									
Q23	00	.95	.96						
Q32	11*	.97	.99						
Block4:									
Political				29.21**	72.16**	476.08	.17	.22	10.04
Involvement									
Q46	.26**	3.09**	3.09**						
Q85	.24**	1.87*	1.87*						
Q86	.19**	1.48	1.48						
Q90	.25**	1.53	1.53						

p < .05; **p < .01

Table 2: Classification Results

			Final Predicted Group (Blocks 1 -4)				
			Q88: Helped circu	Percentage			
			petition	Correct			
			No	Yes			
	Q88: Helped	No	123	61	66.8%		
	circulate or signed a petition	Yes	65	148	69.5%		
Overall Percen	68.3%						

Press' Q Calculation

Formula: [N-(nK)]2 / N(K-1)

Where N= total sample size

n=number of observations correctly classified

K=number of groups

In our model:

N = 397

n = 271 [123+148]

$$K = 2$$

[397-(271*2)]²/397(2-1)

21025/397

Press' Q = 52.96

df = 1

Chi-sqcrit = 10.83; p =.001

V. Write Up of Results

We used logistic regression to predict the likelihood of someone circulating or signing a petition, based on variables concerning community participation, sense of government security, and political involvement, as well as education, ethnicity, age, and gender. We decided to use hierarchical regression, which led to us placing our independent variables into four blocks. Block 1 was titled demographics and included variables related to demographics including education level, race (dummy coded as white = 1; all others = 0), age, and gender (dummy coded as femaleness = 1; male = 0). Block 2 was titled community participation because it contained variables associated with individuals participating in their community such as "I generally discuss political candidates and issues with neighbors at election time, have you worked with others in your community to solve some community problem in the past couple years, and have you attended meetings of your town or city council. Block three was titled sense of government security because it contained variables pertaining to individual's faith in the government, such as public officials in my community seem receptive to views of residents, and other than voting, people like me have little influence over local government actions. Finally, Block four was titled political involvement because it contained variables related to individuals being engaged and involved in politics, such as being involved in political clubs or organizations, wearing a button or putting a sticker on your car, voting in the 2004 Presidential election, and contributing money to a party or candidate.

Table 1 summarizes our findings. Three of our blocks had significant Chi-squares: Block 1 (demographics) chi-sq. = 11.23, p < .05, Block 2 (community participation), chi-sq. = 29.49, p < .01 and Block 4 (political involvement) chi-sq. = 29.21, p < .01. Each Exp(B) indicates an increase or decrease in the odds of the occurrence of the dependent variable, assuming all other

independent variables in the model at that point are controlled for. Within our three significant blocks, three independent variables have significant unique contributions to the prediction of circulating or signing a petition. All three of these Exp(Bs) are positive, which indicates that they increase the odds of the dependent variable occurring, when controlling for all other independent variables in the model. The variable Q52 "worked with others on community problems" had a final Exp(B) of 1.66, which means for every increase in one unit of working with others on community problems, there will be a predicted increase of 66% in the odds of circulating or signing a petition, when all other independent variables are controlled for. The variable Q46 "belong to a political club or organization" had a final Exp(B) of 3.09, which means for every increase in 1 unit of belonging to a political club or organization, there will be a predicted increase of 209% in the odds of circulating or signing a petition, when all other independent variables are controlled for. Finally, the variable Q86 "voted in 2004 presidential election" had a final Exp(B) of 1.48, which means for every increase in 1 unit of voting in the 2004 presidential election, there will be a predicted increase of 48% in the odds of circulating or signing a petition, when all other independent variables are controlled for. Table 1 also reveals that all of our Hosmer and Lemeshow Chi-squares are non-significant.

Table 2 shows that our model correctly classified 68.3% of the cases. This is supported by the Press' Q and Critical Chi-square statistics. Press' Q was calculated at 52.96, while the Critical Chi-square for p = .001 is 10.83. Thus, since our calculated for Press' Q exceeds the Critical Chi-square, the accuracy of our predictions is significantly greater than what could be expected by chance.

Overall, our four block model significantly predicts the likelihood of circulating or signing a petition. The full model -2LL is 476.08, with a Cox and Snell R^2 of .17 and a

Nagelkerke R^2 of .22. Also, our model suggests that when all other independent variables are controlled, for individuals who work with others on community problems, belong to a political club or organization, and voted in the 2004 Presidential election are more likely to circulate or sign a petition.