# **Logistic Regression**

# I. Model: 2006 National Community Survey (class data set)

	All measured 0-10 response scale	
Block 1: Lifestyle assessment	<ul> <li>•Q9:Value your neighborhood or community</li> <li>•Q8: Value Friend</li> <li>•Q12:Value being an American</li> <li>•Q15:Value your personal or political philosophy</li> </ul>	
		Dependent
	All measured 0-10 response scale	Variable
Block 2: Neighborhood Appreciation	<ul> <li>Q30: I feel safe and secure in my neighborhood</li> <li>Q33:People like me don't have any say about what the government does.</li> <li>Q34: Of the 10 closest neighbors,how many of their homes have you visited?</li> <li>Q35: How many of your closest 10 neighbors do you know by name?</li> </ul>	Q52: Have you worked with others in your community to solve some community problem in the past couple of years?
	All measured on a 0-10 Likert scale	(0=no, 1=yes)
Block 3:	Q18: Outside my house or walking down the street, I often greet people.	
Communication	Q20: I learned about community activities from the newspaper.	
	Q21: I'd feel comfortable voicing a complaint at a public meeting in my community.	
	Q24: I generally discuss political candidates and issues with neighbors at election time.	

# II. Running SPSS

1. First, run a basic Pearson's *r* correlation to look at correlations between each independent variable and the dependent variable. Analyze  $\rightarrow$  Correlate  $\rightarrow$  Bivariate

ta *na	tcom.sa	v [DataSe	et1] - IBN	1 SPSS Statistic	s Data Edit	or							- 6	
<u>F</u> ile	<u>E</u> dit	<u>V</u> iew	<u>D</u> ata	<u>T</u> ransform	<u>A</u> nalyze	<u>G</u> raphs	<u>U</u> tilities	E <u>x</u> tensions	<u>W</u> indow	<u>H</u> elp				
					Repo	orts		*						
				. 🗳 🖂	D <u>e</u> so	riptive Stat	istics	•		14 🔨				
12 : ID			12		<u>B</u> aye	sian Statis	tics	•				Visible: 35	4 of 354	4 Variabl
		ø	ID	🖋 time\$	Ta <u>b</u> le	es		•						
1	I		1	18	Co <u>m</u>	pare Mean	s	*	d here bef	ore, previous good	experience			
2	?		2	29	<u>G</u> ene	eral Linear	Model	•	red and m	oved to live closer t	to a heart attack			
	}		3	33	Gene	erali <u>z</u> ed Lin	ear Models	•	ght propert	у				
4	L .		4	17	Mixed	d Models		•	care of pa	arents				
	;		5	17	<u>Corre</u>	elate		•	Bivaria	ite				
	5		6	27	<u>R</u> egr	ession		•	Partial					
	'		7	16	L <u>o</u> gli	near		•	Diston					
8	}		8	19	Class	sify		•	o <u>D</u> istan	ices				
9	)		9	21	Dime	ension Red	luction	•	E Canon	nical Correlation	kes more peace and	quiet		
1	0		10	17	Scale	e		*	vienent to o	children				
1	1		11	24	Nong	arametric	Tests	•	eciding fai	ctors				
1	2		12	16	Fore	casting		•	comunity					
	3		13	23	Survi	val		•	etown, gre	ewup there				
1	4		14	19	Multir	ole Respor	156	•	ools Hous	ses				
	5		15	23	E Simu	lation			bu alaan a	to allow water				
	7		10	29	Ouali	ity Control			ty clean a	air clean water				
1	0		10	17		Cupio		,	too cloco	my parents to city. On an islan	d on Pugot Sound, N	ar water and parks	Somi	blanco o
1	۵ ۵		10	20	2 ROC	our <u>v</u> e	an over 1 Marda	line b	married m	oved there	ia on Fuger Sound IN	ear water and parks	Seint	bidlice 0
2	0		20	21	Spati	arand ten	nporal Mode	iing P	tion neigh	borbood work acc	essible			
2	1		21	14	IBM S	PSS <u>A</u> mos	i	8 m	rried to son	neone who lived the	2001010			
2	2		22	27	1	112	4	7 ore	wup here- c	arowing community	arew to like it			
2	3		23	21	1	111	6	5 Mo	ved with hu	sband because of v	work			
		4												•
									**					

Data View Variable View

2. Once you have Bivariate correlations tab open start placing all your independent and dependent variables

ta *natcom.sa	av [DataSet1] - IBM	A SPSS Statistics Da	ta Editor 🗖 🖬 🔀
<u>F</u> ile <u>E</u> dit	<u>V</u> iew <u>D</u> ata	Transform An	ilyze <u>G</u> raphs <u>U</u> tilities E <u>x</u> tensions <u>W</u> indow <u>H</u> elp
😂 H			
12 : ID	12		Visible: 354 of 354 Variable
	Ø ID	🖋 time\$ 🛷 t	means\$ 🖋 a1 🖋 a2
1	1	18	111 6 2 I lived here before, previous good experience
2	2	29	Bivariate Correlations
3	3	33	
4	4	17	Variables: Options
5	5	17	V LD Vorked W/ot Style
6	6	27	Value friends
7	7	16	🔗 Q1:Where live [q1] 🖉 🖉 Q12:Value being
8	8	19	Q2:Time lived the
9	9	21	Q4:Community Q Q3:Feel safe, S Peace and quiet
10	10	17	Q6:Value family [ Q 24:No.neigh ho
11	11	24	A 07-Value work in71 S A 035-No neinbhor
12	12	16	Correlation Coefficients
13	13	23	Pearson 🕅 Kendali's tau-b 🔲 Spearman
14	14	19	- Test of Dissificance
15	15	23	Test of Significance     The tailed      One tailed
16	16	29	
17	17	17	
18	18	26	K Resta Rest Cancel Help
19	19	8	
20	20	21	
21	21	14	101 6 8 married to someone who lived there
22	22	27	112 4 7 grewup here- growing community grew to like it
23	23	21	111 6 5 Moved with husband because of work
	1		
Data View	Variable View		
		/	

Click ok when done placing variables



Block 2

"natcom.sa	v [DataSet1] - IBN	Topos Statistic	s Data Editor		
ile <u>E</u> dit	view Data	1 ransform	Analyze Graphs	Ountee	s Extensions Window Heip
<b>a</b> H		· 🔄 🔿	× 🖹 📥		P 🛍 🚃 🛃 📲 🖉
2 : ID	12				Visible: 354 of 354 Variable
	🛷 ID	🛷 time\$	🛷 timeans\$ 🛛 🛷	q1	<i>I I I I I I I I I I</i>
1	1	18	111	6	2 I lived here before, previous good experience
2	2	29	Logistic Regressio		
3	3	33			
4	4	17			Dependent Categorical
5	5	17	Q23:Public offi	cia 📥	A Q52:Worked w/others on com
6	6	27	Q25:Talk pol w	//a	Block 2 of 2
7	7	16	Ø Q26:Feel lost i	fm	Previous Next
8	8	19	Q27:Feel part (	of c	Block 2 of 2 Style
9	9	21	Q28:Feel stron	gl	q30 and quiet
10	10	17	Q29:Enjoy IVIn Q30:Eeel safe	g I	q33
11	11	24	Q31:Public offi	cia	q34
12	12	16	🔗 Q32:Have little	inf	> <u>a</u> *b> <mark>430</mark>
13	13	23	Q33:Don't have	S	
14	14	19	Q35:No neight	or	Method: Enter
10	15	23	🛷 Q36:% friends	livi	Selection Variable:
17	10	29	Q37:Helped ne	ig	Rule
18	17	26	Ø Q38:1 ent borro	w I	d Near water and name Samplance of
19	10	20		OK	Paste Reset Cancel Help
20	20	21	111	1	2 location neighborhood work accessible
21	20	14	101	6	8 married to someone who lived there
22	22	27	112	4	7 grewup here- growing community, grew to like it
23	23	21	111	6	5 Moved with husband because of work
	1				
	feeleble Marrie				499
ta View	ranable view				

Click Next to go to Block 2

3. Next, run a logistic regression for each block via

Analyze  $\rightarrow$  Regression  $\rightarrow$ Binary Logistic. Select the dependent variable (Q52), then place each independent variable from Block 1 into the "covariates" section. Repeat for each block. Each time this is done, SPSS will automatically view the covariates entered as one block. SPSS also assumes a hierarchical ordering of the blocks, meaning each set of covariates entered as a block will be regressed to the dependent variable in the order the blocks are created. Additionally, within each block there is the option for stepwise or forced entry. I chose forced entry for my blocks, which instructs SPSS to carry all of those blocks' variables into the regression equation regardless of whether or not each individual variable is found to be significant.

Click Next to go to Block 3



**Click Ok** 

# 4. Ensure the following options are selected:

ta *nato	om.sav	[DataSet1] - IBM	M SPSS Statistics	Data Editor						
<u>F</u> ile	<u>E</u> dit	<u>V</u> iew <u>D</u> ata	Transform	<u>A</u> nalyze <u>G</u>	aphs <u>U</u> tilities	Extensior	ns <u>W</u> indow	<u>H</u> elp		
		🖨 🛄		i 🔛 i	▙ ⊒ 🛛	- AA			•	
12 : ID		12								Visible: 354 of 354 Variab
	[	🛷 ID	🛷 time\$ 🛛	timeans\$	🛷 q1	🧳 q2				
1		1	18	111	6	2	I lived here befo	re, previous good e	xperience	
2		2	2 🕁	Logistic Reg	pression: Options			and the state of the second	×	
3		3	3							
4		4	1	Statistics :	and Plots					
5		5	1	Class	ification plots		Correlation	is of estimates		
6		6	2	<b>√</b> <u>H</u> osm	er-Lemeshow goo	dness-of-fit	lteration his	story		
7		7	1	Casev	wise listing of resid	duals	CI for exp(E	3); 95 %		
8		8	1	Outlier	s outside	etd dev				
9		9	2	@ All cas		stu. uev.				and quiet
10		10	1	Display -						
11		11	2	At each	n step 🔘 At last st	ер				
12		12	1			-				
13		13	2	Probability	/ for Stepwise			Classification of	utoff: 0.5	
14		14	1	E <u>n</u> try: 0.0	5 Removal: 0.10	0		Maximum Itera	tions: 20	
15		15	2					Maximum itera	20	
16		16	2	Conser	ve memory for com	nplex analys	es or large <u>d</u> atas	ets		
17		17	1	🗸 Include	con <u>s</u> tant in model					
18		18	2		ſ	Continue	Cancel He	In		Near water and parks Semblance c
19		19			G			4		
20		20	2	404		-	iocation neight	Jointood Work deee	551010	2
21		21	14	101	6	8	married to som	eone who lived ther	e 	
22		22	27	112	4	1	grewup here- gi	owing community	grew to like it	
23		23	21	111	6	5	wovea with hus	band because of w	DIK	
										P.
Data V	iew Va	ariable View								

**Click Continue** 

**Click OK** 

# IV. Tabling

**Table 1:** Prediction of working with others to solve community problems via Logistic Regression

	r	Final Exp (B)	Block Chi-Sq	Model Chi-Sq	Model -2LL	Cox & Snell R <sup>2</sup>	Nag R <sup>2</sup>	Hosmer & Lemeshow Chi-Sq
Block 1: Lifestyle assessment			15.451**	15.451**	553.991	.036	.049	9.888
Q9. Value your neighborhood or community.	052	.930						
Q8 Value friend.	065	.943						
Q12. Value being an American.	127**	.893*						
Q15. Value your personal or political philosophy.	.080ª	1.116*						
Block 2: Neighborhood appreciation			39.805***	55.256***	514.187	.124	.166	9.308
Q30.I feel safe and secure in my neighborhood.	028	.946						
Q33.People like me don't have any say about what the government does.	162**	.910**						
Q34. Of the 10 closest neighbors, how many of their homes have you visited?	.264***	1.148**						
Q35.How many of your 10 closest neighbors do you know by name?	.166***	1.025						
Block 3: Communication			4.409	59.665***	509.778	.133	.179	11.762
Q18.Outside my house or walking down the street, I often greet people.	.063	1.052						
Q21.I'd feel comfortable voicing a complaint at a public meeting in my community	129**	1.048						
Q20.I learned about community activities from the newspaper.	.055	1.005						
Q24. I generally discuss political candidates and issues with neighbors at election time.	.098*	1.009						

#### **Table 2:** Classification Results(a)

		Predicted						
		Q52. Have you others in your co solve some co problem in the of year	worked with ommunity to ommunity past couple rs?					
Observed		No	Yes	Percentage Correct				
Q52. Have you worked with others in	No	193	51	79.1				
community problem in the past couple of years?	Yes	81	94	53.7				
Overall Percentage				68.5				

a The cut value is .500

Press' Q Calculation Formula: [N-(nK)]<sup>2</sup> / N(K-1)

Where:

N=total sample size n=number of observations correctly classified K=number of groups

In this model: N=419

```
n = 193 + 94 = 287
```

K = 2

```
Press' Q = [419-(287*2)]<sup>2</sup> / 419(2-1)
= [419-574]<sup>2</sup> / 419
= 24,025/ 419
```

Press' Q = 57.34 df =1

Critical chi-square at 0.001 level of significance = 10.83

Our Press' Q far exceeds the critical value, so it is highly significant (p < .001)

#### V. Write-Up:

To predict the likelihood of someone working with others to solve community problems given a chosen set of variables, I used logistic regression. All data came from the 2006 National Community Study class data set. I grouped the independent variables into blocks so that the model could be run hierarchically. Block 1 contained the variables I named "lifestyle assessment" to characterize the block's variables which each describe a component of social life that someone may have. Blocks 2 and 3 were developed based on the 2006 National Community Study groupings for "Neighborhood Appreciation" and "Communication". Given the fact that these variables were already grouped by the National Community Study researchers, I chose to use the forced entry method for each of these blocks in the logistic regression. Forced entry instructs SPSS to use all variables in the block regardless of the significance of each individual variable. This led to some interesting findings.

As indicated in the first column in Table 1, six variables had significant bivariate correlations (*r*) with Q52: Worked with others on community problems--Q12: Value being an American, at r = -.127, p < 0.01 level; Q33: People like me don't have any say about what the government does, at r = -.162, p < .01; Q34: Of the 10 closest neighbors, how many of their homes have you visited?, at r = .264, p < .001; Q35: How many of your 10 closest neighbors do you know by name?, at r = .166, p < .001; Q21: I'd feel comfortable voicing a complaint at a public meeting in my community, at r = .129, p < .01; and Q24: I generally discuss political candidates and issues with neighbors at election time, r = .098, p < .05. One variable with near significance at the 0.05 level was: Q15: Value your personal or political philosophy (<math>r = .080).

In the logistic regression, Block 1 contributed significantly to the prediction of someone working with others to solve community problems, with a Chi-square for the block of 15.451 (p < .01). In Block 1, only Q12: Value being an American and Q15: Value your personal or political philosophy had significant final Exp(B)s (.893 and 1.116), which indicated 10.7% decrease in the odds of a person working with others to solve community problems and a 11.6% higher odds, for each unit increase of Q12 or Q15, when all other independent variables were controlled for.

Block 2 was found to have a significant block Chi-square of 39.805 (p < .001). As the model was run hierarchically, the addition of Block 2 increased the model Chi-square to 55.256, which was also significant (p < .001). We used the forced entry method, so all variables were included in the equation and two of the four had a significant final Exp(B). The significant final Exp(B)s in Block 2 were for variables that also had a significant correlation, the final Exp(B)s of .910 and 1.148 from Q33and Q34. For Q33: People like me don't have any say about what the government does, indicated for each unit increase in Q33, a 9% decrease in the odds was predicted of someone working with others to solve community problems. For Q34: Of the 10 closest neighbors, how many of their homes have you visited? the results indicated for each unit increase in Q34, a 14.8% increase in the odds was predicted of someone working with others to solve community problems.

Moving to Block 3 we begin to see how a hierarchical model may impact the big picture. Two of the four variables in Block 3 reflected a moderate and significant r, Q24: I generally discuss political candidates and issues with neighbors at election time, significant at p < .05, and Q21: I'd feel comfortable voicing a complaint at a public meeting in my community, at p < .01. One might assume this block to have at least a slightly significant impact on the overall model. However, as we see in Table 1, the Block 3 Chi-square of 4.409 was not significant. The model Chi-square remained significant, and did increase to 59.665 (p < .001), but perhaps not as much of an increase as we may have expected. None of the variables in Block 3 had a significant final Exp(B).

We might suspect this is due to the hierarchical nature of the model, which would not allow for a strong regression of the Block 3 variables if those variables have a great deal of "overlap" with the Block 1 or Block 2 variables. If the model were to be run by switching the order of Blocks 2 and 3, perhaps we would find that block to be significant.

Table 1 also reveals that the Hosmer & Lemeshow goodness-of-fit test (another assessment of how well the model fits the data) was found to be non-significant at Blocks 1, 2 and 3. The -2LL for the full model is 509.778, which, given its high dependence on *n*, is often thought to be better interpreted by Cox & Snell R<sup>2</sup> and Nagelkerke R<sup>2</sup>. The Cox & Snell R<sup>2</sup> value of 0.133 with all three blocks in indicated the independent variables in the full model explained approximately 13.3% of the variance in the dependent variable. This is further confirmed by the Nagelkerke R<sup>2</sup> of 0.179 for the full model, estimating 17.9% of the variance of the dependent variable was explained by the independent variables included in the overall model.

As shown in Table 2, the model correctly classified 68.5% of the cases. The Press' Q calculation of 57.34 supports this finding, as it exceeds the critical chi-square of 10.83 at the 0.001 significance level. Therefore, the accuracy of the model's predictions is significantly greater than what could be expected by chance.

# LOGISTIC REGRESSION OUTPUT:

CORRELATIONS /VARIABLES=q9 q8 q12 q15 q30 q33 q34 q35 q20 q21 q18 q24 q52 /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.

	Notes		
Output Created		08-APR-2019 15:37:41	
Comments			Correlations
Input	Data	C:\Users\2740585\AppData\L	
		ocal\Microsoft\Windows\Tem	
		porary Internet	
		Files\Content.IE5\7G46VH9X	
		\natcom.sav	
	Active Dataset	DataSet1	
	File Label	CP05	
	Filter	<none></none>	
	Weight	<none></none>	
	Split File	<none></none>	
	N of Rows in Working Data	477	
	File		
Missing Value Handling	Definition of Missing	User-defined missing values	
		are treated as missing.	
	Cases Used	Statistics for each pair of	
		variables are based on all the	
		cases with valid data for that	
		pair.	
Syntax		CORRELATIONS	
		/VARIABLES=q9 q8 q12	
		q15 q30 q33 q34 q35 q20	
		q21 q18 q24 q52	
		/PRINT=TWOTAIL NOSIG	
		/MISSING=PAIRWISE.	
Resources	Processor Time	00:00:00.05	
	Elapsed Time	00:00:00.06	

				Correla	tions						
					Q15:	Q30:F					Q21:Co
					Valu	eel	Q33:Do			Q20:He	mfort
					е	safe,	n't have			ar neigh	voicing
		Q9:Val		Q12:V	pers	secur	say			problem	complai
		ue	Q8:V	alue	onal-	e in	about	Q34:No	Q35:N	s	nts
		neigh-	alue	being	pol.p	neigh	what	.neigh	o.neig	commu	public
		comm	friend	Ameri	hilos	borho	gov	homes	hbors	nity	meetin
		unity	S	can	ophy	od	does	visited	know	paper	g
Q9:Value	Pearson	1	.452**	.372**	.230**	.377**	050	.226**	.243**	.293**	.186**
neigh-community	Correlation										
	Sig. (2-tailed)		.000	.000	.000	.000	.286	.000	.000	.000	.000
	N	468	466	466	460	457	454	456	456	450	447
Q8:Value friends	Pearson	.452**	1	.345**	.212**	.383**	037	.101*	.200**	.216**	.128**
	Correlation										
	Sig. (2-tailed)	.000		.000	.000	.000	.427	.032	.000	.000	.007
	Ν	466	466	464	458	455	452	454	454	448	445
Q12:Value being	Pearson	.372**	.345**	1	.261**	.258**	.003	.079	.187**	.215**	.036
American	Correlation										
	Sig. (2-tailed)	.000	.000		.000	.000	.954	.094	.000	.000	.452
	Ν	466	464	467	459	455	452	454	454	448	445
Q15:Value	Pearson	.230**	.212**	.261**	1	.199**	040	.116*	.117*	.176**	.248**
personal-pol.philosop	Correlation										
hy	Sig. (2-tailed)	.000	.000	.000		.000	.393	.014	.013	.000	.000
	Ν	460	458	459	462	452	449	451	451	446	446
Q30:Feel safe, secure	Pearson	.377**	.383**	.258**	.199**	1	104*	.207**	.292**	.246**	.177**
in neighborhood	Correlation										
	Sig. (2-tailed)	.000	.000	.000	.000		.027	.000	.000	.000	.000
	N	457	455	455	452	459	455	457	457	449	446
Q33:Don't have say	Pearson	050	037	.003	040	104*	1	118 <sup>*</sup>	073	219**	090
about what gov does	Correlation										
	Sig. (2-tailed)	.286	.427	.954	.393	.027		.012	.123	.000	.059
	N	454	452	452	449	455	456	454	454	446	443

Q34:No.neigh homes visited	Pearson Correlation	.226**	.101*	.079	.116*	.207**	118 <sup>*</sup>	1	.612**	.224**	.242**
	Sig. (2-tailed)	.000	.032	.094	.014	.000	.012		.000	.000	.000
	N	456	454	454	451	457	454	458	456	448	445
Q35:No.neighbors	Pearson	.243**	.200**	.187**	.117*	.292**	073	.612**	1	.266**	.215**
	Sig (2-tailed)	000	000	000	013	000	123	000		000	000
	N	456	454	454	451	457	454	456	458	448	445
Q20:Hear neigh	Pearson	.293**	.216**	.215**	.176**	.246**	219**	.224**	.266**	1	.242**
paper	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000		.000
	N	450	448	448	446	449	446	448	448	452	442
Q21:Comfort voicing	Pearson	.186**	.128**	.036	.248**	.177**	090	.242**	.215**	.242**	1
meeting	Sig. (2-tailed)	.000	.007	.452	.000	.000	.059	.000	.000	.000	
-	N	447	445	445	446	446	443	445	445	442	449
Q18:Greet passersby	Pearson Correlation	.261**	.251**	.183**	.080	.239**	051	.250**	.354**	.358**	.211**
	Sig. (2-tailed)	.000	.000	.000	.089	.000	.277	.000	.000	.000	.000
	N	462	460	460	457	457	454	456	456	451	448
Q24:Talk pol	Pearson Correlation	.221**	.107*	.074	.229**	.079	026	.280**	.285**	.241**	.291**
time	Sig. (2-tailed)	.000	.022	.116	.000	.091	.584	.000	.000	.000	.000
	N	458	456	456	453	457	454	456	456	450	447
Q52:Worked w/others on community	Pearson	052	065	127**	.080	028	162**	.264**	.166**	.055	.129**
	Sig (2-tailed)	260	166	007	080	518	001	000	000	2/0	007
	N	453	451	451	447	453	450	452	453	444	442

#### Correlations

			Q24:Talk pol	Q52:Worked w/others
		Q18:Greet	w/neighbors	on community
		passersby	election time	problems
Q9:Value neigh-community	Pearson Correlation	.261**	.221**	052
	Sig. (2-tailed)	.000	.000	.269
	Ν	462	458	453
Q8:Value friends	Pearson Correlation	.251**	.107*	065
	Sig. (2-tailed)	.000	.022	.166
	Ν	460	456	451

Q12:Value being American	Pearson Correlation	.183**	.074	127**
	Sig. (2-tailed)	.000	.116	.007
	Ν	460	456	451
Q15:Value personal-pol.philosophy	Pearson Correlation	.080	.229**	.080
	Sig. (2-tailed)	.089	.000	.089
	Ν	457	453	447
Q30:Feel safe, secure in neighborhood	Pearson Correlation	.239**	.079	028
	Sig. (2-tailed)	.000	.091	.548
	Ν	457	457	453
Q33:Don't have say about what gov	Pearson Correlation	051	026	162**
does	Sig. (2-tailed)	.277	.584	.001
	Ν	454	454	450
Q34:No.neigh homes visited	Pearson Correlation	.250**	.280**	.264**
	Sig. (2-tailed)	.000	.000	.000
	Ν	456	456	452
Q35:No.neighbors know	Pearson Correlation	.354**	.285**	.166**
	Sig. (2-tailed)	.000	.000	.000
	Ν	456	456	453
Q20:Hear neigh problems community	Pearson Correlation	.358**	.241**	.055
paper	Sig. (2-tailed)	.000	.000	.249
	Ν	451	450	444
Q21:Comfort voicing complaints public	Pearson Correlation	.211**	.291**	.129**
meeting	Sig. (2-tailed)	.000	.000	.007
	Ν	448	447	442
Q18:Greet passersby	Pearson Correlation	1	.243**	.063
	Sig. (2-tailed)		.000	.183
	Ν	464	457	452
Q24:Talk pol w/neighbors election time	Pearson Correlation	.243**	1	.098*
	Sig. (2-tailed)	.000		.037
	Ν	457	459	452
Q52:Worked w/others on community	Pearson Correlation	.063	.098*	1
problems	Sig. (2-tailed)	.183	.037	
	Ν	452	452	454

\*\*. Correlation is significant at the 0.01 level (2-tailed).

\*. Correlation is significant at the 0.05 level (2-tailed).

```
LOGISTIC REGRESSION VARIABLES q52
/METHOD=ENTER q8 q9 q12 q15
/METHOD=ENTER q30 q33 q34 q35
/METHOD=ENTER q20 q21 q18 q24
/CLASSPLOT
/PRINT=GOODFIT CI(95)
/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5)
```

# **Logistic Regression**

Notes							
Output Created		08-APR-2019 15:41:49					
Comments							
Input	Data	C:\Users\2740585\AppData\L ocal\Microsoft\Windows\Tem porary Internet Files\Content.IE5\7G46VH9X \natcom.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 q52 /METHOD=ENTER q8 q9 q12 q15 /METHOD=ENTER q30 q33 q34 q35 /METHOD=ENTER q20 q21 q18 q24 /CLASSPLOT /PRINT=GOODFIT CI(95) /CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.05

# Case Processing Summary

Unweighted Cases <sup>a</sup>	Ν	Percent		
Selected Cases Included in Analysis		419	87.8	
	Missing Cases	58	12.2	
	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
0=no	0
1=yes	1

# **Block 0: Beginning Block**

# Classification Table<sup>a,b</sup>

			Predicted			
			Q52:Wor	Percenta		
			commu	ge		
	Observed		0=no	1=yes	Correct	
Step 0	Q52:Worked w/others on	0=no	244	0	100.0	
	community problems	1=yes	175	0	.0	
	Overall Percentage				58.2	

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	332	.099	11.259	1	.001	.717

# Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	Q8:Value friends	1.391	1	.238
		Q9:Value neigh-community	.785	1	.375
		Q12:Value being American	6.912	1	.009
		Q15:Value	4.265	1	.039
		personal-pol.philosophy			
Overall Statistics		15.130	4	.004	

# Block 1: Method = Enter

#### **Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	15.451	4	.004
	Block	15.451	4	.004
	Model	15.451	4	.004

# Model Summary Cox & Snell R Nagelkerke R Step -2 Log likelihood Square Square 1 553.991<sup>a</sup> .036 .049

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	9.888	8	.273	

#### **Contingency Table for Hosmer and Lemeshow Test**

		Q52:Worked w/others on		Q52:Worke		
		community probl	ems = 0=no	community pr		
		Observed	Expected	Observed	Expected	Total
Step 1	1	32	31.659	11	11.341	43
	2	31	28.725	12	14.275	43
-	3	23	26.698	19	15.302	42
	4	30	26.414	13	16.586	43
	5	27	25.026	15	16.974	42
	6	18	24.185	24	17.815	42
	7	29	25.066	16	19.934	45
	8	21	22.517	21	19.483	42
	9	18	20.444	24	21.556	42
	10	15	13.265	20	21.735	35

#### **Classification Table**<sup>a</sup>

			Predicted				
			Q52:Worke	d w/others on			
			communi	ty problems	Percentage		
	Observed		0=no	1=yes	Correct		
Step 1	Q52:Worked w/others on	0=no	218	26	89.3		
	community problems	1=yes	139	36	20.6		
	Overall Percentage				60.6		

a. The cut value is .500

	Va	ariables i	n the E	quation	ו			
								95%
								C.I.for
							Exp(	EXP(B)
		В	S.E.	Wald	df	Sig.	B)	Lower
Step 1 <sup>a</sup>	Q8:Value friends	038	.055	.484	1	.487	.963	.865
	Q9:Value neigh-community	.001	.054	.000	1	.984	1.00	.900
							1	
	Q12:Value being American	118	.043	7.477	1	.006	.888	.816
	Q15:Value	.118	.042	8.056	1	.005	1.12	1.037
	personal-pol.philosophy						5	
	Constant	.144	.468	.094	1	.759	1.15	
							4	

#### . . . - -. .. \_

# Variables in the Equation

95% C.I.for EXP(B)

		Upper
Step 1 <sup>a</sup>	Q8:Value friends	1.071
	Q9:Value neigh-community	1.114
	Q12:Value being American	.967
Q15:Value	Q15:Value personal-pol.philosophy	1.221
	Constant	

a. Variable(s) entered on step 1: Q8:Value friends, Q9:Value neigh-community, Q12:Value being American, Q15:Value personal-pol.philosophy.



# Block 2: Method = Enter

<b>Omnibus</b>	Tests	of	Model	Coeffici	ients

		Chi-square	df	Sig.
Step 1	Step	39.805	4	.000
	Block	39.805	4	.000
	Model	55.256	8	.000

### **Model Summary**

		Cox & Snell R	Nagelkerke R
Step	-2 Log likelihood	Square	Square
1	514.187ª	.124	.166

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	9.308	8	.317	

# Contingency Table for Hosmer and Lemeshow Test

		Q52:Worked w/others on		Q52:Worked		
		community prol	community problems = 0=no		lems = 1=yes	
		Observed	Expected	Observed	Expected	Total
Step 1	1	35	35.882	7	6.118	42
	2	33	32.584	9	9.416	42
	3	33	30.353	9	11.647	42
	4	34	28.364	8	13.636	42
	5	24	25.987	18	16.013	42
	6	20	23.719	22	18.281	42
	7	16	21.279	26	20.721	42
	8	20	19.608	25	25.392	45
	9	18	16.256	25	26.744	43
	10	11	9.970	26	27.030	37

# **Classification Table**<sup>a</sup>

			Predicted			
			Q52:Worked	w/others on		
			community	Percentage		
	Observed		0=no	1=yes	Correct	
Step 1	Q52:Worked w/others on	0=no	192	52	78.7	
	community problems	1=yes	88	87	49.7	
	Overall Percentage				66.6	

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
Step 1 <sup>a</sup>	Q8:Value friends	043	.061	.495	1	.482	.958	.851
	Q9:Value neigh-community	055	.061	.819	1	.365	.947	.841
	Q12:Value being American	116	.045	6.570	1	.010	.891	.816
	Q15:Value	.121	.044	7.486	1	.006	1.128	1.035
	personal-pol.philosophy							
	Q30:Feel safe, secure in	050	.053	.882	1	.348	.952	.858
	Q33:Don't have say about what	098	.032	9.345	1	.002	.906	.851
	Q34:No.neigh homes visited	.146	.042	11.979	1	.001	1.157	1.065
	Q35:No.neighbors know	.043	.044	.984	1	.321	1.044	.959
	Constant	.424	.555	.583	1	.445	1.528	

#### Variables in the Equation

#### 95% C.I.for EXP(B)

		Upper
Step 1 <sup>a</sup>	Q8:Value friends	1.079
	Q9:Value neigh-community	1.066
	Q12:Value being American	.973
	Q15:Value personal-pol.philosophy	1.230
	Q30:Feel safe, secure in neighborhood	1.055
	Q33:Don't have say about what gov does	.965
	Q34:No.neigh homes visited	1.257
	Q35:No.neighbors know	1.138
	Constant	

a. Variable(s) entered on step 1: Q30:Feel safe, secure in neighborhood, Q33:Don't have say about what gov does, Q34:No.neigh homes visited, Q35:No.neighbors know.



# Block 3: Method = Enter

#### **Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	4.409	4	.354
	Block	4.409	4	.354
	Model	59.665	12	.000

# Model Summary Cox & Snell R Nagelkerke R Step -2 Log likelihood Square Square 1 509.778ª .133 .179

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	11.762	8	.162

		Q52:Worked w/others on		Q52:Worked		
		community pro	blems = 0=no	community pro	blems = 1=yes	
		Observed	Expected	Observed	Expected	Total
Step 1	1	36	36.212	6	5.788	42
	2	34	33.039	8	8.961	42
	3	26	30.575	16	11.425	42
	4	36	28.320	6	13.680	42
	5	28	26.104	14	15.896	42
	6	23	23.643	19	18.357	42
	7	18	21.098	24	20.902	42
	8	15	18.523	27	23.477	42
	9	16	15.701	26	26.299	42
	10	12	10.787	29	30.213	41

# Contingency Table for Hosmer and Lemeshow Test

# **Classification Table**<sup>a</sup>

			Q52:Worked		
			community	Percentage	
	Observed		0=no	1=yes	Correct
Step 1	Q52:Worked w/others on	0=no	193	51	79.1
	community problems	1=yes	81	94	53.7
	Overall Percentage				68.5

a. The cut value is .500

								95% C.I.for EXP(B)	
		В	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 <sup>a</sup>	Q8:Value friends	059	.062	.921	1	.337	.943	.836	1.064
	Q9:Value neigh-community	073	.062	1.373	1	.241	.930	.823	1.050
	Q12:Value being American	113	.046	6.075	1	.014	.893	.816	.977
	Q15:Value personal-pol.philosophy	.110	.046	5.838	1	.016	1.116	1.021	1.221
	Q30:Feel safe, secure in	056	.053	1.092	1	.296	.946	.852	1.050
	Q33:Don't have say about what gov does	094	.033	8.184	1	.004	.910	.853	.971
	Q34:No.neigh homes visited	.138	.043	10.373	1	.001	1.148	1.056	1.249
	Q35:No.neighbors know	.025	.045	.302	1	.583	1.025	.938	1.120
	Q20:Hear neigh problems community paper	.005	.036	.018	1	.893	1.005	.936	1.078
	Q21:Comfort voicing complaints public meeting	.047	.034	1.854	1	.173	1.048	.980	1.121
	Q18:Greet passersby	.051	.042	1.462	1	.227	1.052	.969	1.143
	Q24:Talk pol w/neighbors election time	.009	.036	.059	1	.808	1.009	.941	1.082
	Constant	.196	.565	.120	1	.729	1.216		

#### Variables in the Equation

a. Variable(s) entered on step 1: Q20:Hear neigh problems community paper, Q21:Comfort voicing complaints public meeting, Q18:Greet passersby, Q24:Talk pol w/neighbors election time.

