# Cluster Analysis COM 631, Spring 2019 Matt Erxleben

# I. Model

### **Internal/Clustering Variables**

- PolActivity2 10 item scale (alpha = .75)
  - Q83: attended meetings of your town or city council
  - Q84: attended a political meeting or rally
  - Q85: worn a button or put a sticker on your car
  - Q86: voted in the 2004 presidential election
  - Q87: participated in a march or rally
  - Q88: helped circulate or signed a petition
  - Q89: solicited political funds
  - Q90: contributed money to a party or candidate
  - Q91: contacted a public official about some issue
  - Q92: emailed, written a letter, or called media about some public issue
- Cosmopoliteness 2 item scale (alpha = .54)
  - ZQ97: I enjoy learning about other peoples and cultures
  - ZQ98: I think of myself as a citizen of the world
- NeighTies2 4 item scale (alpha = .81)
  - ZQ34: Of the ten closest neighbors, how many of their home have you visited?
  - ZQ35: How many of your ten closest neighbors do you know by name or well enough to say hello when you see them on the street?
  - ZQ36: What percentage of your closest friends live in the same community?
  - ZQ2: How long have you lived in your neighborhood or community?

### **External Variables**

- Q103 Age (1-7 Scale)
  - 1:18-20
  - 2:21-30
  - 3: 31-40
  - 4: 41-50

- 5: 51-60
- 6: 61-70
- 7: 71 or older
- CivicEngagement 2 item scale
  - ZPolActivity1
  - ZTotalOrgs
- Q57 Comfort talking w/ strangers on street (1-4 Scale)
  - 1: "very uncomfortable"
  - 4: "very comfortable"
- Q21 Comfort voicing complaints at public meetings (0-10 Scale)
  - 0: "completely disagree"
  - 10: "completely agree"
- Q60 Freq read community newspaper (0-5 Scale)
  - 0: "no community newspaper"
  - 1: "almost never"
  - 5: "all the time"
- Q79 Perceived political knowledge (0-10 Scale)
  - 0: "not at all knowledgeable"
  - 10: "very knowledgeable"
- Q82 Number of people talk politics with regularly (0-5 Scale)
  - 0: "none"
  - 1: "one"
  - 2: "two or three"
  - 3: "five to ten"
  - 4: "more than ten"
- Q100 Frequently watch TV news (0-6 Scale)
  - 0: "never"
  - 1: "less often than [choice 2]"
  - 2: "one or two days a week"
  - 3: "three or four days a week"
  - 4: "five or six days a week"
  - 5: "about once a day"
  - 6: "several times a day"
- Q107 Household income (1-9 Scale)
  - 1: \$10,000 or less
  - 2: \$10,001 \$20,000
  - 3: \$20,001 \$30,000
  - 4: \$30,001 \$40,000
  - 5: \$40,001 \$50,000
  - 6: \$50,001 \$60,000
  - 7: \$60,001 \$75,000
  - 8: \$75,001 \$100,000
  - 9: \$100,001 \$150,000

- Q109 Gender
  - 1: Male
  - 2: Female
- Race % white
- Q6 value family (0-10 Scale)
  - 0: "totally unimportant"
  - 10: "extremely important"
- Q7 value work (0-10 Scale)
  - 0: "totally unimportant"
  - 10: "extremely important"
- Q10 value religion (0-10 Scale)
  - 0: "totally unimportant"
  - 10: "extremely important"
- Q12 value being an American (0-10 Scale)
  - 0: "totally unimportant"
  - 10: "extremely important"

# **II. Running SPSS**

1. Standardize internal variables if necessary

2. Analyze  $\rightarrow$  Classify  $\rightarrow$  Hierarchical Cluster

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	3	Age15to19	Numeric		ral Linear I		•					
	4	Age20to24	Numeric	12000000000		ear Models						
	5	Age25to34	Numeric		Models	ear models						
	6	Age35to44	Numeric	-								
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	8	Age45to54	Numeric		ssion		ŗ					
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1	17	AgeUnder5	Numeric	Multip	le Respon	ise	•	Nearest	Neighbor			
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1	20	Asso.degree	Numeric	Comp	lex Sampl	es	•					
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2	26	Cafe	Numeric	8	2	ThirdP	aces: cafes					
1	27	CityName	String	25	0	City na	ime					
1	28	CityPop	Numeric	11	0	City po	pulation					
1	29	CivicEngage	Numeric	8	2	COMP	UTE CivicE	ngagement =	= ZTotalOrgs	+ ZPolActivity1 (COMPUTE		
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3. Select your internal variables

Hierarchical Cluster Analysis	×
✓       Zscore: Q82:No         ✓       Zscore: Q97:Enj         ✓       Zscore: Q98:Thi         ✓       Zscore: Q100:Fr         ✓       Zscore: Q102:No         ✓       Zscore: COMPU         ✓       Zscore: COMPU         ✓       Ward Method         ✓	0 2) 2) 2) 9 10 10 10 10 10 10 10 10 10 10 10 10 10

4. Click "Statistics"

 $\rightarrow$  check "Agglomeration schedule"

- $\rightarrow$  select "Range of solutions"  $\rightarrow$  indicate minimum and maximum number of clusters
- $\rightarrow$  click "Continue"

tierarchica	Hierarchical Cluster Analysis: Statistics X	×
<ul> <li>Zscore: 0</li> <li>Xscore: 0</li> <li>Ward Met</li> </ul>	<ul> <li>Agglomeration schedule</li> <li>Proximity matrix</li> <li>Cluster Membership</li> <li>None</li> <li>Single solution</li> <li>Number of clusters:</li> <li>Range of solutions</li> <li>Minimum number of clusters:</li> <li>Maximum number of clusters:</li> <li>Maximum number of clusters:</li> <li>Maximum number of clusters:</li> </ul>	Statistics Plots Method Save

- 5. Click "Plots"
  - $\rightarrow$  select either "Dendrogram" or one of the "Icicle" options
  - $\rightarrow$  click "Continue"

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- 6. Click "Method"
  - $\rightarrow$  click "Cluster Method"  $\rightarrow$  select "Ward's Method"
  - $\rightarrow$  click "Interval"  $\rightarrow$  select "Squared Euclidean Distance"
  - $\rightarrow$  click "Continue"

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- 7. Click "Save"
  - $\rightarrow$  select "Range of solutions"  $\rightarrow$  indicate minimum and maximum number of clusters
  - $\rightarrow$  click "Continue"

<ul> <li>Hierarchical Cluster Analysis</li> <li>Zscore: Q</li> <li>Zscore: Q</li> <li>Zscore: Q</li> <li>Zscore: Q</li> <li>Zscore: Q</li> <li>Single solution</li> <li>Number of clusters:</li> <li>Single of solutions</li> <li>Minimum number of clusters: 3</li> <li>Maximum number of clusters: 8</li> <li>Ward Meth</li> </ul>	X Statistics Plots Method Sgve
OK Paste Reset Cancel Help	

8. Click "OK" or "Paste

**NOTE:** This is the end of the actual Cluster procedure. This has produced the Agglomerative Schedule and Cluster Membership Table in the output. It has also saved the created clusters as new variables (8 cluster variable = CLU8\_1, 7 cluster variables = CLU7\_1, etc.)

**NEXT:** Use Frequencies and ANOVA procedures to decide which cluster solution to use.

1. Analyze  $\rightarrow$  Descriptive Statistics  $\rightarrow$  Frequencies

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	14	q11		Numeric	Nonp	parametric	Tests	÷.	0, 0=totally	11 - 99		8	■ Right	🧳 S		
	15	q12		Numeric	Fore	casting		P.	0, 0=totally	11 - 99		8	■ Right	🛷 S		
	16	q13		Numeric	Survi	ival		*	0, 0=totally	11 - 99		8	를 Right	🧳 S		
1	17	q14		Numeric	Multi	ple Respor	nse	*	0, 0=totally	11 - 99		8	■ Right	s 🛷 S		
	18	q15		Numeric	🔛 Missi	ing Value A	nal <u>v</u> sis		0, 0=totally	11 - 99		8	■ Right	S 🎸		
1	19	q16		Numeric	Mulți	ple Imputat	ion	•	0, 0=Compl	11 - 99		8	a Right	S S		
2	20	q17		Numeric	Com	Complex Samples Simulation Quality Control Spatial and Temporal Modeling			0, 0=Compl	11 - 99		8	■ Right	S 🕼		
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2.	Select the cluster	variables	will be at the b	ottom of the list)
			(	

<ul> <li>COMPUTE OutsideActivityTP = tp_p</li> <li>COMPUTE CommercialVenuesTP =</li> <li>EastDrinkTalk2 recoded [EatDrinkTa</li> <li>OrgTPActivity2 recoded [OrgTPActivity</li> <li>OutsideActivityTP2 recoded [Outside</li> <li>CommercialVenuesTP2 recoded [C</li> <li>Zscore: COMPUTE Cosmo = Zq97</li> <li>Zscore: COMPUTE PolActivity2 = Po</li> <li>Zscore: COMPUTE NeighTies2 = Z</li> </ul>	Variable(s): Ward Method Ward Method Ward Method Ward Method Ward Method Ward Method Ward Method	[CLU8_1] [CLU7_1] [CLU6_1] [CLU5_1] [CLU4_1] [CLU3_1]	Statistics Charts Eormat Style Bootstrap
Display frequency tables	Reset Cancel Help		

3. Click "OK" or "Paste"

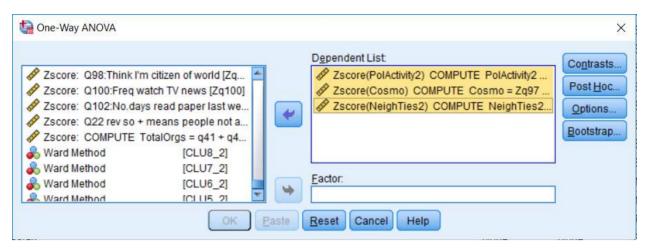
**NOTE:** There are several ways to compare means using an ANOVA test. I used One-Way ANOVA.

1. Analyze  $\rightarrow$  Compare Means  $\rightarrow$  One-Way ANOVA

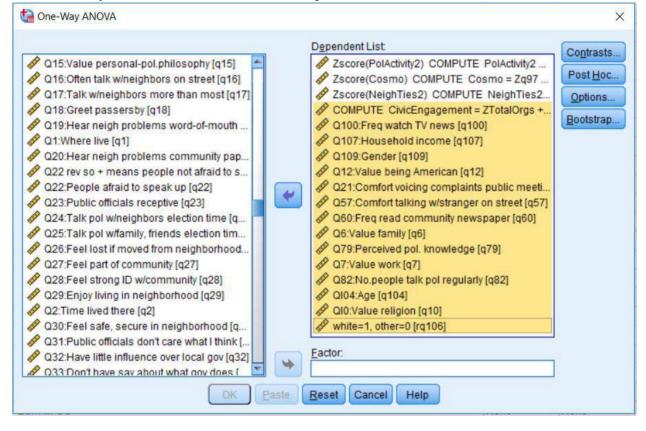
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		Name	Type	Baye	sian Statist	tics			Label
	1	Age	Numeric	Table	s			1, 41-60eq2	, 61+eq3
	2	Age10to14	Numeric	-	pare Mean:	s	*	Means	
	3	Age15to19	Numeric		Iral Linear I				
	4	Age20to24	Numeric			ear Models		One-Sar	mple T Test
	5	Age25to34	Numeric		i Models	ear models		Indepen	den <u>t</u> -Samples T Test
	6	Age35to44	Numeric	_				Paired-S	Samples T Test
	7	age3grp	Numeric	Correlate				0ne-Wa	y ANOVA
	8	Age45to54	Numeric		Regression				
	9	Age55to59	Numeric	Logli			•		
	10	Age5to9	Numeric	-	al Net <u>w</u> ork	S			
	11	Age60to64	Numeric	Clas	si <u>f</u> y				
	12	Age65to74	Numeric	Dime	nsion Red	uction	*		
	13	Age75to84	Numeric	Sc <u>a</u> le	9		•		
	14	Age85anda	Numeric	Nonp	arametric	Tests	•		
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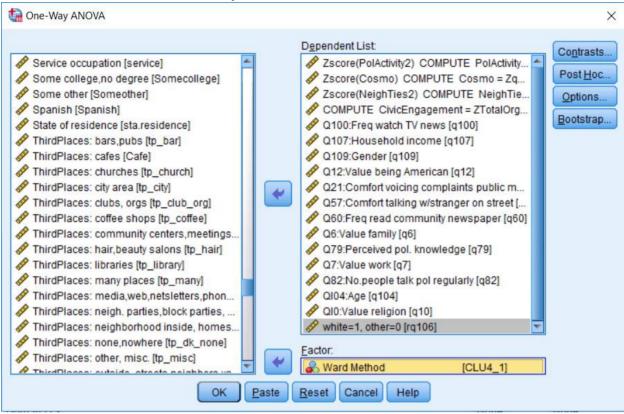
2. Enter your internal variables in the "Dependent List"



3. Enter your external variables in the "Dependent List"



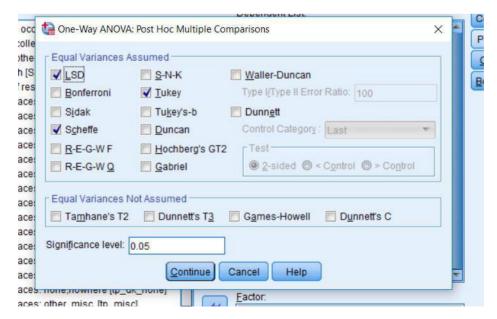
4. Enter the cluster solution of your choice under "Factor"



5. Click "Post Hoc"

→ under "Equal Variance Assumed" → select post-hoc tests of your choice

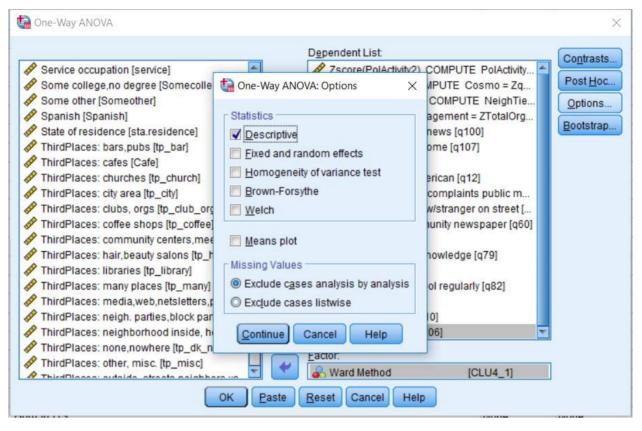
 $\rightarrow$  click "Continue"



6. Click "Options"

 $\rightarrow$  check "Descriptive" (I did something different for this)

 $\rightarrow$  click "Continue"



7. Click "OK" or "Paste"

# **III. SPSS Output**

DESCRIPTIVES VARIABLES=Cosmo PolActivity2 NeighTies2 /SAVE /STATISTICS=MEAN STDDEV MIN MAX.

# Descriptives

	Notes	
Output Created		01-MAY-2019 14:32:21
Comments		
Input	Data	C:\Users\merxl\Downloads\na
		tcom.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	All non-missing data are
		used.
Syntax		DESCRIPTIVES
		VARIABLES=Cosmo
		PolActivity2 NeighTies2
		/SAVE
		/STATISTICS=MEAN
		STDDEV MIN MAX.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02
Variables Created or	ZSco01	Zscore(Cosmo) COMPUTE
Modified		Cosmo = Zq97 + Zq98
		(COMPUTE)
	ZSco02	Zscore(PolActivity2)
		COMPUTE PolActivity2 =
		PolActivity1 + q91 + q92
		(COMPUTE)

ZSco03	Zscore(NeighTies2)
	COMPUTE NeighTies2 =
	Zq34 + Zq35 + Zq36 + Zq2
	(COMPUTE)

## **Descriptive Statistics**

	Ν	Minimum	Maximum	Mean	Std. Deviation
COMPUTE Cosmo = Zq97	432	-5.00	1.78	0010	1.65882
+ Zq98 (COMPUTE)					
COMPUTE PolActivity2 =	434	.00	10.00	3.6774	2.61230
PolActivity1 + q91 + q92					
(COMPUTE)					
COMPUTE NeighTies2 =	454	-6.52	5.81	.0257	2.76402
Zq34 + Zq35 + Zq36 + Zq2					
(COMPUTE)					
Valid N (listwise)	421				

```
CLUSTER ZPolActivity2 ZCosmo ZNeighTies2
/METHOD WARD
/MEASURE=SEUCLID
/PRINT SCHEDULE CLUSTER(3,8)
/PLOT VICICLE
/SAVE CLUSTER(3,8).
```

# Cluster

	Notes	
Output Created		01-MAY-2019 14:32:21
Comments		
Input	Data	C:\Users\merxl\Downloads\na
		tcom.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.

	Cases Used		Statistics are	based on cases
			with no missi	ng values for
			any variable u	used.
Syntax			CLUSTER	ZPoIActivity2
			ZCosmo ZNe	eighTies2
			/METHOD	WARD
			/MEASURE	=SEUCLID
			/PRINT SC	HEDULE
			CLUSTER(3,8)	
			/PLOT VIC	ICLE
			/SAVE CLU	JSTER(3,8).
Resources	Processor Time			00:00:00.55
	Elapsed Time			00:00:00.42
Variables Created or	Cluster Membership	CLU8_2	Ward Method	1
Modified		CLU7_2	Ward Method	1
		CLU6_2	Ward Method	
		CLU5_2	Ward Method	1
		CLU4_2	Ward Method	l
		CLU3_2	Ward Method	1

# Case Processing Summary<sup>a,b</sup>

		C	Cases			
Valid		M	lissing	Total		
 N	Percent	Ν	Percent	N	Percent	
 421	88.3	5	6 11.7	477	100.0	

a. Squared Euclidean Distance used

b. Ward Linkage

# Ward Linkage

	Aggiomeration concease								
	Cluster C	Cluster Combined Stage Cluster First Appears							
Stage	Cluster 1	Cluster 2	Coefficients	Cluster 1	Cluster 2	Next Stage			
394	1	29	136.252	366	330	407			
395	23	36	141.283	381	328	406			

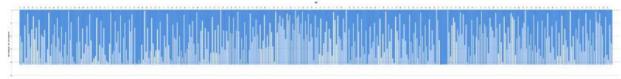
### **Agglomeration Schedule**

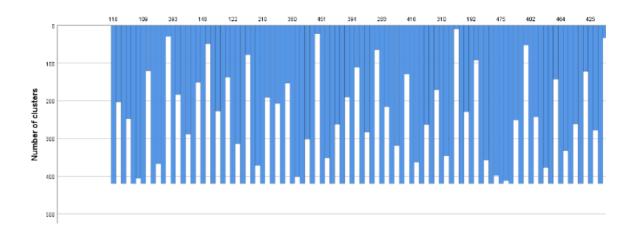
396	20	44	146.327	374	382	410
397	5	50	152.275	373	371	401
398	8	22	158.706	347	354	407
399	15	26	165.695	357	392	412
400	2	27	173.536	350	391	408
401	5	54	181.601	397	361	413
402	18	108	190.236	386	362	413
403	3	13	198.971	365	390	414
404	7	9	209.043	375	387	409
405	12	46	220.039	385	388	412
406	23	69	231.328	395	370	411
407	1	8	243.232	394	398	410
408	2	14	255.507	400	389	418
409	7	35	272.656	404	378	415
410	1	20	289.960	407	396	416
411	21	23	317.974	393	406	415
412	12	15	346.611	405	399	414
413	5	18	380.046	401	402	416
414	3	12	433.082	403	412	419
415	7	21	499.274	409	411	418
416	1	5	571.698	410	413	417
417	1	358	666.883	416	344	420
418	2	7	809.108	408	415	419
419	2	3	1011.517	418	414	420
420	1	2	1251.748	417	419	0

# **Cluster Membership**

Case	8 Clusters	7 Clusters	6 Clusters	5 Clusters	4 Clusters	3 Clusters
438	3	3	3	3	3	3
441	1	1	1	1	1	1
443	3	3	3	3	3	3
444	3	3	3	3	3	3
445	7	6	5	4	4	2
446	3	3	3	3	3	3
447	6	3	3	3	3	3
449	6	3	3	3	3	3
450	3	3	3	3	3	3

451	6	3	3	3	3	3
453	7	6	5	4	4	2
454	8	7	6	5	1	1
455	8	7	6	5	1	1
456	5	5	5	4	4	2
458	2	2	2	2	2	2
459	1	1	1	1	1	1
460	7	6	5	4	4	2
461	5	5	5	4	4	2
463	7	6	5	4	4	2
464	6	3	3	3	3	3
465	2	2	2	2	2	2
466	7	6	5	4	4	2
467	1	1	1	1	1	1
468	2	2	2	2	2	2
469	3	3	3	3	3	3
470	7	6	5	4	4	2
471	4	4	4	1	1	1
472	1	1	1	1	1	1
473	6	3	3	3	3	3
474	7	6	5	4	4	2
475	6	3	3	3	3	3
476	2	2	2	2	2	2
477	7	6	5	4	4	2





FREQUENCIES VARIABLES= CLU8\_1 CLU7\_1 CLU6\_1 CLU5\_1 CLU4\_1 CLU3\_1
/ORDER=ANALYSIS.

# Frequencies

•	Notes	
Output Created		01-MAY-2019 14:32:22
Comments		
Input	Data	C:\Users\merxl\Downloads\na tcom.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 are based on all cases with valid data.
Syntax		FREQUENCIES
		VARIABLES= CLU8_1
		CLU7_1 CLU6_1 CLU5_1
		CLU4_1 CLU3_1
		/ORDER=ANALYSIS.
Resources	Processor Time	00:00:00.02

Elapsed Time	00:00:00.02

	Statistics								
			Ward	Ward	Ward	Ward			
		Ward Method	Method	Method	Method	Method			
N	Valid	421	421	421	421	421			
	Missing	56	56	56	56	56			

# Frequency Table

	ward method								
					Cumulative				
		Frequency	Percent	Valid Percent	Percent				
Valid	1	62	13.0	14.7	14.7				
	2	64	13.4	15.2	29.9				
	3	54	11.3	12.8	42.8				
	4	55	11.5	13.1	55.8				
	5	36	7.5	8.6	64.4				
	6	89	18.7	21.1	85.5				
	7	53	11.1	12.6	98.1				
	8	8	1.7	1.9	100.0				
	Total	421	88.3	100.0					
Missing	System	56	11.7						
Total		477	100.0						

### Ward Method

# Ward Method

					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	1	62	13.0	14.7	14.7
	2	64	13.4	15.2	29.9
	3	143	30.0	34.0	63.9
	4	55	11.5	13.1	77.0
	5	36	7.5	8.6	85.5
	6	53	11.1	12.6	98.1

7	8	1.7	1.9	100.0
Tota	421	88.3	100.0	
Missing Syst	em 56	11.7		
Total	477	100.0		

#### Ward Method Cumulative Frequency Percent Valid Percent Percent Valid 1 14.7 14.7 62 13.0 2 64 13.4 15.2 29.9 3 143 30.0 34.0 63.9 4 55 11.5 13.1 77.0 5 89 18.7 21.1 98.1 6 8 1.7 1.9 100.0 Total 421 88.3 100.0 56 11.7 Missing System 477 100.0 Total

Ward Method								
					Cumulative			
		Frequency	Percent	Valid Percent	Percent			
Valid	1	117	24.5	27.8	27.8			
	2	64	13.4	15.2	43.0			
	3	143	30.0	34.0	77.0			
	4	89	18.7	21.1	98.1			
	5	8	1.7	1.9	100.0			
	Total	421	88.3	100.0				
Missing	System	56	11.7					
Total		477	100.0					

Ward Method					

					Cumulative	
		Frequency	Percent	Valid Percent	Percent	
Valid	1	125	26.2	29.7	29.7	
	2	64	13.4	15.2	44.9	

	3	143	30.0	34.0	78.9
	4	89	18.7	21.1	100.0
	Total	421	88.3	100.0	
Missing	System	56	11.7		
Total		477	100.0		

### Ward Method

					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	1	125	26.2	29.7	29.7
	2	153	32.1	36.3	66.0
	3	143	30.0	34.0	100.0
	Total	421	88.3	100.0	
Missing	System	56	11.7		
Total		477	100.0		

DATASET ACTIVATE DataSet1. RECODE q106 (2=1) (ELSE=0) INTO White. VARIABLE LABELS White 'percent white'. EXECUTE.

DATASET ACTIVATE DataSet1. ONEWAY ZPOlActivity2 ZCosmo ZNeighTies2 q104 CivicEngagement Q57 Q21 Q60 Q79 Q82 Q100 Q107 Q109 White Q6 Q7 Q10 Q12 BY CLU4\_1 /MISSING ANALYSIS /POSTHOC=TUKEY SCHEFFE LSD ALPHA(0.05).

## Oneway

Notes							
Output Created		01-MAY-2019 14:32:22					
Comments							
Input	Data	C:\Users\merxl\Downloads\na tcom.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.
	Cases Used	Statistics for each analysis are based on cases with no missing data for any variable in the analysis.
Syntax		ONEWAY ZPolActivity2 ZCosmo ZNeighTies2 q104 CivicEngagement Q57 Q21 Q60 Q79 Q82 Q100 Q107 Q109 White Q6 Q7 Q10 Q12 BY CLU4_1 /MISSING ANALYSIS /POSTHOC=TUKEY SCHEFFE LSD ALPHA(0.05).
Resources	Processor Time	00:00:00.13
	Elapsed Time	00:00:00.11

		ANOVA				
		Sum of				
		Squares	df	Mean Square	F	Sig.
Zscore: COMPUTE	Between Groups	248.048	3	82.683	209.730	.000
PolActivity2 = PolActivity1	Within Groups	164.395	417	.394		
+ q91 + q92 (COMPUTE)	Total	412.443	420			
Zscore: COMPUTE	Between Groups	184.413	3	61.471	112.535	.000
Cosmo = Zq97 + Zq98	Within Groups	227.780	417	.546		
(COMPUTE)	Total	412.193	420			
Zscore: COMPUTE	Between Groups	152.405	3	50.802	77.116	.000
NeighTies2 = Zq34 +	Within Groups	274.707	417	.659		
Zq35 + Zq36 + Zq2	Total	427.112	420			
(COMPUTE)						
QI04:Age	Between Groups	47.024	3	15.675	5.750	.001
	Within Groups	1125.786	413	2.726		
	Total	1172.811	416			
COMPUTE	Between Groups	504.845	3	168.282	91.687	.000

CivicEngagement =	Within Groups	750.677	409	1.835		
ZTotalOrgs + ZPolActivity1 (COMPUTE)	Total	1255.522	412			
Q57:Comfort talking	Between Groups	9.967	3	3.322	3.796	.010
w/stranger on street	Within Groups	360.588	412	.875		
	Total	370.555	415			
Q21:Comfort voicing	Between Groups	468.105	3	156.035	14.797	.000
complaints public meeting	Within Groups	4270.672	405	10.545		
	Total	4738.778	408			
Q60:Freq read community	Between Groups	70.855	3	23.618	7.865	.000
newspaper	Within Groups	1222.186	407	3.003		
	Total	1293.041	410			
Q79:Perceived pol.	Between Groups	324.878	3	108.293	15.783	.000
knowledge	Within Groups	2813.228	410	6.862		
	Total	3138.106	413			
Q82:No.people talk pol	Between Groups	70.402	3	23.467	18.604	.000
regularly	Within Groups	523.483	415	1.261		
	Total	593.885	418			
Q100:Freq watch TV news	Between Groups	28.594	3	9.531	2.893	.035
	Within Groups	1370.654	416	3.295		
	Total	1399.248	419			
Q107:Household income	Between Groups	77.139	3	25.713	5.263	.001
	Within Groups	1670.791	342	4.885		
	Total	1747.931	345			
Q109:Gender	Between Groups	3.101	3	1.034	4.232	.006
	Within Groups	101.110	414	.244		
	Total	104.211	417			
percent white	Between Groups	.865	3	.288	1.523	.208
	Within Groups	78.940	417	.189		
	Total	79.805	420			
Q6:Value family	Between Groups	10.935	3	3.645	1.088	.354
	Within Groups	1377.393	411	3.351		
	Total	1388.328	414			
Q7:Value work	Between Groups	12.701	3	4.234	.509	.676
	Within Groups	3150.453	379	8.313		
	Total	3163.154	382			
QI0:Value religion	Between Groups	102.618	3	34.206	3.268	.021
Ŭ	Within Groups	4312.322	412	10.467		
	Total	4414.940	415			

Q12:Value being	Between Groups	75.182	3	25.061	3.537	.015
American	Within Groups	2932.897	414	7.084		
	Total	3008.079	417			

# **Post Hoc Tests**

			Multiple Co	mparisons				
							95% Co	nfidence
				Mean			Interval	
		(I) Ward	(J) Ward	Difference	Std.		Lower	Upper
Dependent Variable		Method	Method	(I-J)	Error	Sig.	Bound	Bound
Zscore:	Tukey	1	2	1.8961264	.096507	.000	1.647192	2.1450608
COMPUTE	HSD			9*	87		2	
PolActivity2 =			3	1.4752590	.076881	.000	1.276949	1.6735684
PolActivity1 + q91				2*	39		6	
+ q92 (COMPUTE)			4	1.7497521	.087083	.000	1.525128	1.9743760
				5*	07		3	
		2	1	-	.096507	.000	-	-
				1.8961264	87		2.145060	1.6471922
				9*			8	
			3		.094428	.000	6644387	1772962
				.42086747	70			
				*				
			4		.102905	.486	4118102	.1190615
				.14637434	26			
		3	1		.076881	.000	-	-
				1.4752590	39		1.673568	1.2769496
				2*			4	
			2	.42086747	.094428	.000	.1772962	.6644387
				*	70			
			4	.27449313	.084773	.007	.0558278	.4931584
				*	05			
		4	1		.087083	.000	-	-
				1.7497521	07		1.974376	1.5251283
				5*			0	
			2	.14637434	.102905	.486	1190615	.4118102
					26			

		3	-	.084773	.007	4931584	0558278
			.27449313	05			
			*				
Scheffe	1	2	1.8961264	.096507	.000	1.625234	2.1670181
			9*	87		9	
		3	1.4752590	.076881	.000	1.259457	1.6910603
			2*	39		7	
		4	1.7497521	.087083	.000	1.505315	1.9941889
			5*	07		4	
	2	1	-	.096507	.000	-	-
			1.8961264	87		2.167018	1.6252349
			9*			1	
		3	-	.094428	.000	6859230	1558120
			.42086747	70			
			*				
		4	-	.102905	.568	4352230	.1424743
			.14637434	26			
	3	1	-	.076881	.000	-	-
			1.4752590	39		1.691060	1.2594577
			2*			3	
		2	.42086747	.094428	.000	.1558120	.6859230
			*	70			
		4	.27449313	.084773	.016	.0365404	.5124458
			*	05			
	4	1	-	.087083	.000	-	-
			1.7497521	07		1.994188	1.5053154
			5*			9	
		2	.14637434	.102905	.568	1424743	.4352230
				26			
		3	-	.084773	.016	5124458	0365404
			.27449313	05			
			*				
LSD	1	2	1.8961264	.096507	.000	1.706423	2.0858290
			9*	87		9	
		3	1.4752590	.076881	.000	1.324135	1.6263824
			2*	39		7	
		4	1.7497521		.000	1.578575	1.9209286
			5*	07		7	
			J	•.		·	

	_							
		2	1	-	.096507	.000	-	-
				1.8961264	87		2.085829	1.7064239
				9*			0	
			3	-	.094428	.000	6064830	2352519
				.42086747	70			
				*				
			4	-	.102905	.156	3486520	.0559033
				.14637434	26			
		3	1	-	.076881	.000	-	-
				1.4752590	39		1.626382	1.3241357
				2*			4	
			2	.42086747	.094428	.000	.2352519	.6064830
				*	70			
			4	.27449313	.084773	.001	.1078574	.4411289
			*	05				
		4	1	-	.087083	.000	-	-
				1.7497521	07		1.920928	1.5785757
				5*			6	
		2	.14637434	.102905	.156	0559033	.3486520	
					26			
			3	-	.084773	.001	4411289	1078574
				.27449313	05			
Q100:Freq watch	Tukey	1	2	.055	.279	.997	67	.78
TV news	HSD	·	3	572	.223	.051	-1.15	.00
			4	273	.252	.701	92	.38
		2		055	.232	.997	78	
		2	<u>1</u> 3	627	.273	.100	-1.33	.67
			4	328	.273	.689	-1.10	.08
		2						
		3	1	.572	.223	.051	.00	1.15
			2		.273	.100	08	1.33
			4	.300	.245	.613	33	.93
		4	1	.273	.252	.701	38	.92
			2	.328	.297	.689	44	1.10
	0.1.11	,	3	300	.245	.613	93	.33
	Scheffe	1	2	.055	.279	.998	73	.84
			3	572	.223	.087	-1.20	.05
			4	273	.252	.760	98	.44
		2	1	055	.279	.998	84	.73

			3	627	.273	.154	-1.39	.14
			4	328	.297	.750	-1.16	.51
		3	1	.572	.223	.087	05	1.20
			2	.627	.273	.154	14	1.39
			4	.300	.245	.684	39	.99
		4	1	.273	.252	.760	44	.98
			2	.328	.297	.750	51	1.16
			3	300	.245	.684	99	.39
	LSD	1	2	.055	.279	.844	49	.60
			3	572 <sup>*</sup>	.223	.011	-1.01	13
			4	273	.252	.280	77	.22
		2	1	055	.279	.844	60	.49
			3	627 <sup>*</sup>	.273	.022	-1.16	09
			4	328	.297	.271	91	.26
		3	1	.572 <sup>*</sup>	.223	.011	.13	1.01
			2	.627*	.273	.022	.09	1.16
			4	.300	.245	.222	18	.78
		4	1	.273	.252	.280	22	.77
			2	.328	.297	.271	26	.91
			3	300	.245	.222	78	.18
QI0:Value religion	Tukey	1	2	-1.177	.500	.088	-2.47	.11
	HSD		3	-1.018	.398	.053	-2.05	.01
			4	-1.099	.450	.071	-2.26	.06
		2	1	1.177	.500	.088	11	2.47
			3	.159	.491	.988	-1.11	1.42
			4	.078	.534	.999	-1.30	1.45
		3	1	1.018	.398	.053	01	2.05
			2	159	.491	.988	-1.42	1.11
			4	081	.440	.998	-1.22	1.05
		4	1	1.099	.450	.071	06	2.26
			2	078	.534	.999	-1.45	1.30
			3	.081	.440	.998	-1.05	1.22
	Scheffe	1	2	-1.177	.500	.138	-2.58	.23
			3	-1.018	.398	.090	-2.14	.10
			4	-1.099	.450	.115	-2.36	.16
		2	1	1.177	.500	.138	23	2.58
			3	.159	.491	.991	-1.22	1.54
			4	.078	.534	.999	-1.42	1.58

		3	1	1.018	.398	.090	10	2.14
			2	159	.491	.991	-1.54	1.22
		4	081	.440	.998	-1.32	1.15	
	4	1	1.099	.450	.115	16	2.36	
			2	078	.534	.999	-1.58	1.42
			3	.081	.440	.998	-1.15	1.32
LS	LSD	1	2	-1.177 <sup>*</sup>	.500	.019	-2.16	19
			3	-1.018 <sup>*</sup>	.398	.011	-1.80	24
			4	-1.099*	.450	.015	-1.98	21
		2	1	1.177 <sup>*</sup>	.500	.019	.19	2.16
			3	.159	.491	.747	81	1.12
			4	.078	.534	.885	97	1.13
		3	1	1.018 <sup>*</sup>	.398	.011	.24	1.80
			2	159	.491	.747	-1.12	.81
			4	081	.440	.854	95	.78
	4	1	1.099 <sup>*</sup>	.450	.015	.21	1.98	
			2	078	.534	.885	-1.13	.97
			3	.081	.440	.854	78	.95

\*. The mean difference is significant at the 0.05 level.

# Homogeneous Subsets

(COMPUTE)								
			Subset for alpha = $0.05$					
	Ward Method	Ν	1	2	3			
Tukey HSD <sup>a,b</sup>	2	64	7497875					
	4	89	6034131					
	3	143		3289200				
	1	125			1.1463390			
	Sig.		.373	1.000	1.000			
Scheffe <sup>a,b</sup>	2	64	7497875					
	4	89	6034131					
	3	143		3289200				
	1	125			1.1463390			
	Sig.		.459	1.000	1.000			

## Zscore: COMPUTE PolActivity2 = PolActivity1 + q91 + q92 (COMPUTE)

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 95.570.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

			Subset for alpha = 0.05				
	Ward Method	Ν	1	2	3		
Tukey HSD <sup>a,b</sup>	4	89	-1.1896205				
	1	125		0181914			
	2	64			.4304713		
	3	143			.5706180		
	Sig.		1.000	1.000	.557		
Scheffe <sup>a,b</sup>	4	89	-1.1896205				
	1	125		0181914			
	2	64			.4304713		
	3	143			.5706180		
	Sig.		1.000	1.000	.633		

## Zscore: COMPUTE Cosmo = Zq97 + Zq98 (COMPUTE)

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 95.570.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

### Zscore: COMPUTE NeighTies2 = Zq34 + Zq35 + Zq36 + Zq2 (COMPUTE)

			Subset for alpha = 0.05			
	Ward Method	Ν	1	2	3	
Tukey HSD <sup>a,b</sup>	2	64	-1.1702535			
	4	89		0866558		
	1	125		0760447		
	3	143			.6657909	
	Sig.		1.000	1.000	1.000	
Scheffe <sup>a,b</sup>	2	64	-1.1702535			
	4	89		0866558		
	1	125		0760447		
	3	143			.6657909	
	Sig.		1.000	1.000	1.000	

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 95.570.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

QI04:Age								
			Subset for alpha = 0.05					
	Ward Method	Ν	1	2				
Tukey HSD <sup>a,b</sup>	2	64	3.83					
	1	123	4.31	4.31				
	4	88		4.45				
	3	142		4.82				
	Sig.		.187	.140				
Scheffe <sup>a,b</sup>	2	64	3.83					
	1	123	4.31	4.31				
	4	88	4.45	4.45				
	3	142		4.82				
	Sig.		.079	.204				

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 94.874.

b. The group sizes are unequal. The harmonic mean of the group sizes is

used. Type I error levels are not guaranteed.

### COMPUTE CivicEngagement = ZTotalOrgs + ZPolActivity1 (COMPUTE)

			Subset for alpha = 0.05			
	Ward Method	Ν	1	2	3	
Tukey HSD <sup>a,b</sup>	2	63	-1.2493			
	4	88	9415			
	3	140		2997		
	1	122			1.6095	
	Sig.		.405	1.000	1.000	
Scheffe <sup>a,b</sup>	2	63	-1.2493			
	4	88	9415			
	3	140		2997		
	1	122			1.6095	
	Sig.		.490	1.000	1.000	

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 93.949.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

			Subset for alpha = 0.05		
	Ward Method	Ν	1	2	
Tukey HSD <sup>a,b</sup>	4	88	2.88		
	2	64	2.95	2.95	
	3	140	3.17	3.17	
	1	124		3.27	
	Sig.		.130	.099	
Scheffe <sup>a,b</sup>	4	88	2.88		
	2	64	2.95	2.95	
	3	140	3.17	3.17	
	1	124		3.27	
	Sig.		.192	.153	

Q57:Comfort talking w/stranger on street

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 94.796.

b. The group sizes are unequal. The harmonic mean of the group sizes is

used. Type I error levels are not guaranteed.

### Q21:Comfort voicing complaints public meeting

			Subset for alpha = 0.05			
	Ward Method	Ν	1	2	3	
Tukey HSD <sup>a,b</sup>	4	85	4.80			
	2	63	5.35			
	3	138		6.59		
	1	123		7.60		
	Sig.		.657	.150		
Scheffe <sup>a,b</sup>	4	85	4.80			
	2	63	5.35	5.35		
	3	138		6.59	6.59	
	1	123			7.60	
	Sig.		.722	.079	.216	

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 92.993.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Descriptive Statistics												
	Ν	Minimum	Maximum	Mean	Std. Deviation							
Zscore: COMPUTE	434	-1.40773	2.42031	.0000000	1.00000000							
PolActivity2 = PolActivity1 +												
q91 + q92 (COMPUTE)												
Zscore: COMPUTE	432	-3.01281	1.07481	.0000000	1.00000000							
Cosmo = Zq97 + Zq98												
(COMPUTE)												
Zscore: COMPUTE	454	-2.36967	2.09446	.0000000	1.00000000							
NeighTies2 = Zq34 + Zq35												
+ Zq36 + Zq2 (COMPUTE)												
QI04:Age	433	1	7	4.45	1.673							
COMPUTE	425	-2.60	5.62	.0026	1.77060							
CivicEngagement =												
ZTotalOrgs + ZPolActivity1												
(COMPUTE)												
Q57:Comfort talking	447	1	4	3.08	.961							
w/stranger on street												
Q21:Comfort voicing	449	0	10	6.31	3.440							
complaints public meeting												
Q60:Freq read community	440	0	5	3.23	1.782							
newspaper												
Q79:Perceived pol.	441	0	10	6.06	2.793							
knowledge												
Q82:No.people talk pol	446	0	4	1.72	1.195							
regularly												
Q100:Freq watch TV news	434	0	6	4.27	1.822							
Q107:Household income	359	1	9	4.72	2.244							
Q109:Gender	441	1	2	1.53	.500							
percent white	477	.00	1.00	.6730	.46963							
Q6:Value family	464	0	10	9.32	1.882							
Q7:Value work	425	0	10	7.05	2.908							
QI0:Value religion	462	0	10	7.51	3.183							
Q12:Value being American	467	0	10	8.32	2.679							
Valid N (listwise)	293											

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# **IV.** Tabling

## Table 1. Cluster Profiling

Cluster Name	HMM Pol Actives	LHL Cosmopolites (Only)	MHH Worldly Neighbors	LLM Non-Pol Localites	Total	F	Sig
Internal Variables	1(125)	2(64)	3(143)	4(89)	421		
ZPolActivity2 = (q83,q84,q85,q86,q87, q89,q90,q91,q92)	1.146 <sup>c</sup>	-0.750 <sup>a</sup>	-0.329 <sup>b</sup>	-0.603 <sup>a</sup>	0	209.7	<.001
Zcosmo = (Zq94, Zq98)	-0.018 <sup>b</sup>	0.430 <sup>c</sup>	0.571 <sup>c</sup>	-1.190 <sup>a</sup>	0	112.5	<.001
ZNeighTies2 = (Zq34, Zq35, Zq36, Zq2)	-0.076 <sup>b</sup>	-1.170 <sup>a</sup>	0.666 <sup>b</sup>	-0.087 <sup>b</sup>	0	77.1	<.001
External Variables							
Age (1-7 Scale)	4.31 <sup>a,b</sup>	3.83 <sup>a</sup>	4.82 <sup>b</sup>	4.45 <sup>b</sup>	4.45	5.75	0.001
CivicEngagement (Standardized)	1.61 <sup>°</sup>	-1.25 <sup>a</sup>	-0.30 <sup>b</sup>	-0.94 <sup>a</sup>	0	91.7	<.001
Comfort Talking w/ Strangers on Street (1-4 Scale)	3.27 <sup>a</sup>	2.95 <sup>a,b</sup>	3.17 <sup>a,b</sup>	2.88 <sup>a</sup>	3.08	3.80	0.010
Comfort Voicing Complaints at Public Meetings (0-10 Scale)	7.60 <sup>b</sup>	5.35 <sup>ª</sup>	6.59 <sup>b</sup>	$4.80^{a}$	6.31	14.8	<.001
Freq Read Community Newspaper (0-5 Scale) Percieved Political	3.39 <sup>b,c</sup>	2.62 <sup>a</sup>	3.65 <sup>c</sup>	2.75 <sup>a,b</sup>	3.23	7.87	<.001
Knowledge (0-10 Scale)	7.24 <sup>c</sup>	5.43 <sup>a,b</sup>	6.15 <sup>b</sup>	4.83 <sup>a</sup>	6.06	15.8	<.001
No. People talk Politics with Regularly (0-4 Scale)	2.31 <sup>b</sup>	1.27 <sup>a</sup>	1.65 <sup>ª</sup>	1.34 <sup>a</sup>	1.72	18.6	<.001
Freq Watch TV News* (0-6 Scale)	4.01 <sup>a</sup>	3.95 <sup>b</sup>	4.58 <sup>b</sup>	4.28 <sup>a,b</sup>	4.27	2.89	0.035
Household Income (1-9 Scale)	5.33 <sup>b</sup>	$4.48^{a,b}$	4.69 <sup>a,b</sup>	3.97 <sup>a</sup>	4.72	5.26	0.001
Gender (% Female)	39% <sup>a</sup>	58% <sup>a,b</sup>	59% <sup>b</sup>	56% <sup>a,b</sup>	53%	4.23	0.006
Race (% White)	78%	64%	76%	75%	67%	1.52	0.208
Value Family (0-10 Scale)	9.19	9.63	9.31	9.52	9.32	1.09	0.354
Value Work (0-10 Scale)	7.15	7.32	6.81	7.08	7.05	0.51	0.676
Value Religion* (0-10 Scale)	6.70 <sup>a</sup>	7.87 <sup>b</sup>	7.71 <sup>b</sup>	7.80 <sup>b</sup>	7.51	3.27	0.021
Value Being an American (0-10 Scale)	7.79 <sup>a</sup>	$8.08^{a,b}$	8.63 <sup>a,b</sup>	8.83 <sup>b</sup>	8.32	3.54	0.015

NOTE: Means that do not share a superscript are significantly different at p < .05, via the LSD, Scheffe, and Tukey post hoc tests. \* - Indicates that the post hoc difference of means is significant only for the LSC (not Scheffe nor Tukey)

# V. Write-Up

The National Community Study (Jeffres, 2006) was chosen for cluster analysis. Three internal variables were used, each of which was an additive scale. Scale one, named Political Activity, includes ten items all measured with Yes/No responses: attended meetings of your town or city council (Q83), attended a political meeting or rally (Q84), worn a button or put a sticker on your car (Q85), voted in the 2004 presidential election (Q86), participated in a march or rally (Q87), helped circulate or signed a petition (Q88), solicited political funds (Q89), contributed money to a party or candidate (O90), contacted a public official about some issue (O91), and emailed, written a letter, or called media about some public issue (Q92) (alpha = .75). Scale two, named Cosmopoliteness, includes the standardized scores of two items measured on a 7-point Likert-type scale (0 = "Completely Disagree"; 10 = "Completely Agree"): I enjoy learning about other peoples and cultures (ZQ97) and I think of myself as a citizen of the world (ZQ98) (alpha = .54). Scale three, name Neighborhood Ties, includes the standardized scores of four items which are measured on a variety of Likert-type scales: Of the ten closest neighbors, how many of their home have you visited? (ZQ34), How many of your ten closest neighbors do you know by name or well enough to say hello when you see them on the street? (ZQ35), What percentage of your closest friends live in the same community? (ZQ36), and How long have you lived in your neighborhood or community? (ZQ2) (alpha = .81).

The fifteen external or "profiling" variables include: Age, Civic Engagement, comfort talking with strangers on the street (Q57), comfort voicing complaints at public meetings (Q21), frequently read community newspaper (Q60), perceived political knowledge (Q79), number of people talk politics with regularly (Q82), frequently watch TV news (Q60), household income, gender (% female), race (% white), value family (Q6), value work (Q7), value religion (Q10),

and value being an American (Q12).

A hierarchical agglomerative cluster analysis was performed to discover the natural grouping of participants. A four-cluster solution was chosen using Ward's Method (with Squared Euclidean Distance). This choice of four clusters was chosen due to size requirements and was supported by an examination of changes in the agglomeration coefficients from the agglomeration table. An icicle plot was run to give a visual representation of the data clusters. A Frequency procedure was run to examine cluster sizes to ensure all clusters had a reasonable n. A One-Way ANOVA was run to examine the differences among the four clusters with regard to all three internal variables. As expected, all internal variables were significantly different among the four clusters. The four clusters have been named: "Politically Actives", "Cosmopolites (Only)", "Worldly Neighbors", and "Non-Political Localites" (See Table 1). To further profile the four clusters, a complementary set of ANOVA analyses were conducted to test the significance of the differences among the four clusters against the fifteen external variables. All four of the internal variables showed highly significant differences across the four clusters (p < .001). Of the external variables, all showed significant differences (p < .05) across the four clusters except for race, value family, and value work.

Cluster 1 (n = 125) is labeled "Politically Actives" because this group ranked highest in political activity, but was slightly lower than average for cosmopoliteness and neighborhood ties. This cluster was significantly different from all others in many ways, ranking highest in civil engagement, perceived political knowledge, and number of people talk politics with regularly, as well as ranking lowest in value religion. While not significantly so, this group also tends to be the wealthiest, whitest, least female, and values being an American the least. Cluster 2 (n = 64) is labelled "Cosmopolites (Only)" because it is above average in cosmopoliteness but the lowest of the four clusters in political activity and neighborhood ties. While not significantly so, this cluster is the youngest, least white, and least civically engaged. This group also values family, work, and religion more than any other, although, again, this is not significant. Cluster 3 (n = 143) is labelled "Worldly Neighbors" because it is above average in cosmopoliteness and neighborhood ties. While not significantly so, this cluster is the oldest, most female, and reads community newspapers and watches TV news the most frequently. Cluster 4 (n = 89) is labelled "Non-Political Localites" because they are average in neighborhood ties and below average in political activity and cosmopoliteness. While not significantly so, this cluster is lowest in comfort with talking to strangers on the street, comfort voicing complaints at public meetings, perceived political knowledge, and household income, while highest in value being an American.