

**DEPARTMENT OF POLITICAL SCIENCE
AND
INTERNATIONAL RELATIONS
Research Methods Posc 302**

PRESENTING RESEARCH RESULTS

I. TODAY'S SESSION:

- A. Measures of association
- B. Presentation of empirical research
- C. Grading standards

II. PROBLEM:

- A. Notes repeated from last week (Class 22).
- B. Here is the cross-tabulation between party identification and attitudes toward women's role in society I mentioned last time.

-Column percent -N of cases		1 Demo	2 Ind	3 Rep	ROW TOTAL
v960543	1 Women and men should have equal roles	57.5 356	58.6 220	35.1 153	50.9 729
	2 2	17.8 110	16.8 63	19.7 86	18.1 259
	3 3	6.2 38	6.3 24	14.3 62	8.7 124
	4 4	9.9 61	9.0 34	15.0 65	11.2 161
	5 5	3.1 19	2.4 9	7.4 32	4.2 60
	6 6	1.9 12	4.1 15	4.4 19	3.2 46
	7 A woman's place is in the home	3.7 23	2.9 11	4.1 18	3.6 52
	COL TOTAL	100.0 619	100.0 376	100.0 437	100.0 1,432

Figure 1: Relationship Between Party Identification and Attitudes Toward Women's Rights

1. We can use the percentages to help understand the nature of the relationship.
2. But it would be helpful to have an overall measure, a single number, that would tell us a lot of about how party identification and attitudes toward women's roles were related.

III. ORDINAL VARIABLES:

- A. Although r does not apply to categorical data, we can use measures of correlation that have roughly the same interpretation.
 1. We'll confine ourselves to strictly ordinal variables.



- B. Ordinal variables: values are categories but the categories have an implicit or even explicit order.
1. Example 1:
 - i. Suppose we have three age groups: “Young” (less than 30 years); “Mature” (30 to 55 years); and “Old Coot” (over 56 years).
 - 1) Although the values of this variable are categories, they can be “ordered” from lowest to highest.
 - 2) Hence, the variable is ordinal.
 2. Example 2:
 - i. Consider party identification. The categories seem to be just names. But we could think of them as forming an implicit scale running from most Democratic to least Democratic.

Category	Amount of “Democratic-ness”
Strong Democrat	Most (a lot)
Democrat	Some
Independent	Very little, if any
Republican	None
Strong Republican	None at all

- 1) The long and short is that we can argue that party identification is an ordinal variable.
 - ii. Example 3:
 - 1) Scale of support for women’s rights runs from 1 (“Women and men should have equal roles”) to 7 (“A woman’s place is in the home”).
 - 2) This can be thought of as an ordinal variable since there is an implicit order of magnitude running from a lot of support for women’s rights to none.
- C. Note that a “dichotomy”–a variable with just two categories–can always be considered ordinal.

IV. MEASURES OF ORDINAL CORRELATION:

- A. Without going into details we can assert that there are several different ordinal measures of correlation that are similar to the correlation coefficient.
1. They are called:
 - i. Gamma
 - ii. Tab-b and tau-c



- B. Strictly speaking each has its own particular meaning since each is defined mathematically in a different way.
- C. Nevertheless, their numerical interpretation follows the ideas outlined above and in class 21.
 - 1. They are bounded: their values lie between -1.0 and 1.0.
 - 2. The close they are to 1.0, the stronger the correlation and hence relationship between X and Y.
 - 3. Values near 0 suggest a very weak correlation or even no correlation.
- D. Look at the sign of the coefficients and interpret as with r.
- E. It's easier to understand how to use these measures by looking at a couple of concrete examples.
 - 1. Party identification by vote
 - i. Note that "vote" with two categories is a perfectly good ordinal variable for our purposes.

Cells contain: -Column percent -N of cases		v960420			
		1 Demo	2 Ind	3 Rep	ROW TOTAL
v961082	1 Bill Clinton	94.7 385	79.2 111	12.8 40	62.3 536
	2 Bob Dole	5.3 21	20.8 29	87.2 274	37.7 324
	COL TOTAL	100.0 406	100.0 140	100.0 314	100.0 860
Means		1.05	1.21	1.87	1.38
Std Devs		.22	.41	.33	.48

Figure 2: Party Identification By Vote

- ii. The interpretation of the table can be aided by looking at the measures of association that accompany the SDA report.

Summary Statistics					
Eta* =	.78	Gamma =	.94	Chisq(P) =	569.06 (p=0.00)
R =	.76	Tau-b =	.72	Chisq(LR) =	636.51 (p=0.00)
Somers' d* =	.62	Tau-c =	.77	df =	2
*Column variable treated as the dependent variable.					

Figure 3: Measures of Ordinal Correlation

- iii. The value is .94, which is close to 1.0.



- 1) This suggests a strong correlation between vote and party identification.
- 2) In this instance the party identification variable is interpreted as “strength of Republican” identification and hence gamma = .94 means that the more Republican a person is, the more that person “votes” for Dole.
 - a) Look at the table.
- iv. Similarly, tau-b and tau-c are “large.”
 - 1) **In the context of ordinal data analysis a value of .5 or above suggests a moderate to strong correlation.**
 - 2) Tau-b equals .72 and tau-c is .77 so there is again evidence of a strong positive correlation between the two variables.
- 2. Party identification by opinion about homosexuals serving in the military.

Frequency Distribution					
Cells contain: -Column percent -N of cases		v960420			
		1 Demo	2 Ind	3 Rep	ROW TOTAL
v961195	1 Homosexuals should be allowed to serve	79.0 442	75.2 240	50.9 200	69.3 883
	5 Homosexuals should not be allowed to serve	21.0 117	24.8 79	49.1 193	30.7 390
	<i>COL TOTAL</i>	100.0 559	100.0 320	100.0 394	100.0 1,273
Means		1.84	1.99	2.96	2.23
Std Devs		1.63	1.73	2.00	1.84

Figure 4: Partisanship By Attitudes Towards Gays in the Military

- i. It looks like there is a relationship, but how strong is it? Here are the summary measures:

Summary Statistics				
Eta* =	.27	Gamma =	.42	Chisq(P) = 95.81 (p= 0.00)
R =	.25	Tau-b =	.23	Chisq(LR) = 92.89 (p= 0.00)
Somers' d* =	.19	Tau-c =	.25	df = 2
*Column variable treated as the dependent variable.				

Figure 5: Measures of Ordinal Correlation



- 1) Gamma, tau-b, and tau-c coefficients are relatively “modest,” which suggests a weak to moderate relationship.
- 2) Party is related to attitudes on this issues, but there isn’t a very strong connection.
 - a) It appears that this “social issue” doesn’t divide party followers as much as perhaps party elites.
- 3. Partisanship by watching “ER,” the popular television.
 - i. Off hand I can think of a reason why Democrats would be more or less likely to watch ER than Republicans or independents, but you never know.
 - ii. The cross-classification is

Cells contain: -Column percent -N of cases		v960420			
		1 Demo	2 Ind	3 Rep	ROW TOTAL
v961150	1 Every week	11.3 66	7.6 25	13.9 56	11.2 147
	2 Most weeks	8.2 47	8.3 27	8.9 36	8.4 111
	3 Only occasionally	27.1 158	29.5 98	23.6 96	26.7 351
	4 Not at all	53.4 310	54.6 180	53.5 216	53.7 706
	COL TOTAL	100.0 581	100.0 330	100.0 404	100.0 1,315

Figure 6: Party Identification By ER Viewership

- 1) Looks like no relationship.
- 2) The chi square and summary measures confirm this impression:

Summary Statistics			
Eta* =	.05	Gamma =	-.01
		Chisq(P) =	9.53 (p= 0.15)
R =	-.02	Tau-b =	-.01
		Chisq(LR) =	9.86 (p= 0.13)
Somers' d* =	-.01	Tau-c =	-.01
		df =	6
*Column variable treated as the dependent variable.			

Figure 7: Ordinal Summary Measures

- 3) Note that gamma is nearly 0, as are tau-b and tau-c. These figures suggest no correlation between the two variables, as



we would expect

V. PRESENTATION:

A. Here once again is what your tables should look like. You don't have to follow this pattern exactly. But if any elements are missing, your grade will suffer.

B. **Don't follow the format presented above. It merely describes what SDA reports. You have to translate that material into clear English prose and adopt standards for presenting numerical data.**

1. Version 1: Summary statistics such as chi square and gamma are reported in the body of the text.

i. Example:

1) The text might read: *"Party identification has a statistically significant relationship to region (chi square = 18.75, df = 2, P < .05; gamma = .67, tau-b = .52). The nature of the association can be seen by noticing that Northerners are much more likely to claim 'Democrat' than are people living in the Midwest and West. Note, for instance, that less than half of the latter two groups identify with the Democratic party."*

Table 4			
Party Identification By Region			
(Percentages)			
	North	Midwest	West
Democrat	58	44	38
Republican	42	56	62
	100	100	100
Total	(431)	(337)	(401)

For question wording see Appendix B.
Data: General Social Survey Cumulative File

2. Version 2: The summary statistics are included in the table and mentioned in the text.

i. The text might read: *"As Table 4 indicates, there is a statistically significant relationship between partisanship and region. In fact, the measures of association, gamma and tau-b, are relatively large. It should be noted that more than half of people residing in*



the Midwest and West identify with the Republican party whereas more than half (58 percent) of Easterners side with the Democrats.”

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Party Identification By Region			
(Percentages)			
	North	Midwest	West
Democrat	58	44	38
Republican	42	56	62
Total	100	100	100
	(431)	(337)	(401)

Chi square = 18.75, df = 2, P < .05
Gamma = .67, tau-b = .52
For question wording see Appendix B.
Data: General Social Survey Cumulative File

VI. GRADING STANDARDS:

A. Here’s some guidelines that I use when grading research papers.

1. All papers:
 - i. Everyone should write a paper that addresses the assignment with imagination, care, skill, and professionalism.
 - ii. The paper should clearly and succinctly state a case or make an argument and then support this argument with appropriate and relevant specific data, examples, facts, and other kinds of evidence.
 - iii. The organization should be logical but transparent.
 - iv. No crucial points are overlooked, but there is no padding with irrelevant details.
 - v. When required, effective and accurate documentation is presented according to the guidelines explained during the semester.
 - vi. Make sure written claims are supported by quantitative evidence when relevant.
 - vii. Note that although I don’t specifically grade on style or composition, your English has to be clear and concise. If after reading a page or two, I can’t follow your logic or meaning, I may have to give up.



- viii. There should be few or no typos.
 - 1) You've been given plenty of suggestions on the notes.
 - 2) The only way you can meet this requirement proofread and perhaps read out loud to a friend.
 - 3) **MAKE YOURSELF DO THIS PROOFREADING!**
2. As you know, during the semester I have struggled to understand the meaning of poorly written papers.
 - i. If I have any trouble in this regard, I may assign a "communication condition," which has to be "cleared" by the Writing Center before graduation.
 - ii. Please don't test me.
- B. How would I recognize a C paper, one that is only fair? A professor on another campus shares my views:
 1. *"FAIR: The writer has a clear main idea, but the support for it is uneven. He or she does not explain all points very clearly or convincingly. Sometimes he or she goes off on a tangent and includes irrelevant details. At times, it does not seem that the writer understands or has control over the sources and opinions used. If called upon to use outside sources, the writer quotes, paraphrases, summarizes only somewhat effectively. POOR: It is difficult to determine the writer's main point in the essay. The writer does not explain points effectively, if at all. Facts used are inaccurate, out of date, or irrelevant. The writer even resorts to copying and quoting chunks of info from other writers without explanation or analysis. He or she seems only interested in getting something down on paper and handing it in."*¹
 2. My criteria for A and B on the one hand and D or F on the other can be understood from the previous remarks.
 - i. An A paper has to be more than "technically" correct; it must also be imaginative and demonstrate that the author cares about making the case. It should contain excellent insights.
 - 1) Length or time spent writing it are not factors in an A. After all, a long paper that took "forever" to write might just reflect incompetence.
 - ii. B papers competently make the case the author intends and shows attention to detail and a thorough understanding of data analysis, hypotheses statement and testing, and the like. They contain no errors of fact, method, or grammar.
 - iii. C papers reflect a good understanding of the material, especially

¹Dayle Turner, "Essay Criteria," <http://www2.hawaii.edu/~turner/lcc/e100/crit100.htm>



- data analysis, but contain errors of fact, method, and composition.
- iv. A D/F papers shows that the author simply hasn't understood the material or at least hasn't communicated whatever knowledge he or she has.
3. Here are more of Turner's tips. Not all are relevant but most are.
 - i. Think of them as additional guidelines or suggestions to help you with the final draft.
 - ii. The passages are taken almost verbatim from his web site.²
- C. Organization:
1. *EXCELLENT: The essay grabs the reader from the beginning, moves in a straight line, gets somewhere, and stops at a good point. The essay has a plan the reader can follow. There are clear transitions between paragraphs and always some reason why one paragraph follows another. Sometimes there is a little twist near the end that makes the paper come out in a way that the reader does not expect, but it seems quite logical. Main points are treated with at greatest length or with greatest emphasis. A skillful writer will use an organizational plan that is subtle and ingenious rather than obvious and mechanical.*
 2. *AVERAGE: The writer uses the standard organizational method: a [brief] introduction, with the thesis statement as the last sentence; a [perfunctory] body, with one supporting point treated in each paragraph that starts with a topic sentence; and a conclusion that summarizes the main point and brings the essay back to the beginning to round off the piece.*
 3. *POOR: This paper starts anywhere and never gets anywhere. The thesis and the supporting points are not clearly separated from one another. Some sentences in a paragraph are not related to the topic sentence, and the paragraphs are place in the essay in random order, as if it doesn't make a difference which paragraph follow which. The essay changes direction so many times that the reader becomes lost.*
- D. VOCABULARY
1. *EXCELLENT: The writer chooses words appropriate to the subject and audience. It is apparent that the writer is aware of the power of words and their meanings. He or she uses a variety of words and puts them together in slightly unusual ways, emphasizing the figurative and poetic uses of language. For the most part, the writer uses words correctly and with imagination.*
 2. *AVERAGE: The writer uses the same words, no matter the subject and audience, and appears addicted to tired old phrases and cliches. The*

²Dayle Turner, "Essay Criteria," <http://www2.hawaii.edu/~turner/lcc/e100/crit100.htm>



writer uses no imagination, opting instead to say things in the same way as everyone else. The writer uses a big word when a little word would serve his or her purpose better.

3. *POOR: The writer uses words so carelessly or inexactly that he or she gets far too many wrong and confuses the reader. The writer's words mean whatever he or she wants them to mean and the vocabulary used is not understandable for the reader.*

E. **GRAMMAR AND USAGE**

1. *EXCELLENT: The sentence structure is grammatically correct and the sentence patterns are of varied complexity. There are few or no vulgar or "illiterate" errors in usage by present standards of written English...[cuts].*
2. *AVERAGE: A few serious errors in grammar and usage exist but not enough to obscure meaning. The sentences patterns used are basic and there are occasional errors in more complex patterns. The writer appears to understand the basic rules governing written English but makes mistakes on occasion.*
3. *POOR: There are so many serious errors in grammar and usage that the essay is hard to understand. The writer seems not to understand the basic rules of written English and struggles to write correct sentences.*

VII. **NEXT TIME:**

- A. Don't forget there is a final exam.