

# Chapter - Exercises

Willis Smith

1. (Dataset: GSS. Variables: abnmomre, xmarsex, sex, wtsk.) Interested Student has joined Pedantic Pontificator in a discussion of gender differences in U.S. politics.

**Interested Student:** On what sorts of issues or opinions are men and women most likely to be at odds? What defines the gender gap, anyway?

**Pedantic Pontificator:** That's easy. A couple of points seem obvious, to me anyway. First, we know that the conflict over abortion rights is the defining gender issue of our time. Women will be more likely than men to take a strong pro-choice position on this issue. Second—and pay close attention here—on more mundane cultural questions, such as the morality of sex outside the confines of marriage, men and women will not differ at all.

1. Pedantic Pontificator has suggested the following two hypotheses about gender differences in U.S. politics: (check two)

- ☐ In a comparison of individuals, women will be less likely than men to think that abortion should be allowed.
- ☒ In a comparison of individuals, women and men will be equally likely to think that abortion should be allowed.
- ☒ In a comparison of individuals, women will be more likely than men to think that extramarital relations are wrong.
- ☐ In a comparison of individuals, women will be less likely than men to think that extramarital relations are wrong.
- ☒ In a comparison of individuals, women and men will be equally likely to think that extramarital relations are wrong.
- ☐ In a comparison of individuals, women will be more likely than men to think that extramarital relations are wrong.

2. Open the GSS data (file name: gss.sav). Use the Analyze > Descriptive Statistics > Crosstabs procedure (with chi-square statistic option) to produce two cross-tabulations to test Pedantic Pontificator's hypotheses. The GSS dataset contains two variables that will serve as dependent variables. The variable abnmomre, which asks respondents whether an abortion should be allowed if a woman is married but doesn't want more children, is coded Yes and No. The variable xmarsex, which measures attitudes toward sex with a person other than one's

spouse, has four ordered values: always wrong, almost always wrong, sometimes wrong, and not wrong at all. The independent variable is sex, coded Male or Female.

- Complete the abnmomre-sex cross-tabulation by filling in the missing percentages, chi-squared statistic,  $P$ -value, and Cramer's  $V$ . Be sure to weight observations using the wtsk variable so your results are nationally representative. Sex is a nominal variable, so you should report Cramer's  $V$ .

	Male	Female	Total
Yes	48.5	43.1	45.8
No	51.5	56.9	54.2
Total	100.0	100.0	100.0
Chi-Square	5.21		
$P$ -value	.02		
Cramer's $V$	.05		

- Complete the xmarsex-sex cross-tabulation by filling in the missing percentages, chi-squared statistic,  $P$ -value, and Cramer's  $V$ .

	Male	Female	Total
Always wrong	72.4	70.7	71.5
Almost always wrong	15.4	11.1	13.0
Sometimes wrong	9.3	8.4	8.8
Not wrong at all	2.9	1.8	2.3
Total	100.0	100.0	100.0
Chi-Square	11.58		
$P$ -value	.01		
Cramer's $V$	.08		

3. Based on these results, you may conclude that (check all that apply)
  - ☒ a statistically significant gender difference exists on abortion opinions.
  - ☒ Pedantic Pontificator's hypothesis about the xmarsex-sex relationship is not supported by the analysis.
  - ☐ under the assumption that the null hypothesis is correct, the

abominate-sex relationship could have occurred by chance more frequently than 5 times out of 100.

- ☐ Pedantic Pontificator's hypothesis about the abominate-sex relationship is supported by the analysis.
- ☒ a higher percentage of females than males think that extramarital sex is always wrong.

4. The  $P$ -value of the chi-square statistic in the  $\text{marsex} \times \text{sex}$  cross-tabulation tells you that, under the assumption that the null hypothesis is correct, (complete the sentence)

There's a probability of .01 of seeing values that deviate from expected values as much as the ones seen.

2. (Dataset: NES, Variables: libcon3, Spend\_Poor, gay\_marriage, affirm\_act3, nesw) While having lunch together, three researchers are discussing what the terms liberal, moderate, and conservative mean to most people. Each researcher is touting a favorite independent variable that may explain the way survey respondents describe themselves ideologically.

Researcher 1: When people are asked a question about their ideological views, they think about their attitudes toward government spending. If people think the government should spend more to help people in need, they will respond that they are liberal. If they don't want too much spending, they will say that they are conservative.

Researcher 2: Well, that's fine. But let's not forget about social policies, such as gay rights and family values. These issues must influence how people describe themselves

ideologically. People with more progressive views on gay marriage will call themselves liberal. People who favor more traditional family values will label themselves as conservative.

Researcher 3: Okay, you both make good points. But you're ignoring the importance of racial issues in American politics. When asked whether they are liberal or conservative, people probably think about their opinions on racial policies, such as affirmative action. Stronger proponents of racial equality will say they are liberal, and weaker proponents will say they are conservative.

The NES dataset includes the variable libcon3, which is coded 1 for liberals, 2 for moderates, and 3 for conservatives. This is the dependent variable throughout this analysis.

1. Use the Analyze > Descriptive Statistics > Crosstabs procedure (with chi-square statistic option) to do a cross-tabulation analysis of the relationship between

Researcher 1's favorite independent variable, Spend\_Poor, and libcon3. Spend\_Poor is a three-category ordinal measure of attitudes toward government spending to help poor people. Spend\_Poor is coded 1 (increase spending, liberal position), 2 (keep same, middle position), or 3 (decrease spending, conservative position). Be sure to use the sample weights variable (nesw) so your results are nationally representative.

SPSS Output: Crosstabs

SPSS Output	SPSS Output	SPSS Output
1. Total N	47	261
2. Total N	241	252
3. Total N	201	147
4. Total N	100	100
5. Total N	100	100
6. Total N	100	100
7. Total N	100	100
8. Total N	100	100
9. Total N	100	100
10. Total N	100	100
11. Total N	100	100
12. Total N	100	100
13. Total N	100	100
14. Total N	100	100
15. Total N	100	100
16. Total N	100	100
17. Total N	100	100
18. Total N	100	100
19. Total N	100	100
20. Total N	100	100
21. Total N	100	100
22. Total N	100	100
23. Total N	100	100
24. Total N	100	100
25. Total N	100	100
26. Total N	100	100
27. Total N	100	100
28. Total N	100	100
29. Total N	100	100
30. Total N	100	100
31. Total N	100	100
32. Total N	100	100
33. Total N	100	100
34. Total N	100	100
35. Total N	100	100
36. Total N	100	100
37. Total N	100	100
38. Total N	100	100
39. Total N	100	100
40. Total N	100	100
41. Total N	100	100
42. Total N	100	100
43. Total N	100	100
44. Total N	100	100
45. Total N	100	100
46. Total N	100	100
47. Total N	100	100
48. Total N	100	100
49. Total N	100	100
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89. Total N	100	100
90. Total N	100	100
91. Total N	100	100
92. Total N	100	100
93. Total N	100	100
94. Total N	100	100
95. Total N	100	100
96. Total N	100	100
97. Total N	100	100
98. Total N	100	100
99. Total N	100	100
100. Total N	100	100

2. Complete a cross-tabulation analysis of the relationship between Researcher 2's favorite independent variable, gay\_marriage, and libcon3. This independent variable is a three-category ordinal measure of attitudes on gay marriage, coded 1 (the liberal view: gay couples should be allowed to marry), 2 (the moderate position: gay couples should be allowed to form civil unions), or 3 (the conservative view: gay couples should not be allowed to marry).

*should*

*Civil Union*

*should not*

Liberal	48.2	44.4	10.3	27.93
Moderates	25.4	20.1	23.9	23.93
Conservatives	26.2	65.2	64.5	43.53
	100.00	100.00	100.00	100.00

Chi-Square  
Pearson  
Spearman's rho  
Lambda  
Gamma  
Cramer's V  
Nagelkerke  
Likelihood Ratio  
Fisher's Exact  
Linear-by-Linear Association  
Nuisance  
Continuity

3. Complete a cross-tabulation analysis of the relationship between Researcher 3's favorite independent variable, affirm\_act3, and libcong3. The affirm\_act3 variable is also a three-category ordinal variable. The affirm\_act3 variable is coded 1 (favor affirmative action, most liberal position on racial policies), 2 (neutral, moderate position), or 3 (oppose affirmative action, most conservative position on racial policies).

Liberal	58.5	15.8	25.7	22.93
Moderates	32.3	33.9	33.9	24.03
Conservatives	21.4	44.4	54.4	43.53
	100.00	100.00	100.00	100.00

Chi-Square  
Pearson  
Spearman's rho  
Lambda  
Gamma  
Cramer's V  
Nagelkerke  
Likelihood Ratio  
Fisher's Exact  
Linear-by-Linear Association  
Nuisance  
Continuity

4. Think about how SPSS calculates Somers' d. Assuming each researcher is correct, SPSS should report (check all that apply)
- ☐ a negative sign on Somers' d for the libcong3-Spend\_Poor relationship.
  - ☒ a positive sign on Somers' d for the libcong3-gay\_marriage relationship.
  - ☐ a negative sign on Somers' d for the libcong3-affirm\_act3 relationship.
5. Consider the evidence you have assembled. Your analysis supports which of the following statements? (check all that apply)
- ☐ As numeric values of Spend\_Poor increase, the percentage of

respondents describing themselves as conservative decreases.

- ☒ As numeric values of gay\_marriage increase, the percentage of respondents describing themselves as conservative increases.
- ☐ The relationship between affirm\_act3 and libcong3 is not statistically significant.
- ☒ If the null hypothesis is correct, you will obtain the chi-squared statistic for the relationship between Spend\_Poor and libcong3 less frequently than 5 times out of 100 by chance.
- ☐ If the null hypothesis is correct, you will obtain the chi-squared statistic for the relationship between Spend\_Poor and libcong3 more frequently than 5 times out of 100 by chance.

6. Somers' d for the relationship between libcong3 and gay\_marriage is equal to (fill in the blank) .33. Thus, compared with how well we can predict libcong3 by not knowing (complete the sentence) the participant's view on

gay marriage, knowing their  
opinion improves the  
prediction by .339

The three researchers make a friendly wager. The researcher whose favorite independent variable does the worst job predicting values of the dependent variable has to buy lunch for the other two. Who pays for lunch? (circle one)

Researcher 1      Researcher 2      Researcher 3

3. (Dataset: World; Variables: protact3, gender\_equal3, vi\_rel3, pmatr2\_3.) Ronald Inglehart offers a particularly elegant and compelling idea about the future of economically advanced societies. According to Inglehart, the cultures of many post-industrial societies have been going through a value shift—the waning importance of

materialist values and a growing pursuit of post-materialist values. In post-materialist societies, economically based conflicts—unions versus big business, rich versus poor—are increasingly supplanted by an emphasis on self-expression and social equality.

Post-materialist societies also are marked by rising secularism and elite-challenging behaviors, such as boycotts and demonstrations. In this exercise you will investigate Inglehart's theory.

The World dataset variable `pmat2_3` measures the level of post-material values by a three-category ordinal measure: low post-materialism (coded 1), moderate post-materialism (coded 2), and high post-materialism (coded 3). Higher codes denote a greater prevalence of post-material values. Use `pmat2_3` as the independent variable.

Here are three dependent variables, all of which are three-category ordinals:

`gender_equal3`, which captures gender equality (1 = low equality, 2 = medium equality, 3 = high equality); `protest3`, which measures citizen participation in protests (1 = low, 2 = moderate, 3 = high); and `vi_relig3`, which gauges religiosity by the percentage of the public saying that religion is very important (1 = less than 20 percent, 2 = 20–50 percent, 3 = more than 50 percent). Higher codes on the dependent variables denote greater gender equality (`gender_equal3`), more protest activity (`protest3`), and higher levels of religiosity (`vi_relig3`).

1. Using `pmat2_3` as the independent variable, three post-materialist hypotheses can be framed:

- Gender Equality Hypothesis (fill in the blanks): In a comparison of countries, those with higher levels of post-materialism will have higher levels of gender equality than will countries having lower levels of post-materialism.
- Protest Activity Hypothesis (fill in the blanks): In a comparison of countries, those with higher levels of post-materialism will have higher levels of protest activity than will countries having lower levels of post-materialism.
- Religiosity Hypothesis (complete the sentence): In a comparison of countries, those with higher levels of

post materialism will have lower religiosity than countries w/ lower levels of post materialism

2. Consider how the independent variable is coded and how each dependent variable is coded. In the way that SPSS calculates the Somers  $d$ , which one of the three hypotheses implies a negative sign on the measure of association? (check one)

- ☐ The gender equality hypothesis
- ☐ The protest activity hypothesis
- ☒ The religiosity hypothesis

3. Use the Analyze > Descriptive Statistics > Crosstabs procedure (with chi-square statistic option) to test each hypothesis. Obtain chi-square ( $\chi^2$ ) and Somers  $d$  statistics. The World dataset is not weighted. In the table that follows, record the percentages of countries falling into the highest category of each dependent variable. Also report chi-square statistics,  $P$ -values, and Somers  $d$ .

	low	mid	high	chi square	P value	Somers D
gender	10	32.2	78.9	21.3	.001	.57
protest	15	74	65	14.8	.001	.42
religion	20	41.6	5	10.8	.004	-.13

4. Which of the following inferences are supported by your analysis? (check all that apply)

- ☒ The gender equality hypothesis is supported.
- ☐ Compared with how well we can predict gender equality by not knowing the level of post-materialism, we can improve our prediction by 20.62 percent by knowing the level of post-materialism.
- ☒ The protest activity hypothesis is supported.
- ☒ If the null hypothesis is correct, the post-materialism–protest activity relationship would occur, by chance, less frequently than 5 times out of 100.
- ☒ The religiosity hypothesis is supported.
- ☒ If the null hypothesis is correct, the post-materialism–religiosity relationship would occur, by chance, less frequently than 5 times out of 100.