

Homework 1

Due Thursday, April 23 (10:00 AM, pdf format please)

For all questions, please show your work or include a copy of the output, whichever is relevant. I would like a paper copy, but let me know if that is going to be difficult for some reason. Please write your answers in report form including relevant statistics, as if you were describing results in a published study. Be sure to describe each finding in terms of the research problem. Most responses to a particular question should be approximately one paragraph in length. Text should be typed. **All answers should be in your own words.**

Data from the next several problems come from a survey of adolescent political opinions, which can be downloaded from the data page, <http://web.pdx.edu/~newsomj/data.htm>.¹ The data set (political.sav) includes a composite measure that assesses the extent to which students used critical thinking when encountering news stories (*critical*), based on the average of three items ("When I see or read a news story about an issue, I try to figure out if it is biased," "When I hear news about politics, I try to figure out what is REALLY going on," and "News about people running for office makes me wonder how they might change things.", each rated on a three-point scale of agreement (thus the index has a possible range from 1 to 3). The data set also contains a variable about interest in politics (*political*) based on an average of four items such as "How much attention do you pay to news about politics?" and "In general, how much interest do you have in politics?", each rated on a 5-point scale of agreement (with possible range for the index from 1 to 5). A single item was used to assess intentions to attend college, "I definitely plan to attend college," rated on a 5-point scale of agreement from 1 "strongly disagree" to 5 "strongly agree". An additional variable is for the respondent's race/ethnicity (*race*) with 1="White/Anglo" 2="Hispanic" 3="African-American."

1. Use **R and SPSS** to conduct a simple regression analysis in which *colbound* predicts *political*. Be sure to obtain standardized and unstandardized coefficients, R-squared, and confidence intervals. Report the relevant statistics and interpret your findings in terms of the research problem. Include an interpretation of the standardized and unstandardized coefficients, significance test, and R-squared.
2. Using **R and SPSS**, run a *simultaneous* regression analysis with *colbound* and *critical* predicting *political*. Be sure to obtain a correlation matrix of the correlations among the three variables. Report your results, including standardized and unstandardized coefficients, significance tests, confidence intervals, R-squared, and F-test, and provide an interpretation of the coefficients and R-squared.
3. Using **R or SPSS**, conduct a multiple regression analysis using *colbound* and *critical* as predictors of *political*. This time use a *hierarchical* approach, entering *colbound* in the first block and then *critical* in the second block. Report your results, including standardized and unstandardized coefficients, significance tests, confidence intervals, R-squared, F-test, R-squared change, and F change, and provide an interpretation of the coefficients and R-squared. Include a comment that compares your results to those obtained in the simultaneous regression above. How are they similar or different and why? (be specific, give values)
4. Based on your results from the hierarchical multiple regression in the previous problem, sketch a Venn diagram and label it with the *approximate* percentage of variance in the dependent variable accounted for by each of the predictors uniquely and the percentage variance overlap in the two predictors (be sure to clearly indicate which quantity from the output goes with which percentage).
5. Using **R or SPSS**, test a regression model which allows you to compare the three race/ethnicity groups in predicting political interest (*political*). Hint: you will not be able to use *race* in its current

¹ These data consist of a random sample from the study conducted by McDevitt, M., & Kiouisis, S. (2007). The red and blue of adolescence: Origins of the compliant voter and the defiant activist. *American Behavioral Scientist*, 50(9), 1214-1230.

form. Include `colbound` as a predictor in the model, but center the variable first. Report your results, including standardized and unstandardized coefficients, significance tests, confidence intervals, R -squared, and F -test, and provide an interpretation of the coefficients and R -squared. What are the special interpretations of the intercept and slopes in this model (be specific, give values)?

6. Using **R** or **SPSS**, use ANCOVA to compare political interest means across the three race/ethnicity groups controlling for `colbound`. Report the means, F -test, and effect of the covariate. Briefly describe how the results relate to the results from the regression model in the prior question. Give specific values when comparing across the two approaches.

7. Read **one** of the following articles (copies available from the class website (<http://web.pdx.edu/~newsomj/mvclass/>) and write **two paragraphs** summarizing the article. First, describe the study design (e.g., randomized experiment, non-equivalent control group design, cross-sectional survey; for a quick refresher, see <https://www.appinio.com/en/blog/market-research/quasi-experimental-design>) and purpose of the study **in your own words**. Be sure to include who/what was studied (e.g., who were the participants?) and the number of cases. Then, **choose one regression analysis** used in the article that you have learned about in the course so far (i.e., simple or multiple regression), and, **in your own words**, describe the hypothesis that is being tested, the results obtained, and what the findings mean. Be sure to **include the relevant statistical values** and whether the results were significant. Write your paragraphs as if you were describing results in a published article or reporting someone else's results as in a review article.

Greitemeyer, T. (2022). Honesty-humility, the dark tetrad, and ideological beliefs: their incremental validity in predicting explicit prejudice toward asylum seekers. *Personality and Individual Differences*, 197, 111786.

Nardi-Rodríguez, A., de los Ángeles Pastor-Mira, M., López-Roig, S., & Ferrer-Pérez, V. A. (2019). What do adolescents believe about performing and accepting intimate partner violence behaviors? A Reasoned Action approach. *Journal of family violence*, 34(5), 461-477.

Şantaş, G., Uğurluoğlu, Ö., Özer, Ö., & Demir, A. (2018). Do gossip functions effect on organizational revenge and job stress among health personnel?. *Journal of Health Management*, 20(1), 64-72.

Sawyer, J., & Gampa, A. (2018). Implicit and explicit racial attitudes changed during Black Lives Matter. *Personality and Social Psychology Bulletin*, 44(7), 1039-1059.

Weisskirch, R. S. (2018). Grit, self-esteem, learning strategies and attitudes and estimated and achieved course grades among college students. *Current Psychology*, 37(1), 21-27.