Department of Political Science
University of Toronto

POL 232H1S: Introduction to Quantitative Reasoning II

Exercise #2

Due Date: March 1, 2018
Hand in your copy during class on March 1st.

(Where applicable, choose the 95% confidence level when conducting significance tests.)

1. The first problem requires a subset of the American National Election Study 2016, which surveyed respondents about the 2016 election in the United States. The dataset is named *anes2016.csv* on Blackboard, and the full questionnaire is also available. Download the data and use R to answer the following questions. (10 points)

   (a) Recode the variable measuring the vote choice in the presidential election (*V162034a*) by keeping only the categories for the two major candidates—Hillary Clinton and Donald Trump—and by setting the other categories as missing values. Print the R code you have used.

   (b) Using a contingency table, examine the association between the variable *V162148*, which measures whether respondents support government efforts to reduce income inequalities, and the vote choice variable created in 1(a). Treat the vote choice as the dependent variable. Report the conditional distributions and compute a significance test that is appropriate in this context. Report your results and the R code you have used.

   (c) In a few sentences, interpret the findings obtained in 1(b). Briefly explain the nature of the statistics you have used, and discuss your results in substantive terms.

   (d) The variable *V161342* is the gender of the respondent. Compute a 95% confidence interval around the difference between the proportion of women who voted for Donald Trump and the proportion of men who voted for him.

   (e) In one or two sentences, interpret the result obtained in 1(d).

2. The second problem requires downloading a section of the Quality of Government Dataset (*qog_exercise.csv*) available on Blackboard. The codebook describing variables is also included. (6 points)

   (a) Create a binary variable that equals 1 if a country is a democracy, and 0 otherwise, using the regime variable named *ht_regtype1*. Report your code.

(b) Using the binary variable created in 2(a), use a significance test to assess whether the mean of the global terrorism index (named *voh_gti*) is lower in democracies compared to non-democratic regimes. The global terrorism index ranges from 0 to 10, where higher values indicate that a country is more heavily impacted by terrorism. Next, perform a similar test for the mean level of military expenditures as a percentage of the gross domestic product (the variable named *wdi_expmilgdp*). Make sure to report all your steps and the R code you have used.

(c) In a few sentences, interpret the outcome of both tests conducted in 2(b).

3. The following cross-tabulation is taken from the AfroBarometer 2016. It shows the frequencies of a variable indicating whether the respondent lives in an area with "an electricity grid that most houses could access", for two neighbouring African countries, Benin and Togo:

	Access to Electricity	
Country	No	Yes
Benin	576	624
Togo	496	704

Use the table to answer the following questions. (4 points)

(a) Estimate the odds ratio of having access to electricity, for a Togolese relative to a Beninese. Report and briefly interpret the measure, in one or two sentences.

(b) Compute a chi-square test for the contingency table above. Use either a standard calculator or R, but make sure to report all your steps. Interpret the outcome of the test, in one or two sentences.

General Instructions

The exercise is to be done individually or in teams of two.

Unlike tutorial or class exercises, avoid sharing specific answers to these questions, as this is an official evaluation for the course. Sharing answers online or by other means would be considered plagiarism or a breach of academic integrity.

Late Penalty

The **late penalty** is 2% of the assignment value per day, including weekends. Late work can be submitted at the head office of the Department of Political Science (SS 3018).

To ensure that all students are treated equally, we cannot accept late-night or weekend electronic submissions for this exercise: the date of submission will be the one stamped by the Department upon reception of the hard copy.

Illness or Injury

If a situation of illness or injury prevents you from handing in the assignment at the due date, official UofT documentation is required in order for the instructor to adjust the late penalty. To ensure that all students receive a fair and equal treatment, the instructor is not authorized to grant extensions for other reasons. The official policy of the Faculty of Arts and Science requires that the instructor gives consideration only to the following forms of documentation:

- The UofT Verification of Student Illness or Injury Form;
- The Letter of Academic Accommodations from Accessibility Services;
- The Student Health or Disability Related Certificate;
- A letter from the College Registrar confirming other cases like a familial emergency or prolonged illness.

If you are in one of these situations, simply make sure to staple a copy of your documentation with the exercise at the time of submission.