

**Homework Exercise 1**  
(due February 14, 11:59:59 PM)

What factors lead individuals to be willing to participate in legal protest activities? In this exercise, you will uncover some of the answers to this crucial question. A STATA file called "protest.homework1.dta" is available on the class web site. This file contains information on a series of demographic and attitudinal variables from a national representative survey in Germany (N=714). Demographic variables include education, family income, sex, age (youth= <30 years) and self-described social class. Variable names and labels can be found with the "codebook" or "describe" commands once you are in STATA. The attitudinal variables include:

**IL:** the individual's perception of his/her personal influence in politics. Scale runs from 0 to 1, with high numbers meaning higher perceived influence. Measured with questions like "How much influence could you personally have in politics if you worked with a citizen's action committee?"

**LGRP:** the individual's perception of a group's potential for success through legal protest action. Scale runs from 0 to 1, and measured through a combination of questions related to how many people in the area are willing to get involved in protest, and how successful groups have been in the past in protest actions.

**VCOUNT:** policy dissatisfaction--the individual's dissatisfaction with the performance of the government in ten policy areas, including nuclear weapons, the environment, and nuclear power. Responses represent the number of policies about which the individual is dissatisfied with the government's performance.

**A:** system alienation-- the individual's general dissatisfaction with the political institutions in the country. Measured with questions like "To what extent do you feel our system of government is the best possible system." Scale runs from 1 to 5 in extent of alienation.

**LEXP:** the individual's perception of what people who are important to him/her would think if he/she engaged in legal protest action. Scale runs from 1 to 5, with high numbers meaning that important others would approve of the individual participating in protest.

**LR:** the number of groups the individual belongs to that encourage his/her participation in legal protest activities. Scale could run from 0 to 12, but no one in the sample belonged to >7.

**LEGALCOUNT:** The dependent variable, the number of legal protest actions that the individual is willing to become involved with in the future (out of 15). Measured with responses to future willingness to engage in activities like working with a citizen's action group, collecting signatures for a petition, and taking part in a legal political demonstration.

Your tasks are as follows:

1. Generate the scatterplot (with appropriate “jitter”) of the relationship between willingness to protest and policy dissatisfaction. Do you see any problems that would make you hesitate before running an OLS regression on these variables?
2. Regardless of your answer in #1, run the regression between the two variables. Interpret the following statistics: intercept, slope, R-squared, and RMSE. What does each mean in plain English, and what does each tell you about the nature and strength of the relationship between protest potential and policy dissatisfaction?
3. Test the hypothesis, showing all steps in the process (i.e., null and research hypotheses, alpha levels, critical values, etc.) that policy dissatisfaction is significantly related to protest potential.
4. Now add the LR (“group encouragement”) variable to the model. Interpret the coefficients for each variable, test their respective statistical significance and test the significance of the model as a whole. Describe the differences in estimates and in model fit between this model and that of question #2 and discuss why they have occurred. Is the current model a 'better' model?
5. Different theories of protest emphasize different sets of explanatory variables. The “social background” theory stresses resource-related variables such as education, income, social class, age and sex; “collective rationality” theory stresses individual dissatisfaction with policies and the political system, along with perceptions that individuals and groups are likely to be effective in achieving their goals through protest; and the “social mobilization” theory stresses individual membership in groups that promote protest and the expectations of others in the individuals’ social networks.
  - a. Test whether each of these *sets* of variables explains a significant amount of variation in LEGALCOUNT. Explain the rationale and procedures of the tests you conduct in plain English.
  - b. Which of these sets of variables, and which individual variables, are most “important” in explaining LEGALCOUNT? What does all of this analysis tell you substantively about the individual-level sources of political protest?
6. Assess the final model and its residuals in terms of the assumptions of Ordinary Least Squares regression. What assumptions may be violated here, and what could be done about it?  
(NOTE: You should not answer this question **solely** on the basis of a residual analysis).

**EXTRA CREDIT:** Suppose in #2 that another measure of policy dissatisfaction that you might have used was always 5 points higher than the one in this data set. What would happen to the slope and the intercept estimates? (Do not **manually** add 5 to each value of x and re-compute; i.e. this is not a STATA or R problem).

**FORMAT NOTE:** Please send me one “zip” file with individual files containing your answers (with a nicely constructed “full model” table for question 5), your output and commands. If you are using R then an R Markdown file would be fine; if Stata then separate log and do files.