

Problem 1 (65 Points):

Researchers (Kim and Margalit) are interested in understanding the political impact of one foreign policy used to wage war through non-violent means: tariffs that raise the price of purchasing goods made in a particular country. They hypothesize that one country may seek to ‘eliminate’ another country’s leader by hurting the economic fortunes of workers whose support is pivotal for the given leader, making them consider voting the leader out in subsequent elections. If workers tend to vote similarly within each industry, and industries are geographically concentrated, it may be possible to levy tariffs that “punish” supporters of the country’s leader in specific industries, located in politically important districts. To test this, the researchers study the case of the tariffs China imposed on the US in the trade war while former President Trump was in office. The researchers create a measure of the US county-level share of employment targeted in each round of tariffs imposed by China. They next examine the relationship between the measure of pain inflicted on the local workforce and the political relevance of the locality based on the county’s voting in past (pre-tariff) elections. The model they estimate is given by:

$$Y_i = \alpha + \beta_1 \text{GOP VOTE SHARE}_i + \beta_2 \text{SWING DISTRICT}_i + \beta_3 \text{GOP VOTE SHARE}_i * \text{SWING DISTRICT}_i + \mu_i + \varepsilon_i$$

where the dependent variable Y_i is the share of workers employed in targeted industries in county i , GOP VOTE SHARE is the average Republican two-party vote share in the 2014 and 2016 House elections, and SWING DISTRICT is a binary indicator denoting whether at least 20 percent of a given county i ’s land is located within any swing district as we defined. We include an interaction term between GOP VOTE SHARE and SWING DISTRICT as well as state fixed effects μ in all models (which will be explained below – you can ignore this for now). Observations are weighted by counties’ total voting age population as of 2016.

1 a) **(15 Points)** The authors start out with a simple OLS model, where they regress the county-level share of workers employed in industries targeted by tariffs from April 2018 on the GOP vote share and whether or not it the county is located in a Swing district. (Ignore the discussion of state-level fixed effects). The results of this estimation are shown in Column 1 of Table 1 below, with standard errors for each coefficient shown in parentheses below the coefficient. Interpret the estimated coefficient on GOP Vote Share. Is this statistically significant? Is this a causal relationship? Why/why not?

1 b) **(5 Points)** Using the results for GOP Vote Share in Column 1, calculate the 95% confidence interval around the estimated effect for GOP Vote Share.

1 c) **(10 Points)** Column 2 presents a model that is identical to the model run in Column 1 except that the interaction of GOP Vote Share and Swing District status is included. How do the results in Column 2 differ from the results in Column 1? Why is this the case?

1 d) **(10 Points)** Column 6 runs the same specification as Column 2 for a later round of tariffs (in August). How similar are the results in Column 6 and 2? Do you note differences? If so, explain what they are and whether or not they change the conclusions you reach about the author’s main hypothesis.

1 e) **(5 Points)** Columns 1-8 all include state fixed effects, that is, they include a control variable for each of the US States in the data. Read the explanation of fixed effects below, and then explain in your own words what the benefit of including state fixed effects is for this study.

Fixed effects are often used to reduce potential sources of endogeneity due to omitted variables. They capture differences in the dependent variable (outcome of interest) associated with each relevant unit/period of time. This is part of the unobserved error that has the same value for every observation