

Week 10 Lab Exercises

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Crisher (2017) examines the influence of a country's naval power on its likelihood of engaging in international conflict with non-contiguous states. The author employs an instrumental variable probit regression model. The replication data can be found at <https://doi.org/10.7910/DVN/ULQCQ6>. The dataset has the following variables (where `ccode` is the country code):

```
## 'data.frame': 9608 obs. of 15 variables:
## $ ccode      : num  2 2 2 2 2 2 2 2 2 2 2 ...
## $ year       : int  1885 1886 1887 1888 1889 1890 1891 1892 1893 1894 ...
## $ energy     : num  1.03 1.08 1.23 1.39 1.34 ...
## $ polity2    : int  10 10 10 10 10 10 10 10 10 10 ...
## $ totton     : num  101001 101001 101001 101910 111798 ...
## $ landlocked : num  0 0 0 0 0 0 0 0 0 0 ...
## $ s_lead     : num  0.815 0.815 0.789 0.789 0.789 ...
## $ ncmiddum   : num  1 0 0 0 1 0 1 0 0 0 ...
## $ open       : num  NA 0.116 0.111 NA 0.12 ...
## $ urbprop    : num  0.137 0.14 0.143 0.147 0.15 ...
## $ ton10      : num  10.1 10.1 10.1 10.2 11.2 ...
## $ y_2000     : num  125313 125313 125313 125313 125313 ...
## $ ncmidlag   : num  0 1 0 0 0 1 0 1 0 0 ...
## $ majshipATTsub: num  0 0 0 0 0 0 0 0 0 0 ...
## $ MajshipAlt : num  0 0 0 0 0 0 0 0 0 0 ...
```

Read the article (it's only six pages including references), and complete the following tasks:

1. Discuss if the assumptions of instrumental variable regression are met, one assumption and one instrument at a time (two IVs \times two assumptions). You may need to speculate a bit about possible other relevant variables.
2. Given the data structure and irrespective of the instrumental variable approach, do you think a simple probit model (i. e., a cross-sectional model for binary outcome data) is the most appropriate choice? Discuss any violations of statistical modelling assumptions in the analysis, and discuss possible alternatives or remedies.

References

Crisher, B. B. (2017). Naval power, endogeneity, and long-distance disputes. *Research & Politics*, 4(1):2053168017691700.