

GSERM – Ljubljana 2023: Analyzing Panel Data

Exercise

January 10, 2023

For this exercise, we'll use “country-year” data comprising annual measurements (from 1945-2014) on several variables for approximately 180 countries in the international system ($N \approx 180$, $T = 70$, unbalanced). The data are available on the course [github repository](#), in the “Exercises” folder, in the file named “GSERM-APD-Exercise-January-2023.csv”. The variables in those data are:

- `Country`: The name of the country for that observation;
- `CountryCode`: A three-digit country identifier;
- `Year`: The year of the observation;
- `PercentLiterate`: The percentage of the population of that country in that year who are literate;
- `UnivEnrollmentPerK`: University enrollment (per 1000 population) in that country during that year;
- `POLITY`: The country's **POLITY IV** score in that year, ranging from -10 (fully autocratic) to 10 (fully democratic);
- `GDP` : The country's Gross Domestic Product that year (at factor cost);
- `TotalTrade`: The value of imports + exports for that country in that year, per capita, in constant U.S. dollars;

Your assignment is relatively simple, in that it involves answering the following question:

What, if anything, is the association between a country's degree of education (the “dependent variable,” measured in terms of literacy and university enrollment) and the extent of its involvement in the international economy (they central “independent variable,” defined as total trade)?

Use the tools we learned in the January 10 class session, and include “control” (other) variables in your models as you see fit (though *you need not go outside the provided dataset* to do so).

This assignment is due *electronically*, as a *PDF file*, at 11:59 p.m. CET on Friday, January 13, 2023. Your answers should include both a written response to the question and the all code necessary to replicate your analyses. (Your code may be submitted as an appendix to the PDF file, as a separate .R file, or as a Rmd document.) You should submit your homework by emailing it to Dr. Zorn (zorn@psu.edu) before the due date. This assignment is worth 300 possible points.