GSERM 2022 – Analyzing Panel Data

Final Examination

Instructions

1. This examination has four questions, listed at the end of this document. **You are to choose <u>two</u> questions and answer them.** *Please do not attempt to answer all four questions.*

2. Each answer should take the form of a brief empirical analysis of the data provided that answers the question(s) asked. That may include plots, tables, and any other techniques you think will be useful in answering the question. Each answer may be as short or long as you feel is appropriate, but probably need be no longer than 3-4 pages, including text, tables, and graphs. Answers will be evaluated on the basis of (a) correct application and discussion of the methods discussed in class; (b) justification of the analytic choices made; and (c) presentation and discussion of findings. *In creating your answers, you should not use data outside of that provided in the dataset.* You will *not* be evaluated on your substantive knowledge of the topic(s) at hand.

3. The exam is worth 700 possible points (350 possible points for each question answered).

4. You should submit your exam no later than 11:59 p.m. CET time on Friday, June 17, 2022. Please submit your exam to the instructor electronically, *as a PDF file*, by e-mailing it to `zorn@psu.edu`. You should also include all code necessary to replicate the analyses you conduct; this can take the form of an appendix, a separate `.R` or `.do` file, or a `.Rmd` file for the entire exam answer.

Data

All three final exam questions will make use of the same data. The data are "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 CANVAS page and github repository, in the "Exam" folder, in a file named `GSERM-Panel-2022-Exam-Data.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;

- `Assassination`: A dichotomous variable, coded 1 if that country's leader was assassinated in that year, and zero otherwise;[1]

- `CoupAttempts`: The number of attempted political coups (successful or unsuccessful) in that country in that year;

- `POLITY`: The country's POLITY IV score in that year, ranging from -10 (fully autocratic) to 10 (fully democratic);

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[1]Here, the "leader" is defined as the effective chief executive; this might be a king/queen, a president, a prime minister, etc.).

- `PartyExclusion`: A four-category ordinal variable, measuring the extent to which the country's legislative branch excludes some political parties. Values are:

    - `PartyExclusion` = 0: No parties excluded;
    - `PartyExclusion` = 1: One or more minor or "extremist" parties excluded;
    - `PartyExclusion` = 2: Significant exclusion of parties (or groups);
    - `PartyExclusion` = 3: No parties present, or all but dominant parties and satellites excluded.

- `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;

- `Population`: The population of that country in that year, in thousands of people;

- `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;

- `RegimeDurability`: The durability of that country's political regime: The number of years since a major change in the effective type of regime in that country at that year.

Questions

1. What, if anything, is the association between a country's degree of education (measured in terms of literacy and university enrollment) and the extent of its involvement in the international economy (defined as total trade)?

2. What is the (possibly non-monotonic) relationship between a country's regime type (autocratic vs. democratic) and the number of attempted coups it experiences?

3. Do regimes which exclude opposition parties last longer?

4. What is the causal effect of the assassination of a country's leader on its economy?[2]

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[2]For this question, define "economy" as the GDP growth: $\left(\frac{\text{GDP}_{it} - \text{GDP}_{it-1}}{\text{GDP}_{it-1}} \right) \times 100.$