Assignment 1: NPRI and Pollution over Time and Space

GEO 3432
Due Feb 12
Weight 15%

Objectives

The purpose of this assignment is to "explore" a chemical substance known to have serious health effects. You will become (more) familiar with the National Pollutant Release Inventory (NPRI) as an example of freely available government data. NPRI is a database of point source pollution in Canada. Since the mid 1990s the Canadian government has been collecting this data from companies, who are required by law to submit data on pollutant releases from their facilities. The data has both temporal and spatial dimensions that make it ideal for geographic study. You will extract data for whatever substance you choose to create a brief report on the distribution of the substance over space.

Tasks

1. Pick a substance

Choose a substance that interests you, but please select one that has potentially serious health effects. Visit the NPRI site, specifically the substance information link that provides links to such lists as the Environmental Defense Scorecard site for pollution information site which includes a page specifically on health effects choose your "favourite" health impact (cancer, developmental, or reproductive), choose "recognized" and go to the substance list.

Some you might consider

- benzene
- styrene
- dioxin (e.g., Tetrachlorodibenzo-p-dioxin)
- furans (e.g., Tetrachlorodibenzofuran)
- mercury
- asbestos
- cadmium
- toluene

2. Get the data

You can get the data from the NPRI website in various forms (e.g., Microsoft Access database file), but perhaps the best way to do this is to copy and paste data from their "Web Query" form. The upside of this approach is that you only get the data you need and do not have to sort through multiple tabs that the Access database files contain once you convert them to Excel. The down side of the web query approach is that you can only get one year's data at a time, so you will have to do multiple queries.

You need to copy and paste a year's worth of data at a time into an Excel spreadsheet - but do this multiple times, one for each year. In the Web Query form, select a substance, and year, and switch from all types to total releases. Copy the resultant table of data from the web page and "paste special" as text (not the default, "as html") into Excel and the data should be formatted into columns. Add a year column and insert the year for the entries. Repeat this process for each year. Now you can sort by facility name, province, city, total releases, and year. The distinction between air, land and water is not necessary - most releases are by air (if this is not the case for your substance, it might be worth noting in your write-up. You should have at least 5 years of data to allow both a temporal and spatial analysis.

3. Summarize Temporal and Spatial Patters (e.g, graph)

Manipulate the data to determine spatial (e.g., province) and temporal (i.e., year) patterns - e.g., % of total releases by province and year Graph it perhaps to see patterns more clearly. If you have taken the Geography of Hazards

with me, this may start to sound very familar...and a visit to Assignmnent 1 for that course and particualrly the example spreadsheet might give you some ideas on how to go about all of this.**Finding "Newspaper" Articles**

Here is a webpage devoted to where to find newspaper articles online .

If you are off campus make sure to sign in first at the main library page. Go to the library's database page to connect to the actual database search tools for each of these ones described there (LexisNexis Academic is a good news database - advanced search). It is recommended you focus on major daily papers (e.g., Globe and Mail, Hamilton Spectator) with wide readership, since these will typically have more detailed and comprehensive coverage, particularly of international events. If you have hardcopies (actual clippings) that is fine too. Of course you can use your favourite search engine to find articles as well.

Questions

Answer all of the following questions in your write-up:

1. What are the most serious health impacts of this substance and how do people typically get exposed to this substance? *(3 marks)*
2. What are the major sources of this substance (e.g., industries). *(3 marks)*
    - *(The Scorecard site will help with the questions above, but I encourage you to find an academic journal reference to augment your answer to these questions)*
3. Describe the spatial and temporal distribution of this substance. For example, is the substance concentrated in the prairie provinces or the maritime provinces? Is the substance used mainly in large urban areas? Have releases increased or decreased over time.*(10 marks)*
4. (5)What are some potential policy implications of what you have found? *(4 marks)*

Submit

1. Summary graphs and/or tables from Excel spreadsheed (no page max. but be reasonable). We do not need to see the raw data
2. Answers to the above questions. Directly reference figures/tables by number. 1000 word max.
3. Your completed paper to Turnitin It is best to embed your graphs/tables into the text so Turnitin will accept the file.

For **Turnitin login** information. Go to the Timetable section of the syllabus.

Marking

30 marks (5 style + 25 content)

Style (5/30 marks)

- title page (-1)
- reference list (-1)
- spelling/grammar (-2 max) - up to two marks can be lost, the first few are free, from then on marks are deducted at the TA's discretion
- formal style (-2 max) - other formal style issues (e.g., slang, acronyms, contractions) TA's discretion

Content (25/30 marks)

- questions 1-4 (20 marks - breakdown above).
- graphs and/or summary tables (5 marks)