Title: International Dataset Interaction with Tableau

Critical Resources: An internet-enabled computer with MS Word, access to myCourses, Tableau desktop software.

Learning Objectives:

The learning objectives of this assignment are to:

1. Understand basic digital data interaction techniques using a visual analytics tool.

2. Be familiar with working with structured digital data downloaded from the web.

3. Understand how to present visual, digital data through interactive, coordinated views.

Deliverables:

A write-up of your response to the instruction questions in MS Word format (no PDFs). Be sure to include your name within your submission. Use the following naming convention for your file before posting: {your_last_name}_{first_ initial}_assignment_4.doc (or docx). For example: Golen_E_ assignment_3.doc. Upload your write-up to the Assignment 4 dropbox on myCourses.

Instructions:

Background: The World Bank classifies countries based on their level of economic development. In this assignment, you will compare one indicator across four different economic development levels. The purpose of these comparisons is to gain insight into world economic disparities.

Step 1: Browse to this webpage: http://data.worldbank.org/about/country-and-lending-groups

Step 2: Select one country from each of the 'By Income' groups. There are four 'By Income' groups on this page:

1. Low-income economies
2. Lower-middle-income economies
3. Upper-middle-income economies
4. High-income economies

Step 3: For each country you selected in Step 2, download the world bank indicator datasets for that country in MS Excel format. See http://data.worldbank.org/country for a list of all countries where you can download Excel data. For example, data for Poland can be downloaded from: http://data.worldbank.org/country/poland under the section that says DOWNLOAD DATA > EXCEL.

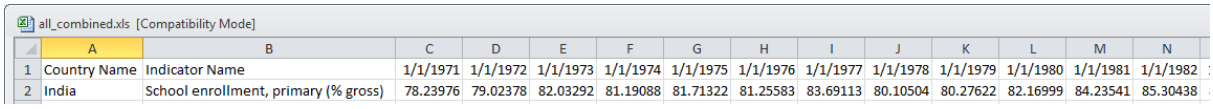
Step 4: Select one indicator of interest you want to examine across the four countries. All World Bank datasets contain the same indicator sets for every country. The full list of indicators can be found at: http://data.worldbank.org/indicator. You may need to examine a few indicators to find one that works well across four countries.

Step 5: Once you have selected an indicator of interest to examine across all four countries, combine data for that specific indicator by country into one master Excel sheet that can be parsed by Tableau. This means that Tableau should read date values as actual dates (as opposed to strings), country names should be capable of being geo-coded, and indicator numeric values of are all lined up correctly by year and country

Tips:

a. Make sure that you convert date values to true dates in Excel before loading into Tableau. For example, the World Bank raw data will show a date as '2001' and the cells formatted as a string in Excel. This data will need to be converted to 1/1/2001 and the cells formatted as dates in Excel. We are not examining sub-year (i.e., days, weeks, months) with these data and a 1/1 start date, appended before the year, is fine.

b. Use the Excel transpose function to move date values from columns to rows. (see Figure 1a and 1b below)


all_combined.xls [Compatibility Mode]

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Country Name	Indicator Name	1/1/1971	1/1/1972	1/1/1973	1/1/1974	1/1/1975	1/1/1976	1/1/1977	1/1/1978	1/1/1979	1/1/1980	1/1/1981	1/1/1982
2	India	School enrollment, primary (% gross)	78.23976	79.02378	82.03292	81.19088	81.71322	81.25583	83.69113	80.10504	80.27622	82.16999	84.23541	85.30438

Figure 1a: Indicator data for India organized into columns by year – this is how the data will look when first downloaded from the World Bank website.

90	India	1/1/1971	78.23976
91	India	1/1/1972	79.02378
92	India	1/1/1973	82.03292
93	India	1/1/1974	81.19088
94	India	1/1/1975	81.71322
95	India	1/1/1976	81.25583
96	India	1/1/1977	83.69113
97	India	1/1/1978	80.10504
98	India	1/1/1979	80.27622
99	India	1/1/1980	82.16999
100	India	1/1/1981	84.23541
101	India	1/1/1982	85.30438

Figure 1b: The same data as Figure 1a, expect the data have been transposed from columns to rows. This is the structure needed for creating visualizations in Tableau (also note the date formats i.e., 1/1/1971).

Step 6: Import your combined, four country indicator datasets into Tableau. If you formatted the Excel data correctly, your Dimensions and Measures should look similar to, although not exactly like, Figure 2.

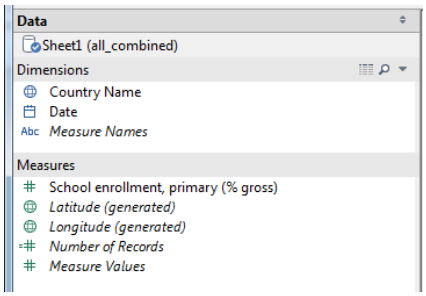


Figure 2: Dates have been correctly formatted as dates and appear as dimensions. The indictor of interest across the four countries (in this example, School enrollment, primary (% gross)), appears as a measure. If your data does not look like this, you have done something wrong.

Step 7: Using Tableau, create a series of three or more different views (for example, a map, timeline, and line chart) that are combined into a single dashboard that allows you to explore your indicator of interest over time and between the four countries.

Step 8: Write a one page[1] essay where you:

A. Include a screen shot of your dashboard from Step 7, showing an interesting relationship you found with the indicator between the four countries over time or at a certain time. Your image can only take up ¼ of the essay (see example on Page 5).

B. Include a textual description of your analysis that (1) outlines the four countries you selected and their 'By Income' group (as per Step 2), (2) state the indicator you selected for comparing the four countries, (3) any interesting things you found in your comparisons, and (4) reflection on how the specific interactive capabilities of Tableau did or did not help you in your analysis.

See the following page for a general example of what your one page essay should look like.

Extra credit (cannot make final assignment grade exceed 110%):

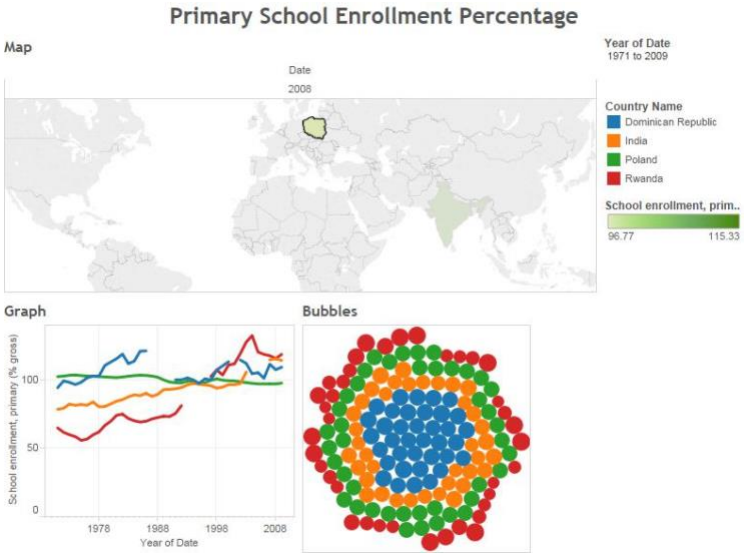
1. Compare two indicators across four countries in the various World Bank by Income groups. (+5 points)

[1] 1 page is defined as 12 point font, 1.5 lines spacing, 1" margins.

2. Include a qualitative data source in Tableau that helps support the analysis. For example, if investigating school enrollment, include a visual analysis news report that adds context to the numbers from the World Bank data. (+5 points)

Sample Essay Layout

Erik Golen – Assignment 4



Four Countries:

1. Low-income - Rwanda
2. Lower-middle-income - India
3. Upper-middle-income - Dominican Republic
4. High-income economies – Poland

Selected Indicator: School enrollment, primary (% gross)

Comparison Analysis: [2]Lorem ipsum dolor sit amet, consectetur adipiscing elit. Morbi et mauris porttitor, convallis nibh et, ullamcorper nisl. Suspendisse neque quam, convallis eu cursus pulvinar, tristique vitae nisi. Integer tempus velit nibh, in pharetra dui vehicula vel. Praesent malesuada hendrerit velit, non porttitor mi. In bibendum placerat metus id aliquet. Ut lectus velit, egestas sit amet malesuada sit amet, vehicula quis augue. Etiam elit tellus, convallis in commodo a, consectetur nec velit. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Morbi et mauris porttitor, convallis nibh et, ullamcorper nisl. Suspendisse neque quam, convallis eu cursus pulvinar, tristique vitae nisi.

Tableau interactive capabilities reflection: Lorem ipsum dolor sit amet, consectetur adipiscing elit. Morbi et mauris porttitor, convallis nibh et, ullamcorper nisl. Suspendisse neque quam, convallis eu cursus pulvinar, tristique vitae nisi. Integer tempus velit nibh, in pharetra dui vehicula vel. Praesent malesuada hendrerit velit, non porttitor mi. In bibendum placerat metus id aliquet. Ut lectus velit, egestas sit amet malesuada sit amet, vehicula quis augue. Etiam elit tellus, convallis in commodo a, consectetur nec velit. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Morbi et mauris porttitor, convallis nibh et, ullamcorper nisl. Suspendisse neque quam, convallis eu cursus pulvinar, tristique vitae nisi.

[2] This is fake text called Lorem ipsum used for graphic design (see: http://en.wikipedia.org/wiki/Lorem_ipsum), you should add real text