**INTERNATIONAL DEVELOPMENT PROJECT SUST 101**

Project is due by email. Due date in Canvas.

Length: At least 3 pages word processed and double spaced. The table and graphs do not count toward the page guideline.

Overview of Topic: Exploring the Concepts of Development

This exercise is designed to stimulate your thinking about development as a multi-faceted process. You will use data from the United Nations Human Development Report and other reputable sources to assess levels of development for different countries. You will to choose seven variables, conduct some analysis, and discuss their usefulness as indicators of the level of development.

This project will focus on the comparative levels of development of most of the world’s developed countries, together with some developing countries, including Costa Rica, Mexico, and China.

A context for this is the United Nations Human Development Index (HDI). This index is calculated using data about income, education, and life expectancy. While there is some complexity in its calculation (you can google the term for more information), it stands alone for decades as the single most widely used statistic to compare levels of development between countries, and even between genders, sub-regions within countries, and so on. We will not directly use this index, but rather will calculate our own somewhat more simplified one, using several variables.

**INSTRUCTIONS:**

**A.** Select seven variables that best describe:

-whether human needs are being met in these countries

-how completely development is reaching the entire population

-a diverse cross section of the meanings of development

As part of the Canvas file that includes these instructions and the UN data sheet, there is also a data sheet template. I put this together to save you time and minimize confusion. You must utilize the 28 countries on that data sheet, but I encourage you to include a few other countries that you may be curious about as well, if you wish. My criteria for selecting those 28 countries were primarily that there were data available for all of the key variables. I also eliminated some other developed countries due to either very small population size (e.g. Luxembourg, Lithuania) or just the desire to keep the total number of countries to a manageable size.

The following are variables within each subcategory that you can choose to use:

Data for the first below are found in: <https://report.hdr.undp.org/intro/> click on the upper right contents icon, download, and then go to page 271 to start viewing data tables.

1. **Life Expectancy** **at Birth** This has long been the single most important indicator of development, though with the rise of high life expectancy in highly developed societies, other variables are increasingly important.

2. **Years Schooling:** While this is still a strong indicator, middle income societies are in some cases catching up. This may take awhile to reap dividends as potentially seen in other variables. The UN Human Development Index uses a multifactorial approach to define educational achievement, far too complex for our purposes.

3. **Income:** (Gross National Income, purchasing power parity ($PPP). PPP accounts for the different costs of goods and services in each country, making the data more comparable. I have already entered these data in the International Development Country Data spreadsheet.

4. **Gender Status or Gender Inequality**: You may choose from either a) Maternal Mortality ratio, b) Share of Seats in Parliament, or c) the Gender Inequality Index. After you have decided, fill in your variable of choice in appropriate cell.

5. **Planetary Pressures** Choose either a) carbon dioxide emissions/capita or b) material footprint per capita, both found in table 7.

6. **Security/Well Being**: (use the Our World in Data site) You may choose either a) prison population per 100,000 people, or b) homicide rate per 100,000 people. While the prison population per 100,000 is somewhat subjective in interpretation – is having large numbers of people locked up a good thing or not?…but high homicide rates is by any standard undesirable. After you have decided, fill in your variable of choice in appropriate cell.

7. **Connectivity:** (Our World in Data site) Use either: a) percent of the population using the internet <https://ourworldindata.org/grapher/share-of-individuals-using-the-internet?tab=table>

or b) percent of the population with cellphone access: <https://ourworldindata.org/grapher/mobile-cellular-subscriptions-per-100-people?tab=table>

You will notice that there are many other statistics in the UN reports that are not listed above in the permissible variables list. The reasons why many of them are not possible choices for this project generally include one or more of the following: 1) the data are missing for several of the countries, 2) the data cannot be usefully compared between countries, 3) the computation and/or interpretation of the statistics is more complex than we have time to explain in class or as part of the project (such is the case with many indexes in the report), and 4) the data are only marginally related to development for most countries (such as crude death rates).[[1]](#footnote-1) If you have a variable that you want to use that is not on the above list, please propose it to me; I’ll be happy to consider the case that you make for it.

**B.** Now it is time to rank your raw data in each cell, for each variable and country. I have started to do this for per capita income so you can see how this will look. You will be using variables to rank the level of development of the 28 countries. Rank the countries from 1 (most developed) to 28 (least developed) for each variable. If you have a tie, you will need to give each country the same ranking, by averaging their two positions. For example, let’s say country A and country B tied for 23rd place in life expectancy. Technically, they would occupy 23rd and 24th place. Rank in such cases both country A and country B at 23.5. That way each of their ranks are no closer to the next country just below them as they are to the country just above them. Please be careful to recognize whether a big number means a high ranking or a low ranking; the highest life expectancy deserves a “1”, whereas the highest infant mortality deserves a “28”. In this same vein, the largest homicide number should earn a “28”, the lowest a “1”. Inequality indices are like infant mortality - the largest number merits a “28”. Generally speaking, the worst outcome is a 28, the best a 1. Here is a tutorial for ranking: <https://www.youtube.com/watch?v=5JrS-zzmzK4>

Keep in mind that in the columns to the right end of the spreadsheet, I have entered formulas that later will calculate for you the average rankings. Until all of your data are entered and rankings done (see below), the numbers in the last columns will be nonsensical.

**C**. For a crude measure of overall development, add up the 7 ranks for each country and divide by 7. (I have already entered these formulas in the spreadsheet so you don’t have to.) This gives you an approximate ranking for each of the 28 countries. Note that the highest ranked country (best) has the smallest number value, and the lowest ranking country (worst) has the biggest number, such as 28. No country will have average rank of 1, unless it was literally at the top of every single ranking. Probably your highest ranking country would have an average ranking of something like 3 or 4.

**D**. In column S, compute the overall ranking without using the income ranking (formula already written for you).

**E**. Give some thought as to which two of your variables are likely to be most influenced by income. Create two scattergrams, each having the x axis as the independent variable of GNI per Capita (PPP US$), and the y axis as the dependent variable of your choice. Be sure to give the graphs titles and axis labels. Your graphs should have exactly 28 dots, each dot being the xy coordinate corresponding to a particular country. For graphing help with Excel, <http://www.youtube.com/watch?v=-SeCPLC30_g> If you have a version of Excel different from that of the tutorial, try a google or youtube search for scatterplot with your version of Excel. You can also use googledocs. If all else fails, you can do the graph carefully by hand and then scan it in as part of your document. If you choose the manual method consider using some sort of graph paper; such can be found online.

**F**. In a concise paper, in addition to including an introductory paragraph and a conclusion, address all of the following questions:[[2]](#footnote-2)

1) Briefly summarize your thinking about how you chose each variable for which you had some discretion, such as incarceration rates vs. homicide rates, maternal mortality vs. % female in parliament, and so on.

2) Describe the patterns that were evident in your graphs, if any. Were there any countries that were “outliers”? Which ones? If there were strong patterns in the dots, describe them as either positive relationships (up sloping to the right), or down sloping to the right (negative relationship). Hypothesize about the causal mechanism(s) involved. If there were no patterns that correlated with income, might something be inferred from this? Do differences in income among the richer nations matter much at all in shaping what is essentially social development? While your project cannot yield definitive conclusions to these questions, your findings might raise important questions, or at least, raise awareness of patterns that you may not have been aware of.

3) Discuss how the countries compared with each other when all seven variables were weighted (Column S).

Which country ranked the highest? The lowest? (remember a high ranking is a low number, and that given these are average rankings, they will rarely be whole numbers.

Did the overall highest ranking countries tend score highly in all areas?

How did the US rank overall with other countries? Was this finding something you were aware of?

Which variables did the US do a) particularly well in, and b) not so well in (if any)? Discuss.

Were there any countries whose ranking surprised you? Explain why you were surprised.

How did middle income countries at the bottom of the sheet do in some of the measures of development? Consider labeling them in the graphs to see where they fit (or didn’t fit well) in the distribution.

4) Compare your overall rankings (Column S) with the rankings where the income ranking was not used for the overall ranking (Column T). Which countries had much better overall development indexes than they had income rankings (smaller number in Column T than Column S)? How did the income ranking of the US compare with the non-income based index? Discuss, remembering that a ranking such as 20 is worse than a ranking of 5.

5) Comment on the value and limitations of this exercise for understanding development. Summarize what you learned.

6) After going back over all of the instructions to make sure you have done everything correctly, please send me your project via e-mail or turn in at classtime, depending on the Canvas instructions given. One attachment is preferred over multiple ones, if you are able to do this. One email message with two attachments, (one with spreadsheet, the other with graphs and written narrative) is fine too.

A note on formatting – I structured the Excel spreadsheet so that it occupies one page in landscape view. I am hoping that in your various renditions of this sheet, it will be preserved as one page. If it is not, it will be much more laborious for both you and I to review. It is hard to make sense of a data table when the column headings are on one page and some of the data are orphaned on another page. Please try to preserve the one page format if you can. Please keep spreadsheet print black and white if possible.

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Timeline for completing various phases: (here’s where you need to make your own timeline.

Complete data entry by \_\_\_\_\_\_\_ at the latest

Conduct rankings and make graphs by \_\_\_\_\_\_\_\_

Write paper by \_\_\_\_\_\_\_\_

Turn in by \_\_\_\_\_\_\_\_\_ (required)

Late policy is 10 percent reduction per day late

Please do not procrastinate in doing data entry and making rankings. This will take time!

1. Of course mortality rates are indicators of development, but they are most useful when specific to a particular age group (such as infant mortality rates) rather than pertaining to an entire population regardless of its age structure, as is the case with crude death rates. [↑](#footnote-ref-1)
2. Your score on this paper will be heavily influenced by how well you address each and every one of the questions. [↑](#footnote-ref-2)