Homework Assignment 1: Due at the beginning of class 9/27/02

The specific learning goals of this assignment are for you to:

- Use data to create quantities that will help you to study a relationship.
- Create and interpret graphs.
- Decide whether there is any evidence to connect poverty with corruption.

The data given in Table 1[1] includes the following.

- ***Corruption***: Organizations such as the World Bank[2] define corruption as "the use of one's public position for illegitimate private gains." The data in Table 1 are ratings on a 0-10 scale with "0" representing the most corrupt and "10" representing the least corrupt.
- ***Gross Domestic Product (GDP):*** A country's gross domestic product is the value of all goods and services produced within the country's borders during a given year. The figures given in Table 1 are the GDPs for 2001.
- ***Population:*** This is the number of people living in the country. The figures given in Table 1 are CIA estimates of population for July 1, 2001.

Country	Continent	Corruption Perception Index	Gross Domestic Product (billions of dollars)	Population (millions of people)
Indonesia	Asia	1.9	654	228.4
Malaysia	Asia	4.9	229.7	22.2
Singapore	Asia	9.3	109.8	4.9
Taiwan	Asia	5.6	986	23.4
Thailand	Asia	3.2	419	61.8
Botswana	Africa	6.4	10.4	1.6
Egypt	Africa	3.4	247	69.6
Kenya	Africa	1.9	45.6	30.8
South Africa	Africa	4.8	969	49.6
Tanzania	Africa	2.7	25.1	96.3
Brazil	South America	4.0	1130	174.5
Costa Rica	South America	4.5	25	3.8
Mexico	South America	3.6	915	101.9
Panama	South America	3.0	16.6	2.8
Venezuela	South America	2.5	146.2	29.9

Table 1: Corruption, gross domestic product and population for fifteen nations.

1.   It would be reasonable to expect that countries with large populations will have large GDPs (as there are a lot of people to produce goods and services) and conversely that countries with small populations will have small GDPs.

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[1] The source of the data on corruption in Table 1 is the *Transparency International Corruption Perceptions Index 2002*. This is available on-line from: http://www.transparency.org
The source of the data on GDP and population in Table 1 is the *CIA World Fact Book 2002*. This is available on-line from: http://www.cia.gov/publications/factbook/index.html
[2] Source: Mauro, P. 1998. Corruption: Causes, consequences, and agenda for further research. *Finance and Development*, March 1998: 11-14.

Therefore GDP alone is not an indicator of whether the people in a country are wealthy or poor. How could you define a quantity that will indicate the wealth or poverty of the people living in a country? Use the data provided in Table 1 to calculate the value of this quantity for each of the fifteen countries.

2. Some economists have speculated that poverty may cause corruption[3] - for example, civil servants who earn very low wages may resort to accepting (or demanding) bribes in order to make enough money to ensure the survival of their families. One way to test this theory is to plot a graph using data on corruption and the level of wealth/poverty. Suppose that the economists' theory is correct – that poverty really does cause corruption. Sketch a graph (being careful to label the axes) that shows the relationship that you would expect to see.

3. On a suitable set of axes (being careful to put labels and scales on your axes), use the data from Table 1 and the numbers that you calculated in Question 1 to plot a graph to test the economists' theory – that poverty causes corruption. Briefly comment (in a sentence or two) on the appearance of your graph, and whether it seems to support or refute the economists' theory.

4. On a suitable set of axes (again being careful to label your axes and put scales on your axes), use the data from Table 1 and that number that you calculated in Question 1 to plot **separate graphs** for **(a) South American,** and **(b) Asian** countries. In each case, briefly comment (in a sentence or two) on the appearance of each graph, and whether it seems to support or refute the economists' theory. Do you think that the economists' theory can be applied simply and reliably in all regions of the world?

5. The population of the United Kingdom (England, Scotland, Wales and Northern Ireland) on July 1, 2001 was approximately 59.6 million people. For 2001, the gross domestic product of the United Kingdom was $1960 billion[4]. Based on your answers to Questions 1-4, what do you think the approximate numerical value of the Corruption Perception Index for the United Kingdom should be? As **part of your answer**, you should briefly explain how you obtained your numerical estimate, and note any reservations or concerns that you have about your answer.

Note: The actual value of the Corruption Perception Index of the United Kingdom is public knowledge. You can look it up at:

http://www.transparency.org/cpi/2002/cpi2002.en.html

However, this is **not** what is wanted for your answer to Question 5.

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[3] For example, see: Van Rijckeghem, C. and B. Weder. 1997. Corruption and the rate of temptation: Do low wages in the civil service cause corruption? *International Monetary Fund Working Paper 97/73.*

[4] The source of the data on GDP and population for the United Kingdom is the *CIA World Fact Book 2002.* This is available on-line from: http://www.cia.gov/publications/factbook/index.html