

## Problem Set #1

Due in your Section Meeting  
Tuesday/Wednesday, September 6-7 (Note Revised Due Date)

1. *Country snapshots*. Download the file “snapshots.pdf” from the course web page, and answer the following questions.
  - (a) What was the ratio of per capita income in each of the following countries to the United States in the year 2000: Ethiopia, India, Mexico, and Japan?
  - (b) Which country had the faster average annual growth rate of per capita GDP between 1960 and 2000: Botswana or China? What about since 1980?
  - (c) Rank these countries in order of population: Bangladesh, Brazil, Indonesia, Nigeria, Russia, the United States.
  - (d) Which is larger as a share of GDP in most rich countries: investment or government purchases? What about in most poor countries?
  - (e) The exchange rates are reported as units of domestic currency (like the Japanese yen or the British pound) per U.S. dollar. Look at the exchange rate for a bunch of countries. Do you detect any overall pattern? Why might that be?
2. *Making graphs* (spreadsheet). Use the “snapshots.pdf” file, together with the hyperlinks in that file to the underlying spreadsheet data. Answer the following questions using a spreadsheet program of your choice.
  - (a) Make a plot of per capita GDP (in dollars) for the years 1950 to 2000 for a country of your choice. Label the  $x$ -axis “Year” and the  $y$ -axis “Per Capita GDP”.
  - (b) Make a plot of per capita GDP relative to the United States (US=100) for the years 1950 to 2000 that includes the United States and 3 other countries of your choice, all on the same graph. Be sure to label the lines on the graph in some informative way so that each line can be associated with its country.
3. *Models*. Select a model you have used in another economics class. What are the exogenous variables and parameters of that model? What are the endogenous variables of the model? If it is possible, express the model as a system of mathematical equations. How many equations are there? How many unknowns?