

Week 2 Recitation

Practice Problems

This week's recitation is focused on GDP, what it measures, what it doesn't measure, how can we compare GDP across time and how can we compare GDP across countries/regions. In order to do that, we are going to use real world data from the World Bank.

1. What is the definition of GDP? Why do we use GDP per capita as a measure of well-being?
GDP is the sum of all good and services produced in a given place (city, state, country, region), in a given period of time (month, trimester, year). Since the supply side and the demand side of the GDP must be identical, all production equals all consumption; therefore, GDP per capita measures the average level of consumption of each individual in an economy.

The following table holds information on the country of Hamsterdam:

	Year 1	Year 2
Consumption	\$6,000	\$8,000
Investment	\$3,000	\$2,000
Government Spending	\$2,000	\$2,000
Exports	\$1,500	\$1,750
Imports	\$2,500	\$2,750

2. What is the trade balance and GDP of Hamsterdam in year 1? What is the GDP in year 2? Using your results, what is Hamsterdam's growth rate in this period? Would you say they are in a recession or expansion?
Year 1: Trade balance = Exports-Imports = -\$1,000. GDP = C+I+G+(Exports-Imports)=\$10,000.
Year 2: GDP = \$11,000.
Growth rate = [(new-beginning)/beginning]*100 = [(11,000-10,000)/10,000]*100 = 10%.
The country had a high growth rate so students should lean towards expansion. However, we've said nothing about prices so technically we aren't sure. Could talk about the importance of real vs. nominal.
3. What are the benefits of using GDP per capita as a measure of well-being, and what are some of the limitations?
Benefits are (1) it's easy and cheap to measure, (2) easy to compare across time and (3) easy to compare across countries. Some of the limitations are (1) it doesn't measure distribution, and inequality is a rising problem world-wide (particularly in the U.S.); (2) it doesn't include important goods and services that are not provided by the market, like care work (buying food from Taco Bell is included in GDP, while cooking a homemade meal with organic crops planted in your backyard is not, but the difference between those for well-being can be substantial); (3) it doesn't consider time spent in leisure (the book provides a nice example: Germany has a slightly smaller GDP per capita than the U.S., but the average U.S. worker works hundreds of hours more per year than the average German worker); (4) it doesn't measure quality (a country that spends more on education doesn't necessarily has better literacy rates and more innovation, for example); (5) the environmental impacts are not considered; (6) higher consumption in terms of money doesn't necessarily means more access to essential goods and services, the prime

example being health care coverage (the U.S. is the only developed country in the world that doesn't have universal healthcare provision).

4. Can you think of alternative indicators to measure economic activity and well-being?
In the book, the students learn the concept of Gross National Income (GNI), which adds what domestic businesses and labor abroad produces, and subtracts any payments that foreign labor and businesses located in the country of interest produce. So, GNI is based more on what a country's citizens and firms produce wherever they are located, which is important for small countries with a big population living abroad (e.g. Georgia). To measure sustainable economic activity, there are a lot of indexes such as the Green GDP (GGDP), which includes environmental impact. Regarding well-being, we can think of a vast array of indicators, the most famous being the Human Development Index (HDI) measured by the United Nations. There are others that include even more well-being variables, such as the Fordham Index of Social Health (FISH), that includes 16 variables such as child abuse, teen suicide, housing, and poverty among the elderly. (Since 1973, FISH declined in the U.S., while GDP per capita increased).

5. Go to the World Bank database (<https://data.worldbank.org/>) and click in "Browse by Country". Pick one country (except the United States). In the search bar, look for the following variables and analyze the graphs:
For this exercise, you can either ask the students to organize in groups or do the exercise individually (for smaller recitation sections). Show them how to use the website using the United States as your example. Give 15-20min for them to search the indicators and take their notes, then 3min for each student/group to briefly summarize their results for the class.
 - a) GDP in current Local Currency Units (LCU). How did this variable behave during the selected time frame? Is this measure appropriate to analyze changes in the country's production across time?
The students should be able to spot the 2008 crisis and the COVID-19 crisis in the graphs. This is not appropriate to analyze changes in the production across time, since the variations can be a result of changes in prices.

 - b) GDP in constant Local Currency Unites (LCU). How did this variable behave during the selected time frame? Is this measure appropriate to analyze changes in the country's production across time? How about to analyze how it compares with other countries?
Yes, this is appropriate to measure the production across time because the prices are held constant. However, it is not appropriate to compare with other countries because it doesn't consider the exchange rates and the costs of living.

 - c) GDP in Purchasing Power Parity (PPP), constant international \$. At the top of your graph, click in "Also show", then click in "Similar Values". Is this measure appropriate to analyze changes in the country's production across time? How about to analyze how it compares with other countries? Which countries/regions appear to have similar values to your country of choice?
Yes, this is appropriate to measure the production across time because the prices are held constant and to compare with other countries because it's in PPP.

 - d) GDP per capita in Purchasing Power Parity (PPP), constant international \$. At the top of your graph, click in "Also show", then click in "Similar Values". Are the countries/regions with similar GDP (from your previous graph) also the ones with similar GDP per capita? Why?
In general, countries with similar GDP (PPP, international \$) won't be the same with similar GDP per capita (PPP, international \$). That happens because some countries have a very high GDP, but

a very numerous population (e.g. Brazil), while others show a relatively small GDP when compared to bigger countries, but an even smaller population (e.g. Luxembourg).

- e) Choose two other indicators that you believe are interesting to measure well-being and economic activity, and see how they compare with the evolution of GDP and GDP per capita. (Examples: unemployment, life expectancy at birth, mortality rate under-5 years old, CO2 emissions, primary education completion rate, literacy rate, poverty headcount, Gini index).

Make sure that the students justify their chosen indicators. They are going to notice that some indicators are not available for some countries, which justifies the importance of understanding and using GDP, despite its important limitations. If you have time, ask them to also show the similar values in the graph, so that they can compare with the GDP and GDP per capita similar values as well.