MIAMI HERBERT BUSINESS SCHOOL

ECO212 Principles of Macroeconomics

Chapter 6

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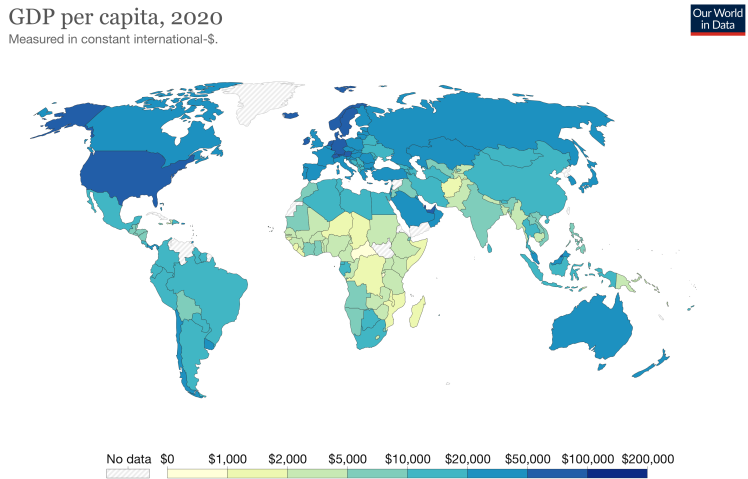
Overview

1. Inequality around the world

Aggregated incomes



Inequality around the world

Inequality - measuring differences

Income per capita = GDP per capita

$$\text{Income per capita} = \text{GDP per capita} = \frac{\text{GDP}}{\text{Total population}}.$$

Mexican income in $:

Mexican income p.c. in $\$$ = Mexican income p.c. in pesos $\times \$/$ peso exchange rate

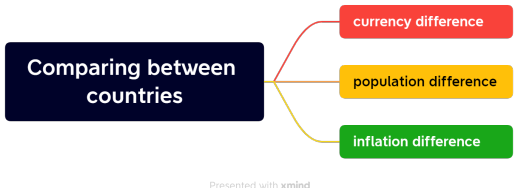
$$= 116,036 \times 0.078$$

$$= \$9,051$$

When comparing GDP per capita across countries, we have to change currencies into the same unit.

Inequality - measuring differences

- Using this exchange-rate-based measure, we can compute income per capita in every country for which we have data on GDP and population.
- Exchange rate allows us to compare GDP across countries using the same units, but we favor a tool that provides even better comparisons of income per capita - Taking the inflation into consideration.



Inequality - measuring differences

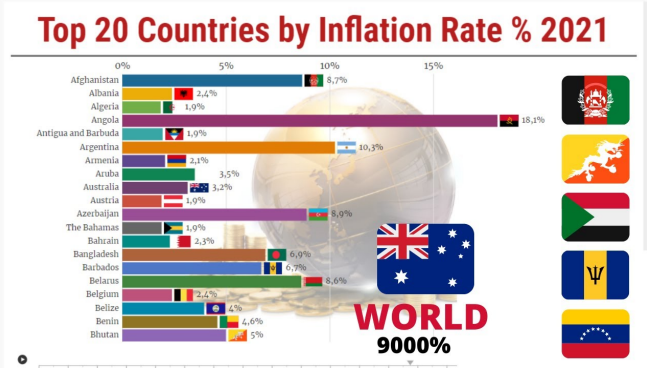
Recall: Inflation

$$\text{Inflation rate in 2013} = \frac{(\text{Price Index in 2013}) - (\text{Price Index in 2012})}{\text{Price Index in 2012}}.$$

To make countries comparable, we have to eliminate the inflation issue.

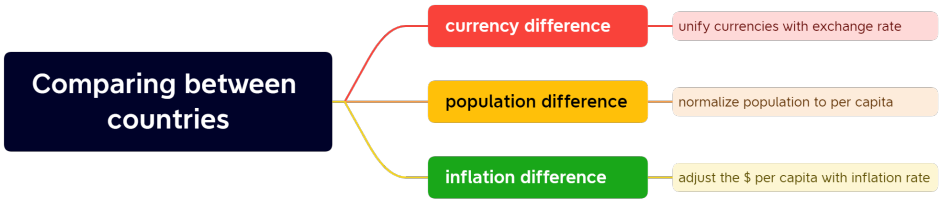
$$\text{Value in 2022 dollars} = \frac{\text{Price index in 2022}}{\text{Price index in 2019}} \times \text{Value in 2019 dollars.}$$

Inequality - measuring differences



The buying power of different currencies deteriorate differently. So we need to compare the income by the buying power rather than money.

Inequality - measuring differences



The Purchasing Power Parity (PPP):

constructs the cost of a representative bundle of commodities in each country and uses these relative costs for comparing income across countries.

Inequality - measuring differences

Mexican income p.c. in PPP $ = Mexican income p.c. in pesos $\times$ \$/ peso PPP

$$= 116,036 \times 0.116$$

$$= \$13,460$$

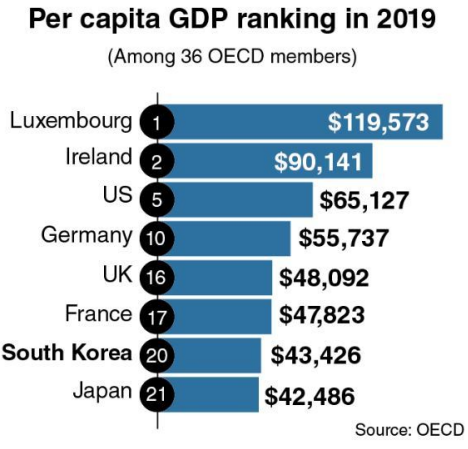
LETTING THE DATA SPEAK

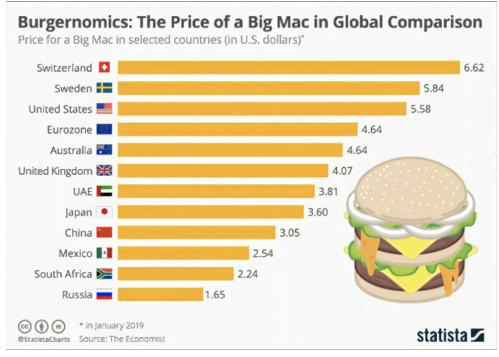
The Big Mac Index

In 1986, *The Economist* magazine proposed the Big Mac index as an alternative measure of exchange rates. This index would simply be the ratio of prices of a Big Mac in two countries. There were already McDonald's restaurants in many countries in 1986, so the price of a Big Mac could be computed for a large number of countries, giving an alternative measure of the exchange rate between any two of them. Though proposed tongue-in-cheek, the Big Mac index caught on and is now commonly used. In fact, there is a good reason for this. The Big Mac index is a simple example of a purchasing power parity adjustment. Its shortcoming is that instead of a representative bundle of diverse goods, this index only compares a bundle consisting of a single good, the Big Mac, which is only a small fraction of people's consumption. Thus, its price will not reflect true cost-of-living differences across countries.

Inequality - measuring differences

Compare GDP per capita with PPP in 2019





Inequality - Income per capita

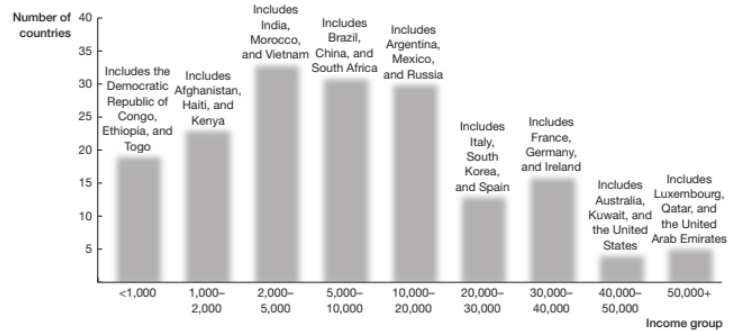


Exhibit 6.1 Income per Capita Around the World in 2010 (PPP-adjusted 2005 Constant Dollars)

There are wide disparities in income per capita across countries. Nineteen countries had income per capita less than $1,000 in 2010 (in PPP-adjusted 2005 constant dollars) while only a few countries had income per capita above $40,000.

Source: Data from Penn World Table; Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 7.1, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania (Nov 2012).

Inequality - Income per worker

Income per worker = GDP per worker

$$\text{Income per worker} = \text{GDP per worker} = \frac{\text{GDP}}{\text{Number of people in employment}}.$$

This measure gives us a better picture of how much each worker produces on average by excluding those who do not work.

Open question: When do we need to examine the income per worker?

Inequality - Income per worker

When do we need to examine the income per worker:

- productivity level - only workers contribute to the outcome.
- dynamics (or just relationships) between interest rate, wages, and output.
- compare countries with very different population structures - Japan (mean = 48.6) and Uganda (mean = 15.7)

Inequality - Income per capita

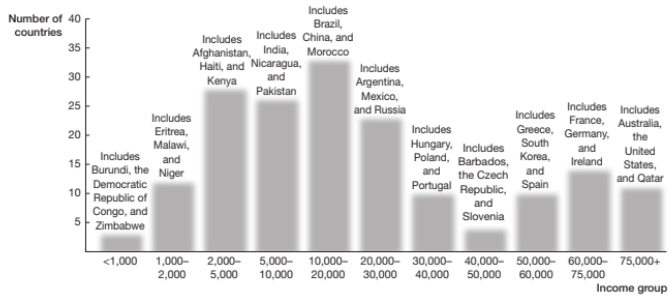


Exhibit 6.3 Income per Worker Across Countries in 2010 (PPP-adjusted 2005 Constant Dollars)

The distribution of countries by income per worker looks similar to the distribution by income per capita shown in Exhibit 6.1. One visible difference is that it is shifted to the right compared to Exhibit 6.1, because every country has higher income per worker (GDP divided by the number of people in employment) than income per capita (GDP divided by total population).

Source: Data from Penn World Table; Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 7.1, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania (Nov 2012).

Inequality - Productivity

Productivity: refers to the value of goods and services that a worker generates for each hour of work.

The importance of productivity: we need to study the factors that makes labor much more productive in some countries than in others.

Productivity also measures income per hour of work.

A typical utility function for households

$$U(C, L) = \frac{C^{\alpha}(1 - L)^{(1-\alpha)}}{(1 - \alpha)}$$

Usually, we normalize L to 0. This means when the household spends 16 hours on leisure, the L=0 and the term $(1 - L)^{(1-\alpha)}$ *disappear. Then the more time they spend on leisure, the higher L will be.*

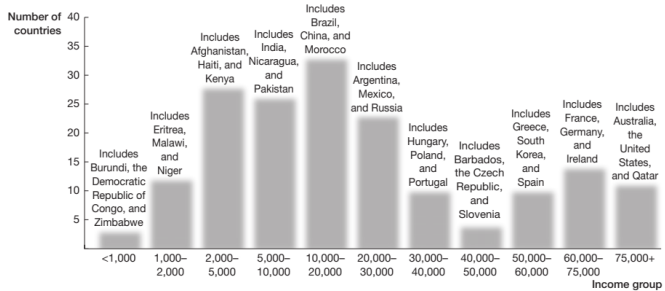
Inequality - incomes and the standard of living

There are more things we care about than just the income:

- High income disparity cannot be reflected with the income per capita.
- We care about pollution, quality of healthcare, and the public safety.

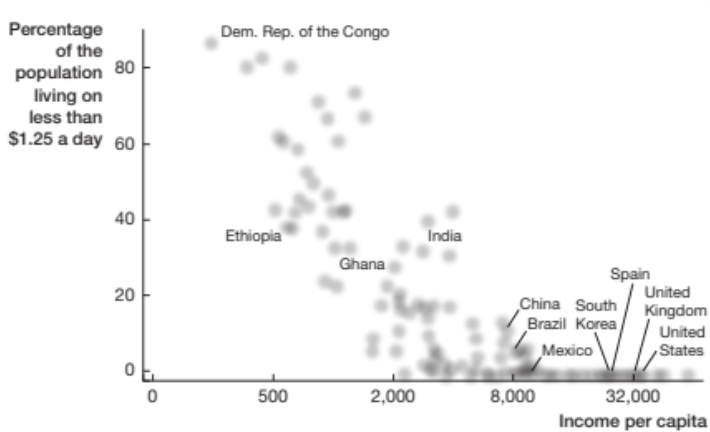
Inequality - incomes and the standard of living

The one dollar a day per person poverty line is a measure of absolute poverty used by economics and other social scientists to compare the extent of poverty across countries.



People living at the poverty level

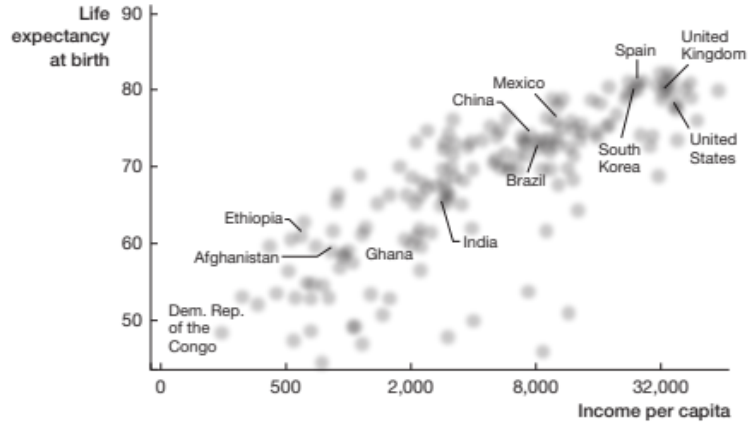
Inequality - incomes and the standard of living



The relationship between poverty and income per capita in (2010)

adjusted 2005 constant dollars

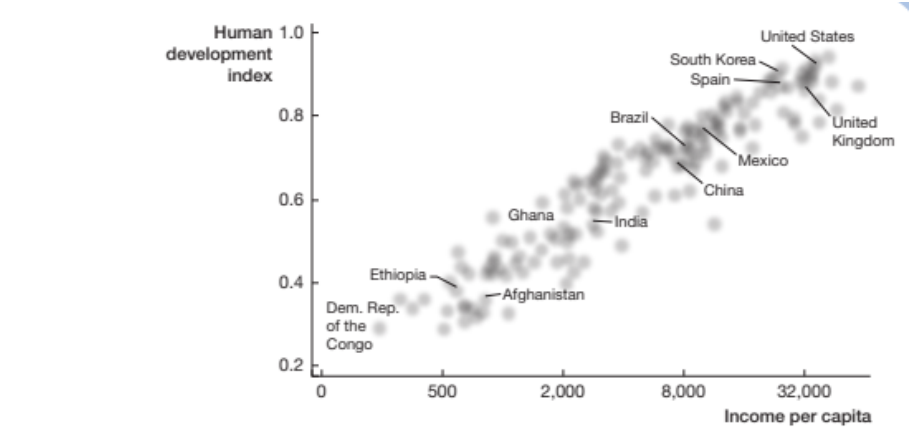
Inequality - incomes and the standard of living



The relationship between life expectancy at birth and income per capita in (2010)

adjusted 2005 constant dollars

Inequality - incomes and the standard of living



The relationship between the human development index and income per capita in (2010)

adjusted 2005 constant dollars