ECO 111 : Economy, Society, and Public Policy
Lecture 1

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Source: Economy, Society, and Public Policy

- Economic growth
- Economic **inequality** and divergence
- The **technological revolution** and growth

Economic tools:

- Measuring living standards: GDP per capita
- Growth rates and analysing data using ratio scales
- Identifying cause and effect: Natural experiments

Measuring income

- **Gross Domestic Product (GDP)** = the total value of all the goods and services produced in a country in a given period, such as a year
- **GDP Per-capita**:

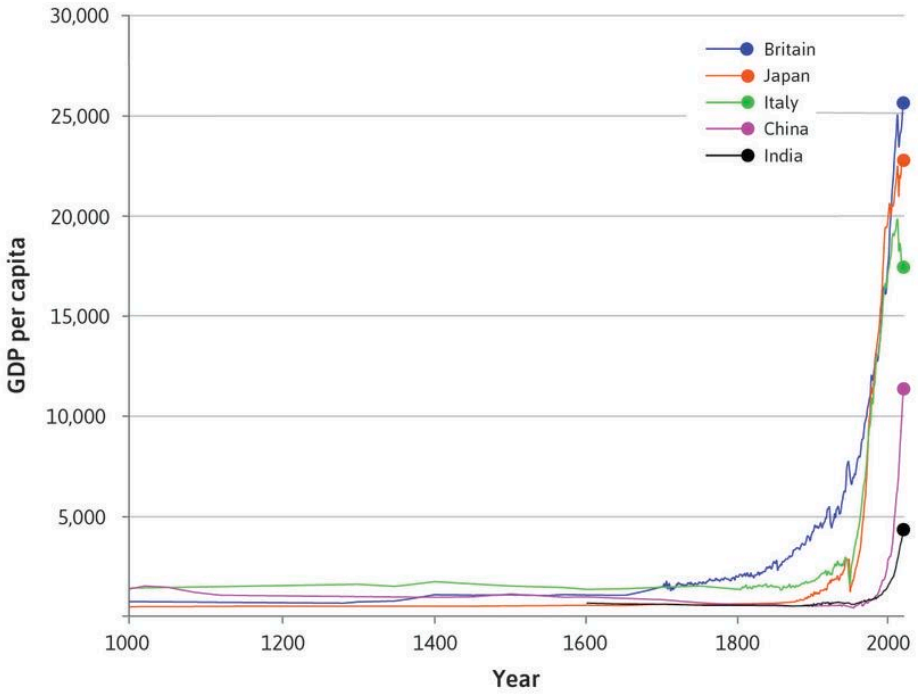
$$\text{GDP per capita} = \frac{\text{GDP}}{\text{population}}$$

- **Real GDP per-capita** (GDP at constant prices): Correct for inflation
- To compare GDP per capita between countries – measure in **same units**
- **Purchasing power parity**

Why is GDP an imperfect measure of well-being?

Economic Growth

- What can we learn from historic data?



‘Hockey stick’ diagram, shows rapid, sustained growth in average living standards since 1700.

How did this happen?

Timing of growth

- Take-off in growth occurred at different points in time for different countries:
- Britain was the first country to experience sustained economic growth. It began around 1650.
- In Japan, it occurred around 1870.
- The kink for China and India happened in the second half of the 20th century.
- Level and distribution of economic growth within the economy.

In some economies, substantial improvements in people's living standards did not occur until they gained independence from colonial rule or interference by European nations.

Growth rates

The GDP **growth rate** is the percentage change in GDP from one year to the next. We can calculate it as:

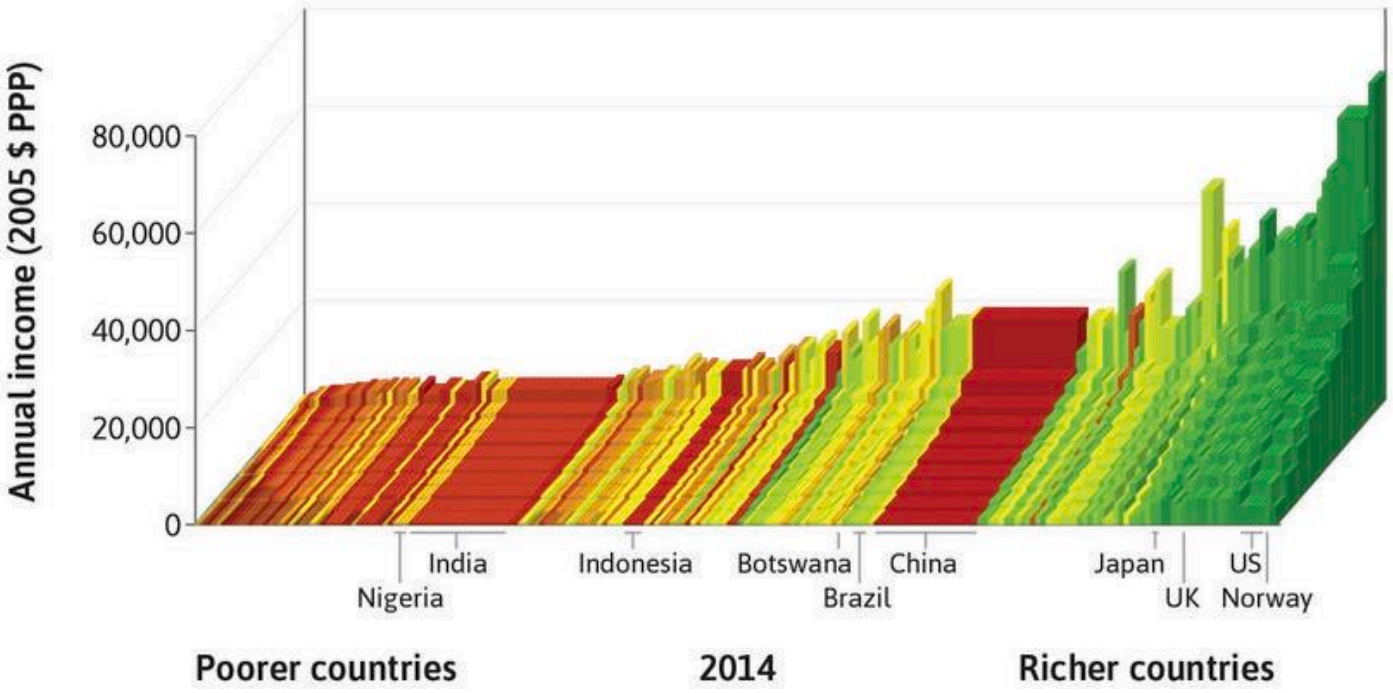
$$g_t \text{ (in \%)} = \frac{GDP_t - GDP_{t-1}}{GDP_{t-1}} \cdot 100\%$$

Percentage changes allow us to compare GDP growth of a country in different years: a $1 billion increase in a country's GDP would be very large if GDP was $3 billion, but not if GDP was $300 billion.

Often, growth over a period of years called the Compound Annual Growth Rate

Inequality

How unequal is the world?



World income distribution in 2014: Countries are ranked by average income from left to right.

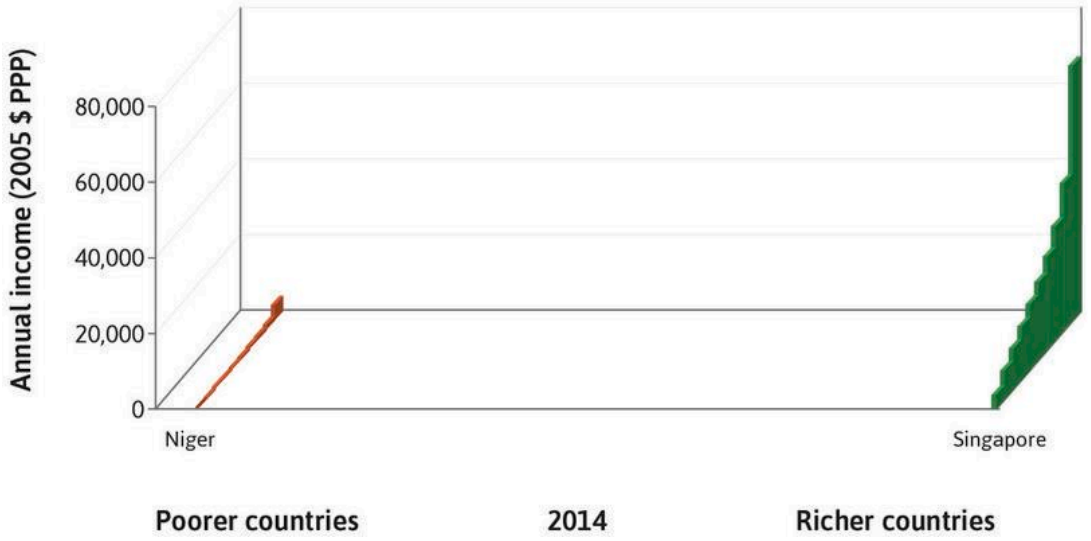
Differences between the rich and the poor are huge within every country.
There are also huge differences in income between countries.

Understanding the skyscraper figure

Countries lined up from poorest (left) to richest (right).

For each country, average income of the poorest 10% is the frontmost bar, and average income of the richest 10% is the backmost bar.

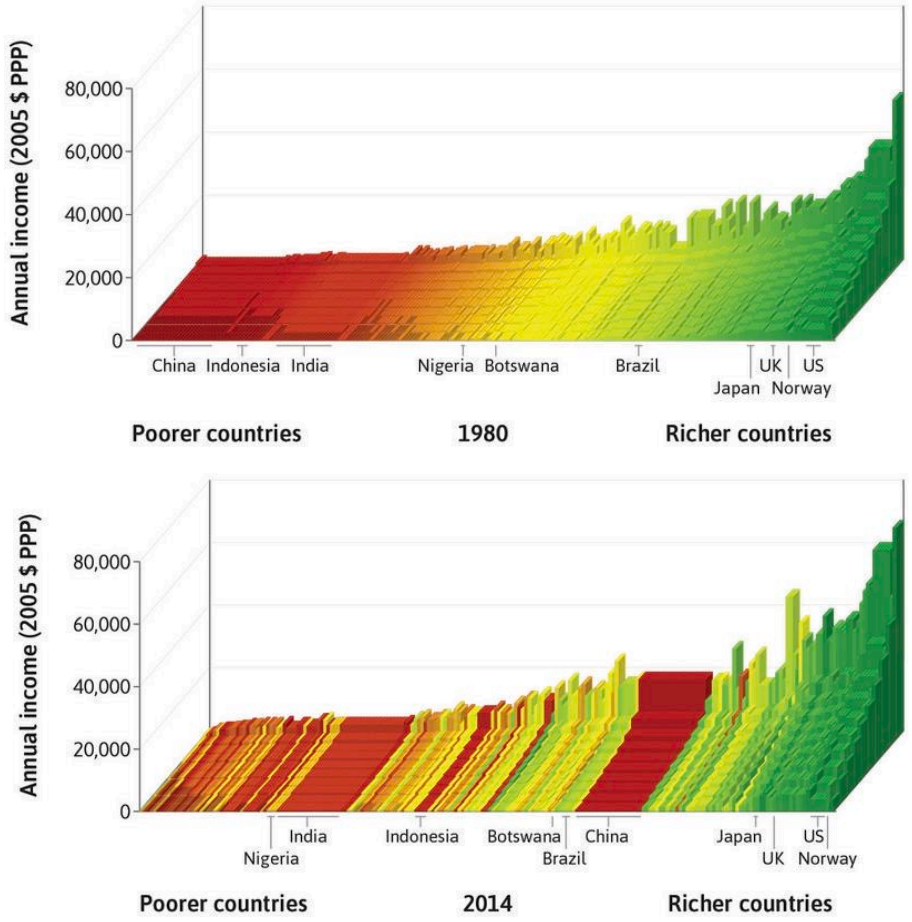
The width of each bar corresponds to the population (e.g. Singapore).



	Rich	Poor	Rich/Poor ratio
Botswana	24,523	169	145
Nigeria	4,449	203	22
India	4,446	223	20
US	60,418	3,778	16
Norway	45,302	8,325	5.4

The average income of the poorest 10% to the richest 10% of the population are shown for Niger and Singapore, which are at opposite ends of the global income distribution.

The Technological Revolution



1,000 years ago, the world was 'flat': Small differences between countries.

1980: Poorest countries (dark red) were Lesotho and China. The richest (dark green) were Switzerland, Finland and the US.

Skyscrapers have increased since 1980: Differences between the richest 10% and the rest of the country's population have become more pronounced.

Measuring inequality

- Rich/poor ratio : Ratio of average income of the richest decile to the poorest decile
- 90/10 ratio : Ratio of income of the individual at the 90^{th} percentile to the income of the individual at the 10^{th} percentile

Inequality and growth

We can link growing between-country inequality to the ‘hockey stick’ diagram.

When sustained growth occurred, it began at different times in different places. (Why?)

- The countries that took off economically before 1900– UK, Japan, Italy – are now rich.
- The countries that took off only recently, or not at all, are in the ‘flatlands’.

Ratio scale

Directly compare growth rates across countries over time by using a different scale on the vertical axis.

The ratio scale uses ratios to represent distance. For example, the ratio between 3 and 6, and between 6 and 12, is the same.

With a ratio scale:

- a *straight* line means *constant* growth rate.
- A *steeper* line means *faster* (accelerating) growth rate.

The following graphs show the real GDP per capita of four countries, plotted according to the linear scale and ratio scale respectively.

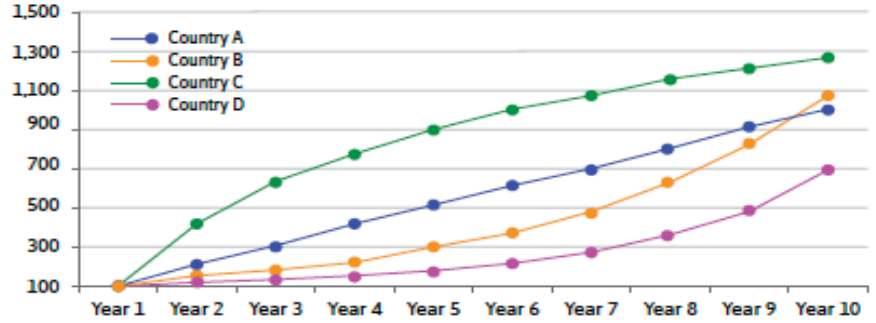


Figure 1.7 Real GDP per capita: Linear scale.

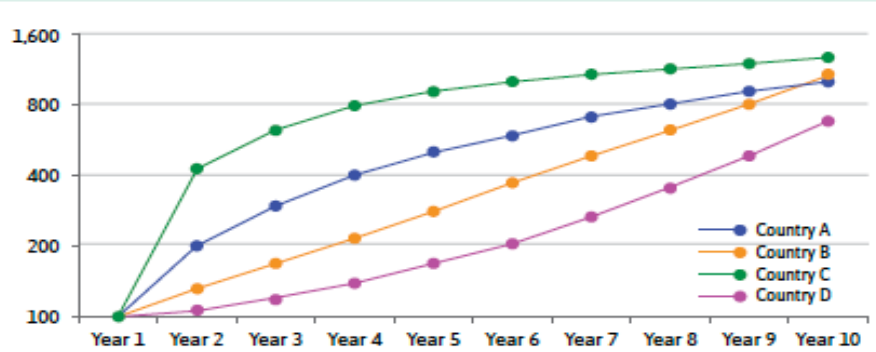


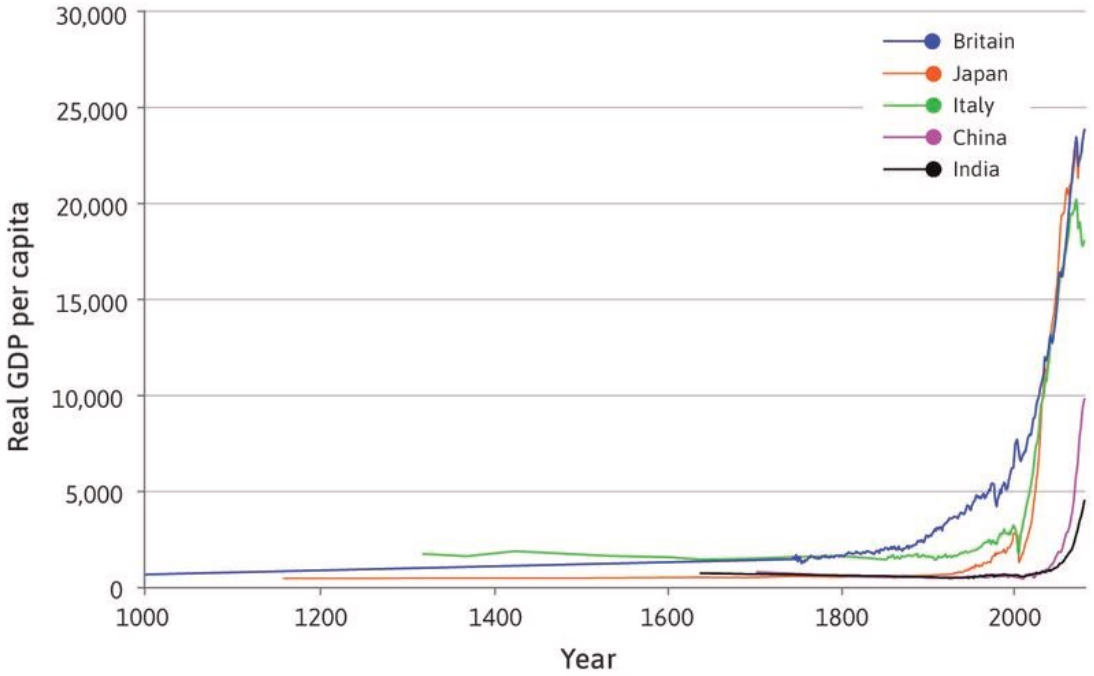
Figure 1.8 Real GDP per capita: Ratio scale.

Based on this information, which of the following statements are correct?

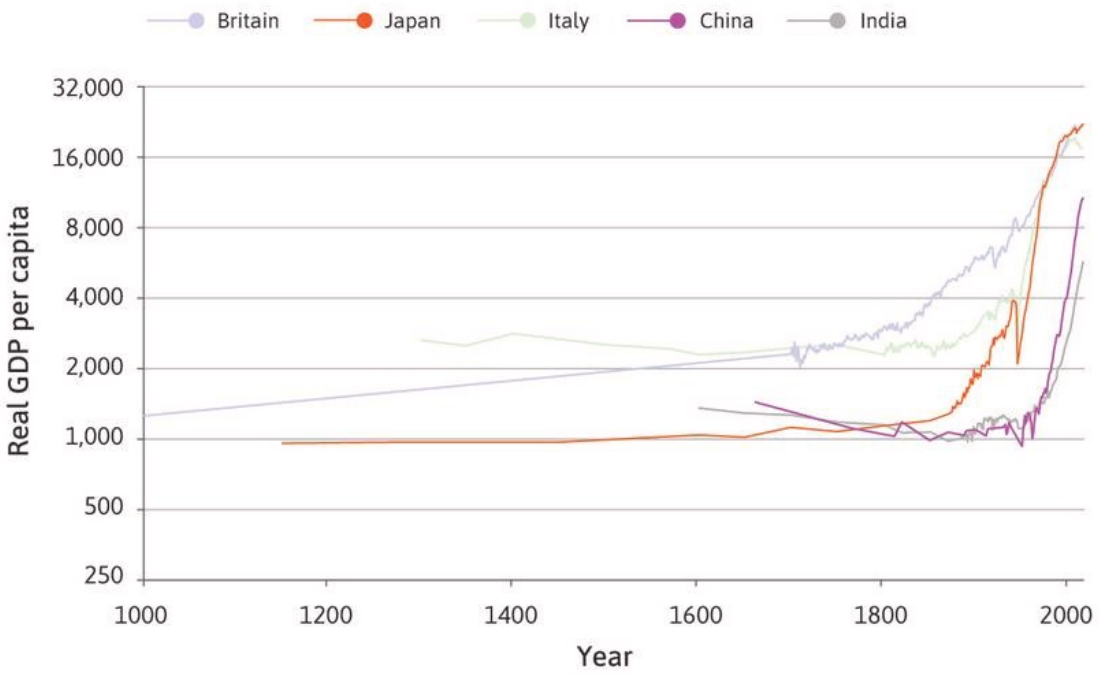
- ☐ Country B's real GDP per capita grew at a constant rate.
- ☐ Over the 10 years shown, Country A's real GDP per capita grew at the fastest rate, on average.
- ☐ Over the 10 years shown, Country D's real GDP per capita grew at the slowest rate, on average.
- ☐ Country C's real GDP per capita grew at a constant rate.

Ratio scale application: Hockey stick

Linear scale



Ratio scale



Lines for the latecomers Japan and China are much steeper than was the case in Britain or Italy i.e. their growth rates have been much faster. The case of convergence.

Technological progress

Defining technological progress

Technology = The description of a process using a set of materials and other inputs, like the work of people and machines, to produce an output.

By reducing the amount of work-time it takes to produce the things we need, **technological progress** has allowed for significant increases in living standards.

Remarkable scientific and technological advances occurred more or less at the same time as the upward kink in the hockey stick in Britain in the middle of the 18th century.

The Industrial Revolution

Industrial Revolution = a wave of technological advances and organizational changes starting in Britain in the 18th century, which transformed an agrarian and craft-based economy into a commercial and industrial economy.

For example, today the **productivity of labour** in producing light is half a million times greater than it was among our ancestors around their campfire.