# 5 Economic growth and production

## 5.1 Economic Growth metric: The GDP growth rate

We talked previously about GDP as a measure of the country's wealth or economic health. We can compare countries with their GDPs. We have seen an impressive increase in the Chinese GDP since the 80s. Since GDP relates to a country's wealth, economic growth can be understood as economic progress. As a society, we expect to have always economic growth or economic progress.

Economic growth or economic progress is measured by the GDP growth rate per year:

$$GDP\ growth\ rate\ of\ year\ t\ = \frac{GDP_t}{GDP_{t-1}} - 1$$

Remember that the measure to evaluate a country's wealth is by checking its GDP value. GDP is the total market value of the economy's final goods and services. If GDP rises, we are all good. However, how to increase the GDP? You know from previous sections that GDP can be increased by the price levels of goods and services or their quantities.

Couldn't we systematically increase the price levels to be all rich? Or is it related to the number of goods and services we produce in the economy? The price levels depend on the supply and demand of goods: What does the quantity of goods and services depend on? However, how does GDP increase? I.e. How does economic progress happen? Let's go to the second section to learn about this.

## 5.2 The determinants and importance of productivity

Let's imagine you are a farmer and you have land to produce potatoes. Suppose you use a shovel to sow and harvest your farm, and in a year, you produce 100 potatoes. That means you have a "productivity" of 100 potatoes.

At the end of the first year, people tell you that there will be an increase in the quantity demanded of potatoes for the second year. However, you realise that you only produce 100 potatoes. That's why you decide to hire someone to help you. For the second year, you and your employee produced 300 potatoes. This means there has been an increase in productivity: The productivity is 150 potatoes per person. Even though the quantity demanded of potatoes would increase, the reason for the increased production depended on labour (number of people), capital (a shovel and land, too), labour productivity (from 100 to 150 potatoes per person) and land productivity (from 100 to 300 per unit of land).
In the short term, the quantity produced of goods and services can be related to the supply and demand curves. However, in the long run, it all comes down to productivity.

In the example above, we have mentioned: the number of people, a shovel and land. Those 3 things are considered "inputs" for the output: potatoes. Question: What if we increase the number of people to not only 2, but 5 or 10? What if, instead of a shovel, we use a tractor? What if we increase the land size? We might see an increase in productivity. However, it's not only about inputs; it's also technology which can make labour and capital more efficient or productive.

Formally speaking, the common economic determinants of productivity are

- Physical capital per worker: A shovel is a very basic tool. The better the farmer's equipment, the better her efficiency or productivity.
- Human capital per worker: An educated farmer or an educated worker has a better productivity level than a person without proper education.
- Natural resources per worker: Land should be fertile. Gold, and silver mines, too. These are all those resources provided by nature.
- Technology per worker: Having an ever-increasing knowledge of technology will make a worker more productive.

Why did we present each input as "per worker"?

Well, we can theoretically write the GDP function as per its inputs as

$$GDP = A * f(L, K, H, N)$$

Where:
A: Technology
f(): Function of production
L: Labour
K: Physical capital
H: Human capital
N: Natural resources

Remember that we talked previously about GDP per capita? Well, a better comparison metric for countries is this metric. So, since Labour is approximately the number of people in an economy, we can write our function as

$$GDP = A * f\left(\frac{K}{L}, \frac{H}{L}, \frac{N}{L}\right)$$

## 5.3 The government and its importance for the economy's productivity

Knowing all this if you were a policymaker, what could you do to increase productivity, and in turn, have economic growth?

As a policymaker, you would need to

- Increase your people's education level.
- Develop policies to encourage the boom of science and technology.
- Increase the level of physical capital in the country.
- Assure a good legal framework for investment and savings to flourish.
- Assure all basic health and nutrition needs are covered for all your citizens.
- Assure a good legal framework for property rights to make people run businesses smoothly.

## 5.4 I want to trade: Which country should I select to invest in?

Informally speaking, you might have known the answer to this question before. Let's respond now formally.

- The higher your risk appetite, the lower the country's GDP you might select. This is because the stock market of a country with a low GDP might be less liquid, which in turn makes the bid-ask spread bigger.
- You should avoid countries which don't offer a decent legal and property rights framework for retail traders.
- Countries with lesser productivity, and thus less economic growth, tend to have not-so-well-developed stock markets, which, in turn, might make these markets have less depth and liquidity.
- Countries with lesser productivity or developing countries might have higher currency volatility. Also, they would have a higher bid-ask spread, making these currencies not so attractive to invest in unless you have a decent level of risk appetite.
- In case a new government in a country is willing to make good positive changes in education, health and nutrition, then you can bet there will be economic progress. Thus, it would be eligible for trading its currency or stocks.