

Real GDP

by Sophia Tutorial



WHAT'S COVERED

This tutorial will explain the difference between nominal and real GDP, including what GDP does and does not measure as an economic indicator.

Our discussion breaks down as follows:

1. Measuring Economic Growth
2. Calculating Nominal GDP
3. Calculating Real GDP
4. Shortcomings of GDP
5. GDP as a Lagging Indicator

1. Measuring Economic Growth

After the Great Depression, economists realized they needed a better way to keep track of the United States economy so that it would not happen again.

Now, while we know that it is quite reasonable for our economy to go through fluctuations of growth and contraction, economists wanted to see how we can better predict when a major depression is coming, and how we can measure economic growth over time.

The answer was to calculate GDP or Gross Domestic Product.



BIG IDEA

GDP attempts to measure all economic activity in a country in a year.

So, if the figure rises from one year to the next, we can feel confident that the economy is more productive than the year before, or growing.

If GDP falls, it is an indication that the economy is slowing.

When we measure GDP, we measure final goods and services, not intermediate goods. Intermediate is something that is purchased in the production process to make a final good or service. Therefore, if we counted intermediate and final goods, we would be double-counting.

➦ **EXAMPLE** Suppose you purchase a new car. Before you buy that new car, a manufacturer has purchased tires and a lot of other components to put on that car. Do you count those tires in GDP? No. That would be double-counting, because they are already counted in the final selling price of the vehicle, as are all of the other components that they purchased to make the car.

However, if you need *new* tires for your car this winter, then the tires that you purchase to replace the old ones *will* count in GDP, because they are a new good. Therefore, it is important to distinguish between final goods and intermediate goods when counting in GDP.

2. Calculating Nominal GDP

Now let's talk about when we are comparing GDP from one year to the next. Let's use an example to determine how much the economy has grown from 2012 to 2013.

We add up the final value of all goods and services sold in 2012 and compare that to the final value of all goods and services sold in 2013.



We calculate the final value by taking the quantity of all these goods and services and multiply by the price of them.

Final value equals quantity times price of all goods and services

Remember, the point of measuring GDP is to see how productive the economy is from quarter to quarter, year to year, etc. We are concerned with the quantity, not necessarily the prices.

It is possible for our GDP to appear to rise from one year to the next due to inflation and not more production.

To simplify things, we will just use one good as an example. In 2012, suppose we found out that there was \$400 million spent on Cheerios, and in 2013, there were \$427.5 million spent on Cheerios (note, not actual figures).

2012: \$400 million spent on Cheerios

2013: \$427.5 million spent on Cheerios

At first glance, it appears that more Cheerios were produced and sold in 2013 than in 2012. However, is this an indication of economic growth? It looks like it from these figures.

When we have more information, now we can see that the reason for the increase in final value was due to an increase in price, not quantity.

	Price	Quantity	Total Value
2012	\$4.00	100 million	\$400 million
2013	\$4.50	95 million	\$427.5 million

We got a bigger figure in 2013 because the price per box of Cheerios went up, from \$4 to \$4.50. Therefore, the reason for the increase was only due to the price, not the quantity. Notice how the quantity actually dropped off a bit.

When we calculate these values this way, by simply taking current prices in each year times quantity, it provides nominal values.

If most prices rose like this from 2012 to 2013--again, because of our Cheerios example--nominal GDP, or NGDP, is what increased.

3. Calculating Real GDP

However, looking at just the quantity, in reality, our standard of living fell by about 5% because we purchased 5% fewer Cheerios.

This is what **Real GDP**, or RGDP, shows us.

Real GDP defined is gross domestic product adjusted for inflation. It shows real growth between periods, holding price level constant.

To calculate real GDP, then, we first have to pick a base year, so let's use 2012 as our base year. Then, we hold prices constant and adjust.

	Price	Quantity	Total Value
2012	\$4.00	100 million	\$400 million
2013	\$4.50	95 million	\$427.5 million

So, for 2013's Real GDP, we use the base year's total value of \$400 million as the basis for comparison.

We take the price in 2012, hold that constant, and multiply by our new quantity from 2013.

$$\$4.00 \times 95 \text{ million} = \$380 \text{ million (RGDP 2013)}$$

You can see that our Real GDP adjusted for inflation is \$380 million, which is a 5% decrease from 2012.

Obviously, we do not just use Cheerios from year to year to calculate GDP. RGDP is calculated by doing this for all final goods and services. We use a price index or a weighted average of all prices.



BIG IDEA

Using Real GDP is the only way we will know how productive an economy is from one year to the next since it takes prices out of the equation.

When it is done this way, it is a strong indicator used to assess overall economic strength, focusing on production and growth.



TERM TO KNOW

Real GDP

Gross domestic product adjusted for inflation— shows real growth between periods holding price level constant

4. Shortcomings of GDP

However, is GDP a perfect measure of all economic activity or how people live in a country, or their standard of living?

First of all, it does not measure any non-market activities, such as:

- Cleaning our own homes
- Caring for children
- Changing the oil on our own car

It also does not measure our quality of life or the well-being of a population.



THINK ABOUT IT

The economy might be growing, producing more from one year to the next, but could it perhaps be because everyone is working much longer hours and sacrificing leisure? This is really not quality of life. It also does not measure things like pollution, crime, etc.

Keep in mind that GDP is also an average. If GDP per person, known as GDP per capita, rises, economists often say that the standard of living in that country has improved--and for many people, maybe it has.

However, does that really mean that everyone is better off? What if almost all of the gains have gone to the people at the top, while the middle class and lower classes have not seen any of that increase? This is something to keep in mind when we are evaluating GDP from year to year.

5. GDP as a Lagging Indicator

GDP is known as a lagging indicator because, for each year, it is calculated after the year is up.



EXAMPLE For example, we use tax returns to figure out our final goods and services.

For this reason, by the time it is measured and published, it is describing what has already happened in the past.

The economy is constantly changing, and we might be at a different point in the business cycle by the time it is published. However, it does show us where we have been.



SUMMARY

We began today's lesson by discussing why we use GDP to **measure economic growth**. We learned the difference between **calculating Nominal GDP** and **Real GDP**, noting that if we are comparing two

different years, it is important to use Real GDP. Lastly, we learned the values and **shortcomings** of using **GDP as a lagging economic indicator**.

Source: Adapted from Sophia instructor Kate Eskra.



TERMS TO KNOW

Real GDP

Gross domestic product adjusted for inflation— shows real growth between periods holding price level constant.