

Comparative Advantage and Gains From Trade

by Sophia Tutorial



WHAT'S COVERED

This tutorial will cover comparative advantage and gains from trade, focusing on the difference between absolute and comparative advantage and the application of these two concepts to specialization and trade.

Our discussion breaks down as follows:

1. An Economy of Two: Example
2. Absolute and Comparative Advantage
3. Comparative Advantage and Trade
 - a. Gains from Trade
4. Comparative Advantage: Other Applications

1. An Economy of Two: Example

Let's begin this lesson with an example to get us thinking about today's topic.

Suppose Tom and Sue were involved in a plane crash and are stuck on a deserted island. There are only the two of them on this island, and they need to figure out how to get some work done.

To simplify the model, let's assume that there are only two different activities that have to be performed:

- Building a shelter
- Searching for food

How are they going to decide who should do what? Well, there are several factors that might impact this division of labor:

- Knowledge: Each of them may have special knowledge that they can use.
- Skills: They likely have very different skill sets.
- Preferences: They also may have different preferences as to what they would like to do.

Let's take a look at their production capabilities.

If Tom devotes all of his time to one task, he can either build a shelter in four hours or he can gather enough food for a whole day in three hours.

Sue is going to take a bit longer. If she focuses solely on building a shelter, it will take her eight hours, whereas if she focuses on gathering food, she can gather enough food for a day in four hours.

Production Capabilities		
	Build Shelter	Gather Food For a Day
Tom	4 Hours	3 Hours
Sue	8 Hours	4 Hours

2. Absolute and Comparative Advantage

As you can see, Tom is better at both activities. He is more efficient at building the shelter as well as gathering food.

In economics, this is known as an **absolute advantage**, which is the capacity to produce a higher number of goods or services using the same production resources as competitors.



An easy way to remember the concept of absolute advantage is, "Who is better at it?"

In the case of our example, it is easy to see who is better at each activity given the numbers.

So, now that we know that Tom has an absolute advantage of both activities, does that mean that Tom should do everything while Sue sits and watches? Obviously not.

Therefore, how should they divide the tasks? Well, they must figure out who has the lower cost for each activity.

This is the theory of **comparative advantage**. It involves looking at who is going to give up less in terms of the other good or the other activity.

Comparative advantage defined is a trading advantage achieved over another company--or another competitor or country--due to lower opportunity cost, which is a very important economic concept meaning what is sacrificed or given up.



Another way of thinking of comparative advantage is, "Who gives up less?"

If Tom and Sue divide the tasks in the most efficient way, they would each specialize in the task for which they have the lower opportunity cost, by evaluating the problem like this:

- Who gives up less in terms of food-gathering when building a shelter?
- Who gives up less in terms of shelter-building when gathering food?



TERMS TO KNOW

Absolute Advantage

The capacity to produce a higher number of goods or services using the same production resources as competitors

Comparative Advantage

A trading advantage achieved over another company due to lower opportunity cost

3. Comparative Advantage and Trade

Now, Tom and Sue's dilemma is a hypothetical situation, and it is unlikely that any of us will ever find ourselves in a similar situation on a deserted island, so let's discuss comparative advantage in real life, using some realistic numbers to calculate opportunity cost.

So, why is it that we trade with other countries? People have very different opinions as to whether international trade is good or bad. In this tutorial, however, we are going to focus on the benefits of specialization and trade.

The basis for trade is the idea that countries enjoy different degrees of the following:

- Natural resources
- Technologies
- Labor (in terms of the skills and education of their workforce or the costs of their workforce)

Some countries have the advantage in labor-intensive raw materials, while others have the advantage in capital-intensive goods.

We will explore this idea using an example of a **two-factor model**, which is a model that indicates the two determinants of production are capital and labor.

Suppose two countries--the United States and Mexico--produce two different items, cars and textiles.

In a given production period, the United States can either build 21 cars or produce seven textiles, whereas Mexico, in that same production period, can either produce eight cars or four textiles.

Output in a Production Period		
	Cars	Textiles
United States	21	7
Mexico	8	4

As you can see, the United States has an absolute advantage in both cars and textiles because they can produce more.

So, who should produce each good? What we have to look at now is opportunity cost.

This chart outlines the opportunity cost per country of producing one car.

Opportunity Cost of Production		
	Cars	Textiles
United States	1/3 Textile	3 Cars
Mexico	1/2 Textile	2 Cars

Every time the United States produces one car, the cost is what they give up in terms of textiles. In this case, they give up one-third of a textile for one car, determined by dividing textiles by cars (7 divided by 21).

If Mexico, on the other hand, focuses on cars, they would give up one half of a textile (4 divided by 8).

Conversely, if the United States focuses on textiles, they would give up three cars for every one textile, while Mexico would give up two cars for every one textile.

Now let's look at who has the lower opportunity cost. If we look at cars, one third is less than one half, so the United States enjoys the comparative advantage because it is the lower cost in terms of producing cars.

Mexico gives up fewer cars when they produce textiles, so they have the lower cost of producing textiles.

Even though the United States has the absolute advantage in both goods, the United States has the comparative advantage in producing cars (highlighted in green), while Mexico has the comparative advantage in producing textiles (also highlighted in green).

If they specialize in trade, they will both end up with more cars and more textiles.



TERM TO KNOW

Two-Factor Model

A model that indicates the two determinants of production are capital and labor

3a. Gains from Trade

As mentioned, even though countries like the United States can enjoy an absolute advantage in production of many goods, we are still better off specializing in what we enjoy a comparative advantage.

In the same way that Tom and Sue can get more accomplished by specializing, so can we!



BIG IDEA

Trade allows countries to enjoy more of both goods, allowing them to move beyond their previous resource and productivity constraints. Both goods can be produced at the lowest opportunity cost, resulting in both players being better off.

4. Comparative Advantage: Other Applications

Finally, let's explore a couple of other applications of comparative advantage that are relevant within daily life.

IN CONTEXT

Suppose an attorney can bill \$200 per hour when working on a case. She also happens to be a very fast typist, and can type 120 words per minute, whereas her secretary can only type 100 words per minute.

Should the attorney fire her secretary and do the typing herself?

Now, you may be asking yourself what in the world this has to do with comparative advantage, but think about it: should the attorney fire her secretary and do all her typing herself?

The answer is no, because we have to look at what she gives up the opportunity to do whenever she types. What is the attorney's cost of typing?

She is giving up the opportunity to bill \$200 per hour while working on a case.

Now, does her secretary face that same opportunity cost when she types? No, because she doesn't have a law degree, so the cost is much lower for the secretary to type 100 words per minute--even though she is slightly slower--because she is not giving up the opportunity that the attorney does.

The cost is much higher for the attorney, which is why it is worth it for the attorney to pay a secretary an hourly wage to do the typing.



THINK ABOUT IT

Think about how much specialization goes on in the world today. As knowledge increases, it becomes a necessity for people to specialize--as scientists, doctors, lawyers, teachers, to name a few. Each of these people specialize in what they are good at. Even within these fields, there is a high degree of specialization--and we're all better off because of it. We allow other people to specialize in what they are good at, and then we trade for their services or goods.



SUMMARY

We began today's lesson by exploring an **example** illustrating an **economy of two** which set the stage to explain the differences between **absolute and comparative advantage**. We learned that people and nations benefit by **gains from trade** when they specialize in whatever they enjoy a **comparative advantage (lower opportunity cost)** and **trade**. Lastly, we learned about **other applications of comparative advantage** within a real world context.

Source: Adapted from Sophia instructor Kate Eskra.



TERMS TO KNOW

Absolute Advantage

The capacity to produce a higher number of goods or services using the same production resources as competitors.

Comparative Advantage

A trading advantage achieved over another company due to lower opportunity cost.

Two-Factor Model

A model that indicates the two determinants of production are capital and labor.