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Economics 202

Comparative Advantage

When applied to economic systems, the concept of comparative advantage helps us explain or predict trade flows between 2 countries. The Law of Comparative Advantage tells us that if two countries specialize in producing where they have a comparative advantage, and then trade, it's possible for those two countries to become better off.

To see this, let's assume you have 2 countries, Country A and Country X, and that these countries produce (only) peaches and avocados. Although both countries could have a very large number of output combinations for these two goods, let's simplify things down and assume that when producing at their potential, each country has only 6 possible output combinations. Let's further simplify by assuming that these countries always operate at full employment and that the tables below reflect the PPCs of Country A and Country X.

Country A	A1	A2	A3	A4	A5	A6
Quantity of peaches	10	8	6	4	2	0
Quantity of avocados	0	3	6	9	12	15

Country X	X1	X2	X3	X4	X5	X6
Quantity of peaches	30	24	18	12	6	0
Quantity of avocados	0	2	4	6	8	10

Suppose Country A is currently producing at pt. A4, but is considering a move to pt A3. In order to gain 2 additional units of peaches, Country A must give up (i.e. produce less of) 3 units of avocados. Note that this would also apply every time Country A increases their production of peaches, moving point to point along the PPC. This implies that the opportunity cost of each additional unit of peaches is 1.5 units of avocados. If Country A moved from A4 to A5 and gained 3 units of avocados, Country A would have to give up producing 2 units of peaches. That is, the opportunity cost of each additional unit of avocado is 0.67 units of peaches. Applying that same idea to Country X, we learn that the opportunity cost of each additional unit of peaches in Country X is 0.3 units of avocados, and the opportunity cost of each additional unit of avocados in Country X is 3 units of peaches.

Note also that in both countries, the opportunity cost of producing peaches is always the same, no matter which pair of points you move between, and that the same applies to the opportunity cost of producing avocados. This implies that both countries experience constant opportunity cost, which we know means that their PPC is linear.

Determining Comparative Advantage
We determine the comparative advantage of each country by comparing the opportunity of producing these two goods. Opportunity cost is a means of determining how good you are at doing something. If you're better at something, then you don't give up as much to do that something and your opportunity cost is lower. If you're worse at that thing, then your opportunity cost would be higher. When a country has a lower opportunity for producing a specific good than another country, then we say that this country with the lower (relative) opportunity cost has a comparative advantage in producing that good.

Looking again at the opportunity cost of producing peaches and avocados in each country, we have the following:

Country A:
Opportunity cost of producing each unit of peaches = 1.5 units of avocado
Opportunity cost of producing each unit of avocados = 0.67 units of peaches

Country X:
Opportunity cost of producing each unit of peaches = 0.3 units of avocado
Opportunity cost of producing each unit of avocados = 3 units of peaches

Based on the information above, we can argue that Country A has a comparative advantage in producing avocados, and Country X has a comparative advantage in producing peaches.

This does not mean Country A is bad at producing peaches and Country X is bad at avocados. E.g., if we doubled each of the values in Country X's PPC table, we wouldn't change the comparative advantage, but Country X would suddenly be capable of producing more of both goods than Country A. This is what's meant by absolute advantage, but absolute advantage doesn't explain trade flows. To understand the difference between comparative advantage and absolute advantage, consider this. There are professional boxers who hire body guards. Do these boxers do this because they can't protect themselves from their fans? No, a boxer would clearly be very good at protecting themselves when they are out in public. In other words, a boxer likely has an absolute advantage in both boxing and the personal service we'll call "personal protection". By having boxers specializes in their area of comparative advantage, boxing, and letting the body guards specialize in their area of comparative advantage, providing personal protection, it's possible for both individuals (boxer and body guard) to achieve greater net benefit. I.e., we could argue that both of these individuals are better off as a result.

How does comparative advantage make these countries better off?
Before answering this question, we need to define "better off". Let's define better off as having more of one good, but no less of the other good. This is the equivalent of saying that you can have more of something without facing any cost at all (i.e. getting free stuff). Note that simply moving along the PPC does not make a country better off in that sense, because with every unit gained as you move in one direction, there's a cost associated with gaining each unit.

Let's assume further that neither Country A or Country X is currently trading on the world market, which means they must produce everything they need in terms of domestic demand. We'll add that Country A is operating at pt A3, and Country X is operating at pt X3.

Given this assumption about domestic demand, we can show pre-trade consumption for both countries in the table below (row 1). If these countries decide to utilize the Law of Comparative Advantage and specialize in producing the goods where their opportunity cost is lowest, relative to one another, then they would be operating in row 2 of the table below. I.e., these 2 countries would move from the first row of the table to the second row of the table.

	Country A	Country X
Pre-trade consumption	6 units of peaches 6 units of avocados	18 units of peaches 4 units of avocados
Output after Specialization	0 units of peaches 15 units of avocados	30 units of peaches 0 units of avocados

Of course, specialization gives each country more of one particular good than they need to meet domestic demand, and leaves them short on the (other) good that they no longer produce. The next table summarizes this. Country A has an extra 9 units of avocados, and needs 6 units of peaches to satisfy domestic demand, whereas Country X has an extra 12 units of peaches, and needs 4 more units of avocados. This situation, where these countries have extra units of a good that another country needs, clearly opens up a pathway to trade.

	Country A	Country X
Excess units (relative to original domestic demand)	9 units of avocados	12 units of peaches
Units short (due to specialization)	6 units of peaches	4 units of avocados

If trade is to occur, then we need an exchange rate, so let's assume that the exchange rate for these two goods is 1 unit of peaches for 1 unit of avocados. Let's further assume that Countries A and X settle on an exchange of 7 units of avocados for 7 units of peaches. This exchange leads us to post-trade quantities of 7 units of peaches and 8 units of avocados in Country A, and 23 units of peaches and 7 units of avocados in Country X. That information is provided in the table below, and then compared to what each country started with before trade.

	Country A	Country X
Pre-trade consumption	6 units of peaches 6 units of avocados	18 units of peaches 4 units of avocados
Post-trade consumption	7 units of peaches 8 units of avocados	23 units of peaches 7 units of avocados

Does utilizing the Law of Comparative Advantage allow these countries to become better off? As the table above shows us, both countries are able to consume more of each good in the post-trade world than in the pre-trade world. I.e., both countries are better off.