SCHOOLS BRIEF

The miracle of trade

The most popular and most dangerous of all elementary economic fallacies is the claim that an unproductive economy may be harmed by free trade. This view misunderstands one of the subtlest but most powerful deductions in economic theory: the principle of comparative advantage

POP economists of even the smallest pretension claim an intimate acquaintance with the principle of comparative advantage—usually pointing out, wrongly, that it dates back to Adam Smith. Understanding why it is wrong to credit Smith with this crucial idea takes you a good way towards understanding the idea itself.

Smith was much concerned with the gains to be made from specialising. Hence his interest in trade among people and nations: specialisation both requires and promotes trade. But what Smith said about specialisation was implicitly based on the idea of absolute, as opposed to comparative, advantage.

It is mere common sense that if one country is very good at making hats, say, and another is very good at making shoes, then total output can be increased by arranging for the first country to concentrate on making hats and the second on making shoes. Then, through trade in both goods, more of each can be consumed in both places.

That is a tale of absolute advantage, such as Adam Smith might have told. Each country is better than the other at making a certain good, and so profits from specialisation and trade. Comparative advantage is different: a country will have it despite being bad at the activity concerned. Indeed, it can have a comparative advantage in making a certain good even if it is worse at making that good than any other country.

This is not economic theory, but a straightforward matter of definition: a country has a comparative advantage where its margin of superiority is greater, or its margin of inferiority smaller. Carl Lewis, one imagines, is better than Bill Clinton at both sprinting and tennis—that is, he has an absolute advantage in both. Even so, the president has a comparative advantage in tennis, in which his margin of inferiority, however impressive, is presumably smaller. Conversely, Mr Lewis's comparative advantage is in sprinting, in which his margin of superiority is greater.

Across any range of athletic events, Mr Clinton would have no comparative advantage with respect to Mr Lewis only in the all-but-impossible circumstances that his margin of inferiority were exactly the same in each sport. As long as he is, as it were, relatively less bad at something, he is bound to have a comparative advantage in that activity.

Accordingly, when people say of Africa, or Britain, or wherever, that it has no comparative advantage in anything, they are simply confusing absolute advantage (for which their claim may or may not be true) with comparative advantage (for which it is certainly false).

Why does this confusion over terms matter? Because the case for free trade is often thought to depend on the existence of absolute advantage—and is therefore thought to collapse whenever absolute advantage is absent. But economics (thanks to David Ricardo in the 19th century, not Adam Smith in the 18th) shows that gains from trade follow, in fact, from comparative advantage. Since comparative advantage is never absent, this gives the theory far broader scope than most popular critics suppose.

In particular, it shows that even countries which are desperately bad at making everything can expect to gain from international competition. If countries specialise according to their comparative advantage, they can prosper through trade regardless of how inefficient, in absolute terms, they may be in their chosen speciality.

At first sight this is an implausible, not to say miraculous, finding. In economics, it stands apart. One distinguished practitioner has even called the principle of comparative advantage the only result in economic theory that is neither trivial nor false. That may be a little hard on the rest of economics, but it does suggest that the principle is worth the small effort required to understand it.

Speaking of which

Imagine a global economy comprising two countries, North and South. Each makes two goods, bread and wine; each has 100 workers, and no input but labour is required for production. Assume that they are market economies but, to begin with, closed to foreign trade.

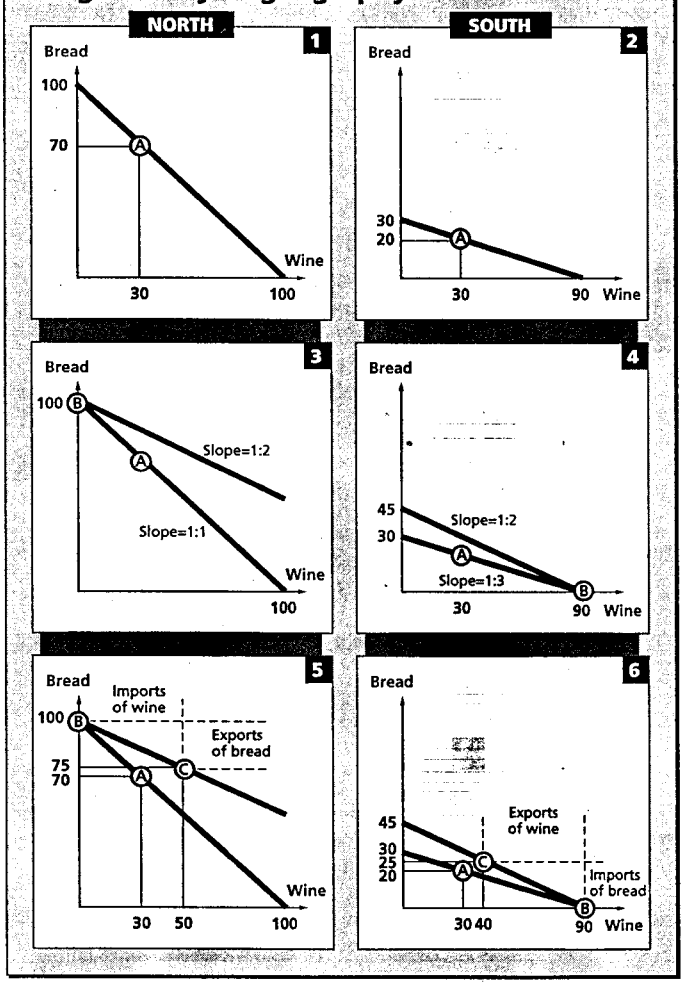
To proceed, an assumption about technology is required. North, it seems, could make 100 loaves a day if it devoted all its manpower to bread, and 100 bottles a day if it devoted all its manpower to wine, with all intermediate combinations (50 loaves and 50 bottles, say) in proportion. Its production choices are therefore shown by the line, which is called a production-possibility frontier, in chart 1. Exactly how much of each good it chooses to produce depends on the relative demand in North for bread and wine. Suppose demand is such that the economy chooses point A: 70 loaves and 30 bottles.

South is less efficient at making both goods. At one extreme, it could make 30 loaves a day; at the other, 90 bottles of wine. Suppose demand is such that it produces 20 loaves and 30 bottles—point A in chart 2.

With these facts, the rate at which bread will be exchanged for wine in each economy is known. In North this rate is 100 loaves to 100 bottles (that is, 1:1). In South it is 30 loaves to 90 bottles (1:3). These rates, which are the relative prices of bread and wine in the two economies, are shown by the slopes of the lines in charts 1 and 2.

Now suppose that the economies are allowed to trade with each other. What happens? Certainly, North is going to offer South some bread in exchange for wine. In North, a loaf sells for

The geometry of geography



just one bottle of wine; across the border, it fetches three. Once trade is possible, consumers in the North will no longer be happy: at these prices, they can improve their position through trade.

Consumers in the South will be happy to go along. They will be keen to sell some wine. At home, a bottle sells for one-third of a loaf; in the North, the same bottle sells for a full loaf.

Here then is the automatic connection between comparative advantage and trade. In North, bread is cheap in relation to wine; in South, bread is dear in relation to wine. That difference—the difference between the slopes of the lines in charts 1 and 2—gives North its comparative advantage in bread, and South its comparative advantage in wine. The same difference creates the opportunity for trades that will make both sides better off.

It's all comparative

	Exchange ratio*	Bread produced	Bread consumed	Bread imported (-) exported (+)	Wine produced	Wine consumed	Wine imported (-) exported (+)
Before trade							
North	1:1	70	70	0	30	30	0
South	1:3	20	20	0	30	30	0
World	none	90	90	0	60	60	0
After trade							
North	1:2	100	75	+25	0	50	-50
South	1:2	0	25	-25	90	40	+50
World	1:2	100	100	0	90	90	0
Gains from trade							
North		+30	+5		-30	+20	
South		-20	+5		+60	+10	
World		+10	+10		+30	+30	

*Loaves of bread for bottles of wine

Between the lines

How does this process work itself out? Once the pattern of trade between North and South has settled down, we can be sure of one thing: the relative price of bread and wine will be the same in both countries. Otherwise, the pattern of trade will shift again as buyers and sellers engage in further cross-border "arbitrage" between the two goods.

Where will the price settle? This cannot be deduced from the existing assumptions: it depends on the pattern of demand in North and South. All we know is that the free-trade price will lie between the initial prices in North and South.

Given only this, however, it is possible to say exactly what and how much North and South will produce. At any price even fractionally above 1:1, North will specialise entirely in the production of bread. That is because by making only bread, and trading some of it for wine, it can achieve its highest possible consumption of both goods. This is shown in chart 3.

At a price of 1:2, say, North produces at point B, and can then, in effect, trade along its new price line to any of a range of points. This new price line is a consumption-possibility (as opposed to production-possibility) frontier. It includes many points that are above and to the right of A. At such points, North would consume more of both goods, and therefore be unambiguously better off than it was at A.

If North chose to produce at any point on its production-possibility frontier other than B, opportunities to do better by making more bread and less wine (thus shifting the consumption frontier upwards) would again be left unexploited. In this simple model of a market economy, that cannot happen. North does as well as it can, and specialises entirely in bread. By exactly the same reasoning, South specialises entirely in wine, at point B in chart 4.

None of this depends on the particular price set in the market. That will be determined by the pattern of trade in bread and wine. The price will settle at whatever level is needed to balance North's exports (South's imports) of bread with North's imports (South's exports) of wine. We know that this value will lie between 1:1 and 1:3. For illustrative purposes, suppose the price does turn out to be 1:2, as in charts 3 and 4. Then charts 5 and 6 show a possible outcome.

Each economy moves from its initial production at A to complete specialisation at B. From there, with prices changing to balance the flows of good each economy trades alor its (shifting) consumptio frontier to point C. Ther equilibrium is achieved at price of 1:2, with both eco omies consuming more both goods than before.

For greater clarity, th numbers in charts 5 and are also set out in the tabl The highlighted numbe are what really matter. B cause of trade, North co sumes five more loaves an 20 more bottles of wir than before. Unproductiv South consumes five mo loaves and ten more bottl of wine. There you have i the gains from trade.

Free and fair trade

Those suspecting sleight of han may still find it confusing th South can sell wine in comp tition with North, even thoug North makes wine more eff ciently. The answer to this pu zle, embedded in the foregoin analysis, is wages.

Recall that, after trad South's 100 workers make 90 bo tles of wine a day. So their dail wage must be nine-tenths of bottle. (By assumption, there a no other factors of productio workers receive all output wages.) North's workers mak 100 loaves, so they each earn o loaf a day; at the after-trade pric that is equivalent to two bottl of wine. In other words, wages i South are less than half of wag in North.

That difference is enough t offset South's low productivity i wine, making it a "competitive supplier. But the difference is n enough to offset South's low pr ductivity in bread. This is just a other way of saying that Nort has comparative advantage i bread, and South in wine.

Unequal wages may be an e ficient basis for trade, but a they a just one? It is often argue that such trade is unfair o North, because its suppliers a being undercut by Souther sweatshop labour. The sam logic, slightly twisted, yields th opposite complaint: trade is u fair on South, because its worke are being exploited.

The best answer to both arg ments is simply to point out tha "fair" or not, trade raises i comes in both countries. Victi of injustice and exploitatio should always be so lucky.

Reality calling

IN THE real world, the power of comparative advantage seems weaker than the simple model of trade implies. For instance, countries specialise less than you would expect. There is lots of "intra-industry" trade—France sells cars to Germany and vice versa. And competition from foreign suppliers does sometimes lower wages in the importing countries.

More complicated versions of the model account for these apparent anomalies. Moving from two goods and countries to many greatly complicates the maths, but otherwise changes little. A bigger point is that in the real world labour is not the only factor of production: it works with capital (and maybe other factors too). As a result, diminishing returns (extra inputs yield ever smaller additions to output) must be taken seriously. It follows that the production-possibility frontier is not in general a straight line, but a curve bending outwards in the middle. This in turn implies that complete specialisation is unlikely. As the consumption frontier moves upwards (see charts 3 and 4), the country shifts production in accordance with comparative advantage—but gently, not abruptly to point B.

The other big change is that, with two or more factors to reward, the distribution of income matters. As trade shifts resources, this distribution is likely to alter. If an industry that uses lots of labour shrinks and one that uses lots of capital grows, payments to labour will fall relative to payments to capital—perhaps enough to lower real wages. But remember that in each country trade will still raise incomes in the aggregate, making it possible for losers to be compensated, with net gains all round.