

# ECN230 SRP session 2. Theoretical Expectations from Trade Liberalization

## Law of One Price: Theory vs Practice

*Economist*, "Charlemagne: The Pampers index", 29 Aug 2020, p. 19.

Huge price disparities in Europe means the single market still needs changing: it poses a real-world challenge for the law of one price. The parents of a new-born baby should spend a few minutes shopping around for nappies. Three enormous boxes of Pampers come to €168 on Amazon's Spanish website. By contrast, the same order from Amazon's British website costs only €74. (Even after an exorbitant delivery fee is added, the saving is still €42.)

The swankiest model of a Nespresso coffee machine costs €460 on Amazon's French website, but can be snapped up for €301 on the German version. Samsung's newest phone can vary in price by up to €300 depending on which domain is used.

The EU may have a single market, but its products do not have single prices. In an integrated market, prices are supposed to come together over time. Yet this process has stalled in the EU. Prices for exactly the same products still diverge, often starkly and even among rich countries. It is a long-term trend: prices stopped moving together in 2008. Big steps of integration such as the introduction of the euro, which drew them closer together, are now rare. Wages in eastern Europe are not growing as rapidly as they were. Services, which are often hard to trade across borders, make up a greater proportion of the EU economy. Mollycoddled companies still dominate some industries. It is common to see someone stocking up on painkillers in the Netherlands, where they can be bought in any supermarket, before hopping on a train to Belgium, where pharmacies enjoy a monopoly and a mark-up.

Some price differences are inevitable. A store in central Paris will charge more for the same goods than one in a hypermarket on the edge of a medium-size town. Sometimes price divergence is necessary in a bloc that contains both Germany (GDP per head of €39,130) and Bulgaria (€8,237). And given that retail is still dominated by brick-and-mortar stores and their websites, markets remain stubbornly national even online. The upshot? One study showed that online prices varied by 20% for items like electronics and up to 40% for clothing between EU countries.

Yet for nappies, a tradeable good which can be bought online anywhere in Europe, the persistence of big price gaps is especially odd. Prices per nappy range from €0.11 to €0.61 within the bloc, according to one survey. *The Economist* uses the price of a Big Mac to compare currencies around the world. Something similar could work with the single market. Call it the Pampers index: a rough measure that shows which EU citizens are paying over the odds.

Arbitraging these differences away is not simple. Borders matter in trade and they still exist in the EU. Cross a state border in the US and not much changes, for most businesses; cross a border in the EU and they face a new legal regime in a foreign language, with a different consumer culture. Nor is it an easy process for consumers. It is one thing to fire up Google Translate to read a news article, quite another to double-check what *zur kasse gehen* means in the middle of a €1,000 purchase. The US is far more integrated, sigh EU officials. As a result, big online retailers like Amazon offer a shopper in Alabama the same price as one in California.

Delivery charges within the EU are often steep. Getting products from where they are cheap to where they are expensive is often painfully slow or prohibitively costly, particularly if they are bulky, like nappies. It is worse in small countries. (Your correspondent once lugged the entire discography of the Rolling Stones, on vinyl, from London to Brussels so that a friend from a Baltic state could avoid a €110 charge.) Nor is there much motivation for suppliers to fix the problem. Sellers are unenthusiastic about products from low-price markets leaking into high-price ones.

The EU has taken some action. It is now illegal for websites to block consumers from other countries without good reason. This came after EU officials picked a fight with Disney, when it emerged that Disneyland Paris stopped customers outside France from getting the cheapest deals. And the union has created a database of delivery-company charges, hoping sellers will use it to drive prices down. Such interventions seem to be having an effect. In 2010, barely one in ten EU citizens bought something from a website in a different country; in 2018, 28% did. But the union could do more. Indeed, rather than making it easier for lorries to zip across borders, the EU recently tightened its rules to placate western European countries which complained that national labour rules were being undercut. Eastern European countries cried protectionism.

Lately the union's geopolitical ambitions seem to take up more of its leaders' time than the mundane business of cross-border trade. The single market should not become a forgotten child of European integration. Sometimes pricey Pampers are as important as high politics.

Consumers have to do their bit, too. The EU is sometimes criticised for being a top-down institution, confusing voters with grand projects they do not necessarily want. Change can come from other directions. Each country has its own version of the "booze cruise", a British term for piling into France to buy cheap wine. Luxembourgers head to German supermarkets for better prices. Swedes nip over to Norway to stock up on cheap nappies. Doing so online is much easier, yet most people still do not bother. Online arbitrage could become an unlikely engine of European integration. But it would be up to citizens. As with nappies, some things must start at the bottom.

*Economist*, "Economics focus: . . . the price of fish", 10 May 2007.

### How do mobile phones promote economic growth?

A fisherman off the coast of northern Kerala, a region in the south of India, brings in an unusually good catch of sardines. Other fishermen in the area probably did well too, so supply will be plentiful at the local beach market: prices will be low, and the entire catch might not even be sold. At which market should the fisherman sell, the usual local market, or one down the coast where prices could be better (because fishermen in that area might not have done so well)? It's a gamble - the wrong choice means one cannot visit another market because fuel is costly and each market is open for only a couple of hours before dawn—and it takes too long travel between markets. Fish are perishable.

This was the situation facing Kerala's fishermen until 1997. In practice, fishermen chose to stick with their home markets. This was wasteful because when a particular market is oversupplied, fish are thrown away, even though there may be buyers for them a little farther along the coast. On average, 5-8% of the total catch was wasted, says

Robert Jensen<sup>1</sup>, a development economist at Harvard University who has surveyed the price of sardines at 15 beach markets along Kerala's coast. On January 14th 1997, for example, 11 fishermen at Badagara beach ended up throwing away their catches, yet on that day there were 27 buyers at markets within 15km who would have bought their fish. There were also wide variations in the price of sardines along the coast.

In 1997 mobile phones were introduced in Kerala. Coverage spread gradually, providing an ideal way to gauge the effect of mobile phones on the fishermen's behaviour, the price of fish, and the amount of waste. For many years, anecdotes have abounded about the ways in which mobile phones promote more efficient markets and encourage economic activity. One popular tale is that of the fisherman who calls several nearby markets from his boat to establish where his catch will fetch the highest price.

As phone coverage spread between 1997 and 2000, fishermen bought phones and used them to call coastal markets while still at sea. (The coverage reached 20-25km off the coast.) Instead of selling their fish at beach auctions, the fishermen called around to find the best price. Dividing the coast into three regions, Mr Jensen found that the proportion of fishermen who ventured beyond their home markets to sell their catches jumped from zero to around 35% once coverage became available in each region. At that point, no fish were wasted and the variation in prices fell dramatically. When coverage was available in all three regions, waste had been eliminated and the "law of one price"—the idea that in an efficient market identical goods should cost the same—had come into effect. There was a single rate for sardines along the coast.

This more efficient market benefited everyone. Fishermen's profits rose by 8% on average and consumer prices fell by 4% on average. Higher profits meant the phones typically paid for themselves within two months. And the benefits are enduring, rather than one-off. All of this, says Mr Jensen, shows the importance of the free flow of information to ensure that markets work efficiently. "Information makes markets work, and markets improve welfare," he concludes. Phones do this without the need for government intervention. Mobile-phone networks are built by private companies, not governments or charities, and are economically self-sustaining. ♦

#### A Comment on Distance (Proxy for Transport)

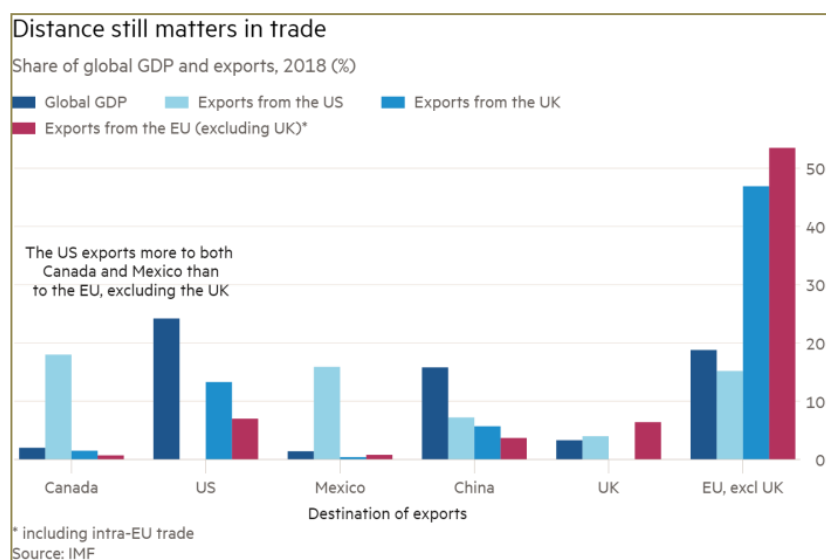
**Financial Times, "Global Britain' is an Illusion because Distance Has Not Died", by M. Wolf, 17 May 2019, p. 9.**

In a world of global supply chains and overnight delivery, there is no longer any such thing as distance." This assertion appeared in a letter to the FT published on May 6. Its author is not alone in this view. Nor is this just the view of Brexiters. Thomas Friedman of the New York Times asserted in his 2005 best-seller that The World is Flat. The

British economist Frances Cairncross called her 2001 book *The Death of Distance*. This idea that modern transport and communication have made distance irrelevant may seem quite plausible. But it is untrue.

Geography and the role of differentiated products that appeal to diverse tastes expand our understanding of why trade occurs. But the fundamental insight of the theory is not overturned. Australia's agricultural exports, or Saudi Arabia's reliance on oil, clearly stem from their natural resources. Poorer countries tend to have relatively more unskilled labour, so they export simple manufactures, such as clothing. So long as relative production costs differ between countries, there are gains to be had from trade.

In 2018, the US sent 34% of its merchandise exports to Canada's (18%) and Mexico's (16%), against 19% to the EU and 7% to China. Yet the size of the markets of Canada and Mexico, together, was just 16% of the EU's and 26% of China's. The EU's exports to the UK were 79% of its exports to the US and 153% of its exports to China, though the UK economy was 14% of that of the US and 21% of China's. The UK sent 4% of its exports to the rest of the EU, against 13% to the US and 6% to China, though the US economy was 29% bigger than the EU's (excluding the UK), and China's was only 16% smaller.



It is remarkable that the US exports almost as much to Canada as to the EU. It is no less remarkable that the EU exports almost as much to the UK as to the US. But these are just anecdotes. What about systematic data? A thorough analysis of 1,467 estimates from 103 scholarly papers concluded: "On average . . . a 10% increase in distance lowers bilateral trade by about 9%." Distance matters, big time. Moreover, it matters more now than it did a century ago. Thus, another study reveals that the negative effect of distance was larger between 1950 and 2000 than it had been between 1870 and 1913 or in the interwar period.

This finding is not limited to goods. It appears that there is a distance effect in the internet, too: Americans are more likely to visit websites located in nearby countries, even allowing for language, income, immigrant stock and so forth. One could read the newspapers and listen to the radio stations of any country. But, by and large, one does not. Indeed the national bias in commerce — a powerful distance effect — is well known in trade in goods and services. By and large, people buy services from national businesses: retail banking is an excellent example of this tendency.

<sup>1</sup> Jensen, R., "The digital divide: Information (technology), market performance and welfare in the South Indian fisheries sector", *Quarterly Journal of Economics*, Aug 2007.

Note, too, perhaps the most powerful indicator that distance still matters: the agglomeration effects visible in industries like information technology or financial services. One might think these industries had to become “flat”. But they did not. They have clustered at the top of virtual mountains: San Francisco, New York, London or Shanghai. So why has distance not died and the world not become flat? One explanation is that relativities matter. While barriers to distance have indeed fallen, they have probably declined even more over short distances than over longer ones. A complementary fact is that the nature of trade has changed and, in particular, it has become more control-intensive and time-dependent. In the late 19th century, close to two-thirds of trade consisted of commodities. These went where the markets were. In return, commodity exporters imported manufactures, which had to come from the relatively few (often distant) industrialised countries. Now, however, trade is often within supply chains, where reliability and controllability is vital.

Regional trade arrangements also matter, not because the ostensible barriers are so much lower than in other trade, but because procedures tend to be far more reliable and efficient. The aim of the EU single market, notably, was full “jurisdictional integration”. In other words, trade was intended to be just like that within a country. That has not happened (yet). But the EU has gone a long way towards it. This objective also explains the regulatory and procedural harmonisation that Brexiters detest so much: it was the price of integration.

What is most interesting in all this is that there is much more to distance than overt transport costs: distance has many dimensions — economic, cultural and legal. For the UK’s debate on Brexit the conclusion is simple. There are only two possible explanations for the immense bias towards trade with the EU: either the preferential advantages of being within the EU are very large or the vital fact is that these are neighbours. Either way, the idea that there is a global alternative, which would offset the loss of the opportunities offered by the EU, and especially preferential trade with the EU, is a delusion. It is the biggest of the many Brexit delusions.

### General Equilibrium Trade Analysis

*Economist*, "The miracle of trade", Schools brief on trade, 17 Jan 1996, p. 61-2.

**A common and dangerous elementary economic fallacy is the claim that an unproductive economy may be harmed by free trade, a misunderstanding of 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 one a good way towards understanding the idea itself. Smith was concerned with the gains to be made from specializing. 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 absolute and not 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 specialization 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 both at 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. Being relatively less bad at something implies having a comparative advantage in that activity.

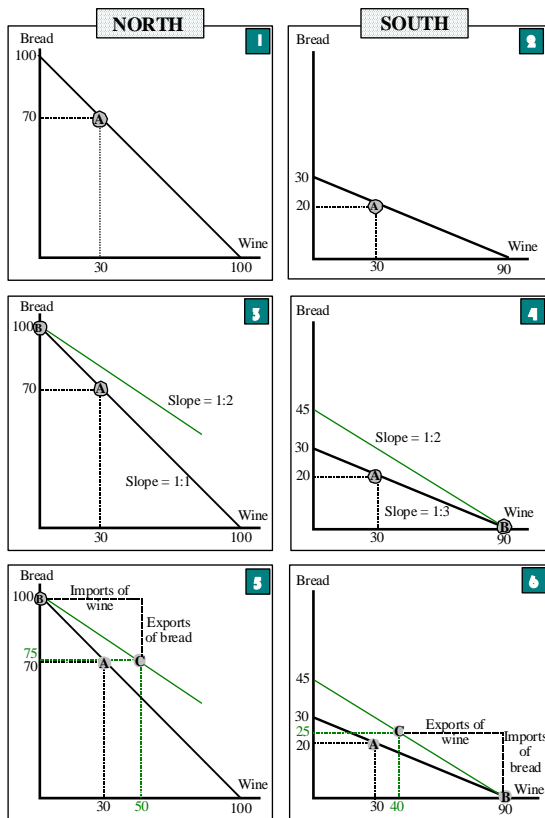
Accordingly, when people say of Africa, or Britain, or wherever, that it has no comparative advantage in anything, they are simply confusing absolute advantage (for which their claim may or may not be true) with comparative advantage (for which it is certainly false). Why does this confusion over terms 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 19<sup>th</sup> century, not Adam Smith in the 18<sup>th</sup>) 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.

### 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 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 North, the same bottle sells for a full loaf.

This 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 in 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.

How does this process work itself out? **Once the pattern of trade between North and South settles, we can be sure of one thing: the relative price of bread and wine will be the same in both countries.**

Otherwise, the trade pattern 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 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 **specialize 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 (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 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. 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. Charts 5 and 6 show a possible outcome.

**Each economy moves from its initial production at A to complete specialization at B.** From there, with prices changing to balance the flows of goods, each economy trades along its (shifting) consumption frontier to point C. There, equilibrium is achieved at a price of 1:2, with both economies consuming more of both goods than before.

For greater clarity, the numbers in charts 5 and 6 are also set out in the table. The highlighted numbers are what really matter. Because of trade, North consumes five more loaves and 20 more bottles of wine than before. Unproductive South consumes five more loaves and ten more bottles of wine. There it is: the gains from trade.

Those suspecting a sleight of hand may still find it confusing that **South can sell wine in competition with North, even though North makes wine more efficiently.** **The answer to this puzzle, embedded in the foregoing analysis, is wages.**

Recall that, after trade, South's 100 workers make 90 bottles of wine a day. So their daily wage must be nine-tenths of a bottle. (By assumption, there are no other

It's all comparative						
Exchange ratio*	Bread			Wine		
	Pro-duced	Con-sumed	Imports (-) Exports (+)	Pro-duced	Con-sumed	Imports (-) Exports (+)
Before trade:						
North	1:1	70	70	0	30	30
South	1:3	20	20	0	30	30
World	none	90	90	0	60	60
After trade:						
North	1:2	100	75	+25	0	50
South	1:2	0	25	-25	90	40
World	1:2	100	100	0	90	90
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.



factors of production: workers receive all output as wages.) North's workers make 100 loaves, so they each earn one loaf a day; at the after-trade price, that is equivalent to two bottles of wine. In other words, wages in South are less than half of wages in North.

The difference is enough to offset South's low productivity in wine, making it a "competitive" supplier, but is not enough to offset South's low productivity in bread. This is just another way of saying that North has a comparative advantage in bread, and South in wine.

Unequal wages may be an efficient basis for trade, but are they a just one? It is often argued that such trade is unfair on North, because its suppliers are being undercut by Southern sweatshop labour. The same logic, slightly twisted, yields the opposite complaint: trade is unfair on South, because its workers are being exploited. The answer to both arguments is simply to point out that "fair" or not, trade raises income in both countries. Victims of injustice and exploitation should always be so lucky. ♦