International Trade

Revised: November 8, 2012
Latest version available at http://www.fperri.net/TEACHING/20205.htm

Virtually all economists, liberal or conservative, believe that free (or freer) trade is a good thing: good for consumers, good for workers. Why? Because consumers are able to buy products from the cheapest vendor, and workers are able to take jobs that offer the highest wages. But if trade is such a good idea, why do non-economists find the idea so puzzling, and even dangerous? The purpose of this note is to outline the theory of international trade, which you can combine with your own knowledge and experience to make your own judgment about trade and globalization.

Ricardo's theory of trade

David Ricardo was one of the most influential economists of the early nineteenth century, but he came to economics by a circuitous route. Born to a Jewish family in Amsterdam, he left the country and broke off relations with his family (and they with him) to avoid an arranged marriage — he married a Quaker instead. He set himself up in London as a government securities dealer and became, in his words, "sufficiently rich to satisfy all my desires and the reasonable desires of all those about me." Looking for something to occupy his time, he developed the modern theory of international trade.

Many people of Ricardo's day (and ours!) regarded trade as a zero-sum activity: if you gain from trade, then I must lose. As Adam Smith in his Wealth of the Nations puts it

> All political writers since the time of Charles II had been prophesying that in a few years we would be reduced to an absolute state of poverty [by international trade], but we find ourselves far richer than before.

That trade is good for consumers is easy to understand; more trade means more choices and having more choices is at least as good as not having them. That trade is good for producers is a bit less immediate. The argument uses the idea of specialization. Take Minnesota and Florida: Minnesota is good at producing corn and Florida is good in producing oranges and both Minnesotans and Floridians like to consume oranges and corn. In absence of trade some oranges will be produced in greenhouses

in Minnesota and some corn will be grown in the Florida swamps: but productivity in those two activity is not very high and thus producers in those two sectors will not be doing very well. When Florida and Minnesota open up to trade Minnesota can specialize in corn and Florida in oranges, meaning, for example, that producers of oranges in Minnesota can turn to producing corn. The demand for their corn will come from Florida and they will have higher productivity so they are also better off. But this story relies on absolute advantage (Florida on oranges and Minnesota on corn) and that was Smith had in mind. What if Florida is better than Minnesota in both oranges and corn?

Ricardo insight was that trade is advantageous even in this situation. What matter is not absolute advantage but comparative advantage, that is as long as Minnesota is better than Florida in the corn to orange ratio (even though it is worst than Florida in both) then trade will be advantageous to both. This result has been referred to one of the few results in economics which is neither trivial nor false, so in class we will discuss the Economist's note "The miracle of trade" in detail.

The note develops Ricardo's theory in a particularly simple setting: two countries produce and consume two products, and both products are produced with labor alone. In many respects this version of the theory is unrealistic, but the lack of realism is exactly what makes the analysis simple and understandable. We'll discuss later whether the lack of realism plays an undue role in our conclusions. (For the most part, it does not.)

Bottom line

- The driver of trade are differences in prices. In absence of trade wine is expensive in the North and cheap in the south. That calls for the North to buy wine from the South. The symmetric holds for bread.
- Why is South producing and exporting wine when the North could do it more efficiently? Because wages of wine producer in the South are lower. Think like this: how much bread does it cost in the North to switch one worker from bread to wine? 1 loaf. How much in South? only 1/3 of a loaf.
- Consumers are better off in both countries with free trade because they both take advantage of cheap goods.
- Free trade changes the distribution of production. In this case, the North shifted out of wine into bread, and the US did the reverse. In other models, the change in production may not be so extreme, but it's generally true that they predict that every country will stop producing some products, and import them instead. The result is a far more efficient system of production, as each country produces those goods for which its relative productivity is the highest.

- Moving to free trade is similar to an increase in productivity: when you shift production to high productivity products, aggregate productivity rises. The impact is similar to our discussion of capital markets. Countries with good capital markets allocate capital more effectively to the high-return projects and increase aggregate productivity as a result. This is a natural feature of trade models. If we were NIPA people, we might compute GDP like this: sum production of wine and bread, valued at a fixed set of prices. In this case we'll use the free trade prices, which is similar to *PPP* adjustment (apply the same prices in every country). GDP at world prices (in bottles of wine) is

	Free Trade	No Trade
North	200.0	170.0
South	90.0	70.0

  Once trade shows up in GDP, it shows up in aggregate productivity, too. We don't have capital in this model, so the production function is $Y = AL$. Since L is unchanged across trade regimes, the change in Y reflects an increase in TFP.

- No jobs were lost — or found. In our example, every unit of labor was used whether trade was possible or not. This is only a little extreme: no trade models suggest that trade will have much **long run** impact on employment. Any effect there might be comes from the impact on labor supply of an increase in the wage. So when you read the newspaper, especially in an election year, remember: trade has an impact on what the jobs are, not on how many there are.

More recent trade theories

Ricardo's trade model is very simple and for this reason is not able to fully capture many aspects and determinants of trade. More recently economists have developed more sophisticated trade models. One influential trade model has been the Hecksher-Olin model, which still retains the idea of comparative advantage but suggest that comparative advantage arises to countries on the basis of factor endowments, so that countries which, for example have lots of labor should specialize and export labor intensive goods (i.e. it tells you that China and India should specialize in labor intensive goods)

Another influential trade theory has been Krugman's model of trade based on increasing returns, which suggests that even when two countries are ex-ante identical there could be benefits from trade. If residents of both countries like to have red cars and blue cars and there are increasing returns in the production of a particular variety of car, then it is optimal for countries to specialize (one in red cars and one in blue

cars) and trade. More recent theories have ri-elaborated the Ricardian model of trade putting the productivity of a single firm (as opposed to the one of a country) as the center engine of trade. For example the reason why German firms export so many cars in so many countries is that a lot of German firms happen to be super-productive in making cars and so they can sell their cars at a lower price all over the world. For more on this see, for example, a seminal paper by Marc Melitz, "The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity" and another one by Jonathan Eaton and Sam Kortum

Winners and losers

From what we've seen, trade is a wonderful thing. Who could be against it? In fact, lots of people seem to have a passionately held view that trade and globalization are a plague on the world. What could they be thinking? What follows is a short list of arguments one might use.

Externalities This is a classic "failure" of markets, the (unpriced) impact of one person's decision on another's utility. For example, a polluting producer may inflict bad air on you and reduce your welfare. When talking about trade, people often refer to positive external (or social) effects on productivity. Are there advantages to having a local industry beyond the profit and loss? Could it help others to increase their efficiency? This is a legitimate argument, but probably not a strong one in most cases. Moreover, it's typically used by firms and industries looking for special deals from their governments. It was used, for example, by European car makers when seeking government protection from Japanese and Korean imports. Their argument was that the domestic producers were generating technology spill-overs to the benefit of related industries. If the argument was strong we should see that after trade liberalizations productivity should fall (because of the lack of spillover) but in general after liberalization productivity increases.

Differences among residents of a country Suppose people in the South differ in how much they like bread and wine In this case, the ones who like bread less and wine more may be worse off, since the relative price of wine has gone up with free trade. In short, there can be losers. What the theory says, however, is that the winners win a lot more than the losers lose — Southerners gain on average. In principle, you might want to take some of the winners' gains and give them to the losers, but in practice this isn't that easy to do. Another example shows up regularly in the press: people who lose their jobs when production adjusts to trade. In this case, suppose you worked for an bread producer in the south and lost your job. The long-term answer is: get a job working for a wine producer, since their productivity is higher. But in the short run, there's no question you suffer a loss from losing your job. Recently economists D. Autor, D. Dorn, G. Hanson have written an interesting paper showing

that in the US areas which produce good categories in which there is a lot of growth in exports from China suffer large declines in employment.

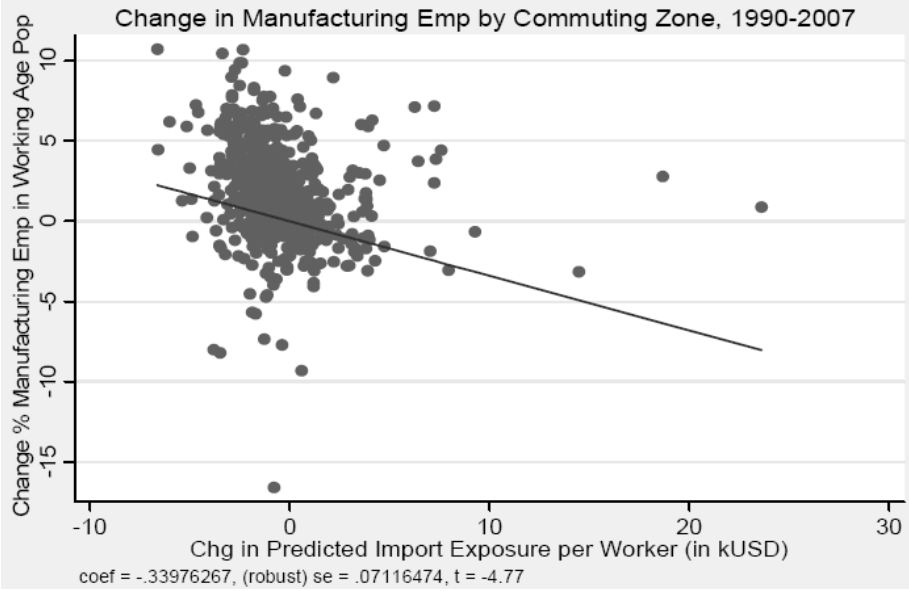
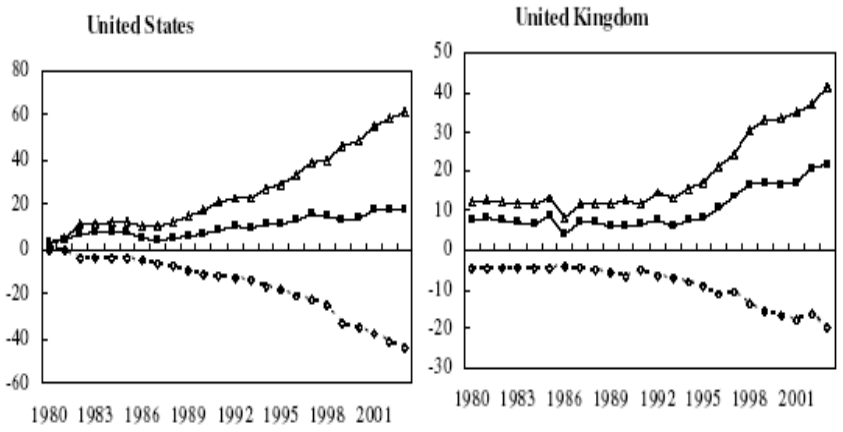


Figure 1: The China Syndrome

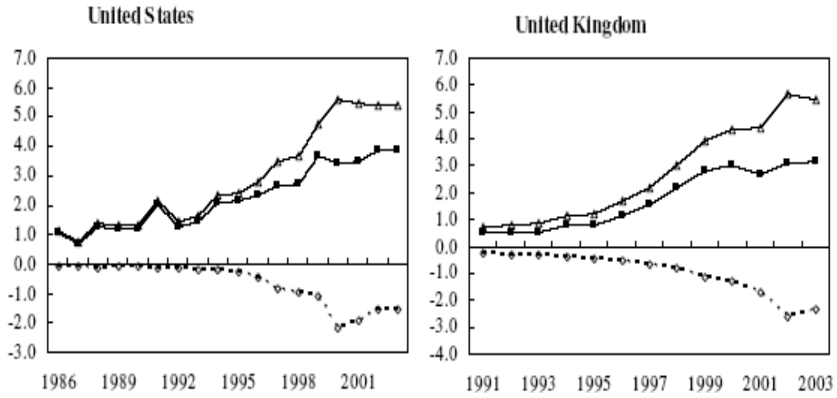
Also, if working for a wine producer requires skills that you do not have, you might have to retrain yourself. Again, the winners should be able to compensate the losers and still be better off, but in practice, at least in the short run, it rarely happens, and that's way losers are so vocal against free trade. Examples of displaced workers from free trade abound: US steel workers (think about the tariff on steel that was in place before the 2004 presidential elections and its effects on the Ohio voters), Mexican corn farmers after Nafta, French and Italian textile workers after the end of the Multifiber agreement (which was a system of tariffs protecting textile products in developed countries). Note though that also many examples of winners which, not surprisingly, are not as vocal (see figures 2 and 3).

Retaliation Let's go back to the Florida and Minnesota example. Suppose that now Florida has a big tariff on imports from Minnesota. Is it still optimal for Minnesota to open up to trade? The answer is not always. If Minnesota opens up to trade it still has access to cheap Florida oranges (which is a good thing for Minnesotans) but now the displaced orange growers will have a harder time switching to corn because demand for corn has not increased. Keep in mind though that the situation without tariff is still better for both (even for Florida). This is the main reason why we have international institutions like the (World Trade Organization) WTO which attempt to facilitate international coordination on equilibria with low or zero tariffs.



Billions of dollars: Δ = in, o = out, ■ = net

Figure 2: Outsourcing/Insourcing in Business services



Billions of dollars: Δ = in, o = out, ■ = net

Source: Amiti and Wei, NBER 10808.

Figure 3: Outsourcing/Insourcing in IT services

Trade in practice

In theory free trade is efficient as it increases the overall size of the pie, even though in the short run some might get a smaller slice and thus they might oppose it. Economic theory tells you that in the long run efficient allocations (i.e. allocations with larger pie) should prevail. Data on world trade over the last 50 years seem to confirm this conjecture as world trade increase at much faster rate than world output (see figure

4) Yet the world is still very far from free trade as tariffs and other barriers to trade

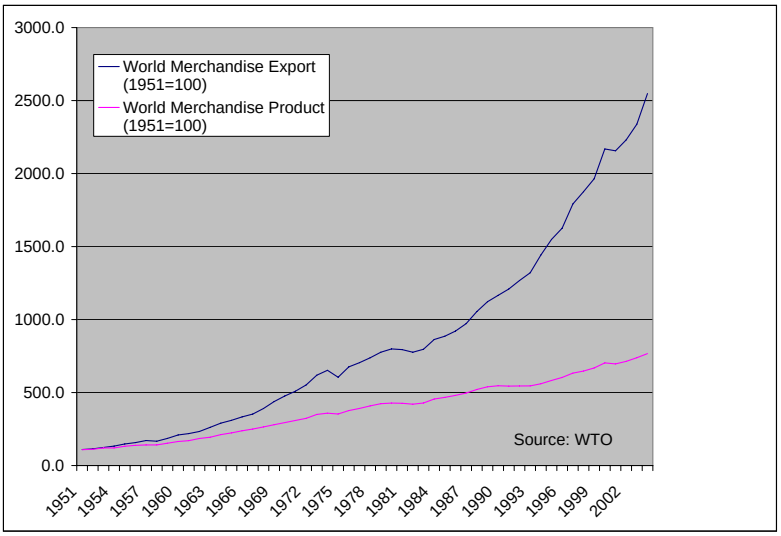
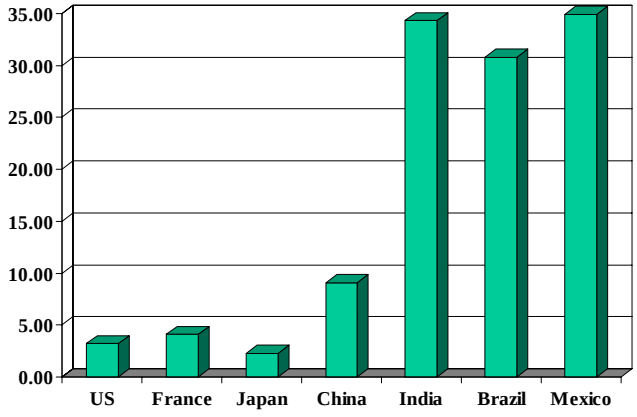


Figure 4: The growth of world trade

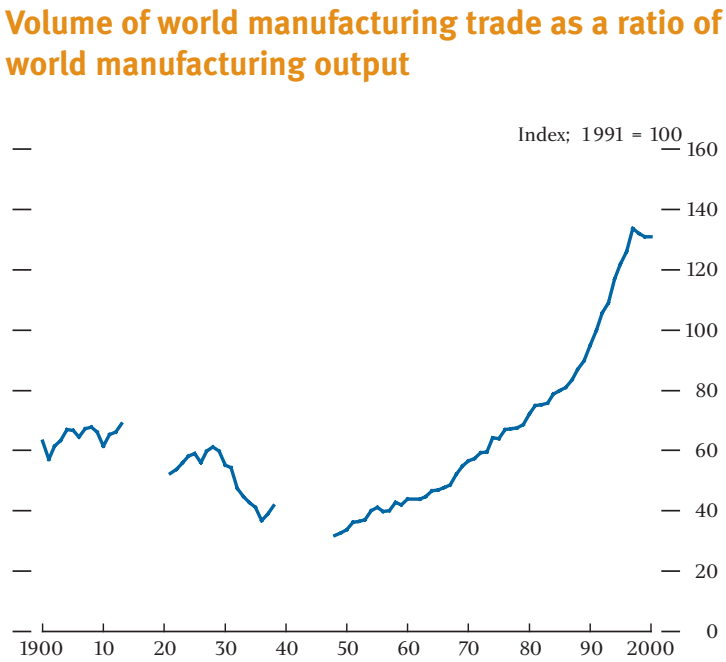
on many goods and by many countries remain large and they do significantly affect the way international business is conducted. Figure 5 for example shows the average (non agricultural) tariffs in several large countries.

Agriculture for some reason is still very heavily protected also in developed economies. In some European countries the subsidy per farmer are above $30000 per capita and Japan spends about $2700 in dairy subsidy per **cow** (more than 5 times the per-capita income in sub-Saharan Africa). History also suggests some caution. Over the period 1870-1913 trade, as a ratio of GDP, had been steadily growing and tariffs were fairly low. During the great depression an escalation of tariffs between major countries led to a dramatic reduction in world trade (over the years 29-32 world output fell 16% and world trade fell 32%) which persisted for a long time (World trade reached its pre depression trade level only in the mid 70s, see figure 6 below) and that some see as a major cause for the poor performance of the world economy in the interwar years. After the Great Recession of 2007-2009 some politicians (and even some economists) have argued and are still arguing that trade should be restricted. In general this happens as in recessions politicians and in danger of reelection and by restricting trade they try to obtain the votes (and most importantly the money) of some special group which benefits from the restriction.



Source: World Trade Organization, World Trade Report.

Figure 5: Average Non agricultural tariffs



Source: UN Monthly Bulletin of statistics.

Figure 6: World trade in the long run

Concepts you should know

1. Absolute and comparative advantage
2. Winners and losers from trade