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Comparative advantage

*Gilbert Faccarello**



If there is at least one thing that modern economists associate with the name of Ricardo, it is the principle of comparative advantage, which still today forms the basis of the major part of the theories of international trade. It is supposed to explain the direction of the flows of trade between countries and determine the gains each country gets from its participation in international exchanges. It forms also a powerful argument in favour of free trade between nations. This principle is supposed to have been clearly stated for the first time in a few paragraphs (Ricardo 1951-73 [hereafter referred to as ‘Works’] I: 134-136) of Chapter 7, “On foreign trade” (ibid: 128-149), of Ricardo’s *Principles of Political Economy and Taxation* — a chapter which, unlike the first in particular, remained unchanged from the first edition of the book in 1817 to the third in 1821. While, curiously enough, these paragraphs have most of the time been considered separately from the rest of the *Principles*, as a kind of short parenthesis in Ricardo’s writings, they have nevertheless never ceased

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to be examined and debated, and this created some confusion. A clear understanding of the principle thus requires going back to the texts and answering some simple questions (Faccarello 2015). How was it stated? How was it interpreted? Is it really a kind of foreign body in Ricardo's theory or are some links to be found with the author's other ideas? As some questions of authorship and vocabulary have been debated among scholars, they will also have to be briefly alluded to.

A statement of the principle of comparative advantage

Towards the beginning of the seventh chapter of the *Principles*, Ricardo introduces an exchange between two countries, England and Portugal, which can produce two commodities: cloth and wine. England exports cloth to — and imports wine from — Portugal, and Portugal exports wine and imports cloth (Works I: 134-135). A specific exchange ratio is supposed to take place between these two countries: a units of Portuguese wine are exchanged for b units of English cloth. It is also stated that, had each country to produce these very quantities of both commodities, Portugal would employ 80 and 90 units of labour respectively to produce a units of wine and b units of cloth, while England would need respectively 120 and 100 units of labour to produce them. According to the labour theory of value, these numbers, in each country, are also the respective values of the quantities produced. The costs of production, actual and potential — the “four magic numbers” as Samuelson called them — are summarized in Table 1.

In spite of the fact that Portugal has an absolute advantage — i.e., smaller real costs — in the production of both commodities, and England no absolute advantage at all in any commodity, Ricardo supposes that this exchange is nevertheless possible and actually happens. This is because, Ricardo states, each country has a greater relative facility of production in one commodity: wine is relatively less expensive to produce than cloth in Portugal, and cloth relatively less expensive to produce than wine in England.

Table 1: The ‘four magic numbers’ in Ricardo’s text.

	a units of wine	b units of cloth
Portugal	80	90
England	120	100

What happens here between nations is the same than what happens between two individuals. Adapting an example from the *Wealth of Nations* in which Smith presents the advantages of a division of labour between a tailor and a shoemaker (WN IV.ii: 456-457) before generalizing the case to countries, Ricardo reports the case of two men making shoes and hats, one of them having a greater productivity in both productions but being however relatively more productive in making shoes than hats (Works, I: 136n). In this case, he stresses, it is in the interest of the first to specialize in shoes and buy hats from the second, the reverse being advantageous to the second. It is the same in the interest of countries, as in the case of individuals, not to attempt to produce everything at home but instead to specialize in some production and to exchange. The direction of trade and specialization is thus given by the comparison of the relative costs of production of the commodities in the two countries.

These relative costs can be expressed through ratios. These ratios cannot formally be found in Ricardo. They are advanced by James Mill in his *Elements* (1821: 88) — who also sometimes spoke of “the purchasing power of one commodity with respect to another” in each country (James Mill 1824: 118, 1827: 124). In the above example, the relative costs of production of a units of wine and b units of cloth are $80/90 \simeq 0,9$ in Portugal and $120/100 = 1,2$ in England. The relative cost of the production of wine is smaller in Portugal, and the relative cost of cloth — the inverse ratio — is smaller in England. Hence the rule: a country

exports the commodity that is produced there with the lower relative cost — this is what is called its “comparative advantage” — and import the other one. Of course the exchange of commodities in which each country has an absolute advantage is just a special case of this rule.

Ricardo also stresses an important aspect of this analysis. In the above exchange between England and Portugal the product of 80 units of Portuguese labour is exchanged for the product of 100 units of English labour. In international trade the labour theory of value thus does not seem to determine the relative prices of commodities contrary to what happens in domestic exchanges (Works I: 133). Why is it so? Because, Ricardo states, of the relative international immobility of capital and labour, which stands in strong contrast with their domestic mobility (Works I: 135-136).

The gains from trade and specialization

According to Ricardo such an exchange between England and Portugal is not only possible but profitable to both countries — and apparently possible because profitable. For each country, the gains from trade are immediately determined: they consist in the difference between the cost of production — here the units of labour — the country would have spent in the home production of the quantity of foreign commodity it imports and the cost of the quantity of the home commodity it exports in exchange. Portugal’s gains from trade are thus of 10 units of labour — Portugal gives a units of wine, the product of 80 units of labour, for b units of cloth for the home production of which it would have spent 90 units. And England’s gains from trade are determined in a similar way: they consist in 20 units of labour. Both countries can employ the units of labour they save in the production of more wine or cloth or any other commodity and, while the gains from trade are not equal on both sides, both countries nevertheless can enjoy a greater amount of use values. In Ricardo’s view the advantage that each country gets from free foreign trade is precisely this: a better allocation and accumulation of capital and

an increase in the quantities of use values at its disposal. International trade never influences directly the rate of profits — the influence can only be indirect, for example when the importation of cheap corn from abroad reduces the cultivation of pieces of land of worse quality at home, lowers the ground rent and favours profits in consequence.

There is no doubt that Ricardo's point of view is in line with what was called — a bit hastily — “the eighteenth-century rule” (Viner 1937: 440) for international trade. What are to be compared, the rule states, are not the real costs of production of a given commodity at home and abroad (like in the absolute advantage approach) but the domestic real costs of the imported and the exported commodities: it is thus advantageous to import a foreign commodity in exchange for a good domestically produced at a smaller real cost than the production at home of the imported commodity would entail. Ricardo however adds an important statement: this trade is beneficial to the country even if the imported commodity could have been produced at home at a smaller cost than it is produced abroad. Portugal imports cloth from England though this cloth, the real cost of which is 100 units of labour in England, could have been produced for 90 units at home. Ricardo's innovation is thus of importance. It shows that any country can participate in international exchanges and benefit from them whatever the level of its costs. During two centuries, this statement has been used as a powerful argument in favour of free trade.

As regards specialization, Ricardo generally supposes that, when constant returns to scale prevail and there is no great difference in size between countries, international trade results in a complete specialization of countries. He recognizes however that there could be cases of partial specialization, for example when one of the commodities traded — e.g., corn — is produced with an increasing difficulty of production.

Authorship and vocabulary

The very fact that the considerations on the principle of comparative advantage only takes up so small a space in Ricardo's long and complex chapter on foreign trade — and, moreover, seems not to be referred to in the rest of the book and in Ricardo's other writings — led some commentators to doubt that it was formulated by Ricardo himself. The question of its paternity was thus debated. Some authors advanced the view that the merit of the first statement of the principle of comparative advantage should go to Robert Torrens — who himself claimed for priority (Torrens 1826: vii). To support this opinion some passages excerpted from *The Economists Refuted* (Torrens 1808: 37) and the first edition of the *Essay on the External Corn Trade* (Torrens 1815: 263) are quoted. Some other scholars however were inclined to put forth another candidate: James Mill, and noted that some prefiguration of the principle was contained in his *Commerce Defended* (J. Mill 1808: 108). Some even supposed that Mill himself, whose role in assisting Ricardo to publish his magnum opus is well known, added the principle in Ricardo's book.

But while it is true that the three editions of his *Elements of Political Economy* (1821, 1824, 1826) greatly contributed to the debates around the principle and made it widely known, James Mill's paternity certainly can be discarded once we realize that he himself attributed the novelty of the analysis to his friend (J. Mill to Ricardo, 18 November 1816, in Works VI: 99) and that a reference to an exchange of wine and cloth between England and Portugal — a feature of Ricardo's celebrated example — can already be found in Ricardo's "Notes on Bentham" written in 1810-11 (Works III: 330). As for Torrens's claim, it must be noted that it relies on a few paragraphs that, in the writings from which they are excerpted (Torrens 1808, 1815), are only incidental remarks and do not form a theoretical principle underlying the analysis. Moreover Torrens later once implicitly recanted his claims. There is thus no doubt today that Ricardo's pages are the first full and clear statement of the doctrine

(on this intricate story see, for example, Maneschi 1998, Aldrich 2004 and Ruffin 2002, 2005).

Parallel to these attributional debates and linked to them, the question arose of the origin of the phrase “comparative advantage” to designate a principle for foreign trade. The words “comparative” or “comparatively” are extensively used by Ricardo with the meaning of “relative”, for example when he writes of the “comparative value” or “comparative quantity” of commodities. The phrase “comparative advantage” itself is however not to be found in Chapter 7 on foreign trade but appears incidentally once, in the context of an open economy, in Chapter 19, “On sudden changes in the channels of trade” (Works I: 263). “Comparative disadvantage” is also used once, in Chapter 9, “Taxes on raw produce” (ibid: 172). On the cost side of the question, and in relation with international trade, the phrases “comparative difficulty of production” and “comparative facility [of] production” are employed (ibid: 343 and 374 respectively).

James Mill, in his *Elements of Political Economy*, also writes of “comparative facility” of production (J. Mill 1821: 84) and clearly contrasts “greater absolute” to “greater relative, facility” of production (ibid, 87). He also speaks of “peculiar advantages” with the meaning of comparative advantage (ibid, 84). It was Torrens who, in the third and fourth editions of his *Essay on the External Corn Trade* (1826, 1827), started to clearly designate the doctrine with the phrases “comparative advantage” or “disadvantage” (1826: vii) on the one hand, and “comparative costs” (1827: 401) on the other. John Stuart Mill, in his essay “Of the laws of interchange between nations, and the distribution of the gains of commerce among the countries of the commercial world” uses the phrase “comparative cost(s)” (J. S. Mill 1829-30: 233, 235-6, 254) and, to speak of comparative advantage, writes of a commodity in which the “advantage is least” or the “advantage is greatest” (ibid: 233). In the subsequent literature, both comparative advantage and comparative costs were used most of the time interchangeably.

The traditional view: a different statement of the principle of comparative advantage

The above presentation of the principle of comparative advantage is not the one almost universally accepted since almost two centuries. It is relatively new and while forming until now a kind of minority view, it is gaining ground rapidly because it is more faithful to Ricardo's writings. It is basically due to Sraffa (1930) and was several decades later adopted by Ruffin (2002) and Maneschi (2004). It challenges the traditional interpretation.

The tradition — still to be found in the textbooks of history of economic thought or international economics — was first expressed by James Mill in the three editions of his *Elements of Political Economy* (1821, 1824, 1826) and in his article “Colony” (1825) written for a Supplement to the *Encyclopædia Britannica*. It was subsequently powerfully restated by John Stuart Mill in his already mentioned 1829-30 essay written a few years after Ricardo's death and published later in 1844 in his *Essays on Some Unsettled Questions of Political Economy*. This approach was developed afterwards by generations of neoclassical economists (on this history see, for example, Viner 1937 and Maneschi 1998). It went unquestioned and oriented all the debates until recently. While at first sight the differences between the two interpretations seem to consist in details of trifling importance, they lead in fact to widely diverging approaches.

According to James and John Stuart Mill's approach, and while the analysis is again conducted in real terms, the “four magic numbers” are interpreted as the technical coefficients prevailing in the production processes in the two countries — and consequently as the labour values of one unit of each commodity in each country. Hence the following modified table, in which the countries are first considered in autarky (Table 2).

Once the countries open to foreign trade, international exchanges ensue following the indication given by the relative pre-trade costs. Except

Table 2: The ‘four magic numbers’ according to J. and J.S. Mill.

	one unit of wine	one unit of cloth
Portugal	80	90
England	120	100

in the unlikely case where no trade is possible because of identical relative costs in both countries — a case considered by James Mill —, it is asserted that any country can participate in international exchanges and benefit from them.

The difference with the first interpretation given above seems to be minor. However the developments give a totally different flavour to the ensuing analysis and results. Ricardo’s statement of the principle started with an actual exchange between England and Portugal. The relative price of the two commodities was given — a units of wine = b units of cloth — and the gains from trade for each country immediately determined in terms of saved resources. Once however the “magic numbers” are interpreted as technical coefficients, the questions of the determination of the quantities exchanged between the two countries and of the exchange ratio at which trade is realized are still to be answered and, from this point of view, Ricardo’s approach is allegedly incomplete. The possible benefits — if any — each country gets from foreign trade also depend on the answers given to these questions. This is the reason why, in his 1829-30 essay, John Stuart Mill, considering different price-elasticities of the countries’ demands for imports, introduced the reciprocal demands in the picture. The demand for imports of each country is supposed to depend on the possible barter ratios between the commodities and, once the reciprocal demands are known, the international equilibrium relative price can be determined — and so are the benefits accruing to each

nation. The international equilibrium rate must lie within the interval bounded by the countries' autarky relative prices of the commodities, and the more this rate is close to (different from) a country's relative autarky price, the smaller (the greater) are this country's gain from trade — this gain being nil when the two coincide. J. S. Mill was thus pioneering a now well-established tradition in the field.

Some pending questions

It is however to be noted that, while more faithful to Ricardo's text, the above first interpretation of the principle of comparative advantage tells only part of the story and leaves some important problems unsolved. As a matter of fact, sticking as it does to Ricardo's always quoted few paragraphs excerpted from Chapter 7 of the *Principles*, it cannot avoid some difficulties (for a more detailed analysis see Faccarello 2015).

A first difficulty ensues from the fact that the initial exchange ratio — that is, a Portuguese wine = b English cloth — is taken for granted. But this relative price is assumed, not explained. As regards prices Ricardo, in these paragraphs, simply stresses that, in foreign trade, the theory of labour value does not apply because of the relative immobility of capital and labour. The question thus remains of how this ratio is determined.

A second difficulty arises when we note that the benefits countries get from foreign trade are assessed at the macroeconomic level. The principle of comparative advantage tells us that it is in the interest of each country to exchange and points out both the direction of trade and its global benefits. But the countries are not themselves the agents of trade: they do not decide to import and export such or such commodity with the view of obtaining a global benefit in terms of capital allocation and enjoyment of use values. Economies are market-based and only the individual agents, acting in markets according to their own private interests decide what to do. In this perspective the principle of comparative

advantage is seemingly of no use to them and does not explain why they engage in trade.

Finally, a third difficulty arises if we realize that, in the famous Chapter 7 of the *Principles* devoted to foreign trade, the developments mainly deal with money prices and money flows between countries: is it possible to ignore this fact and to isolate the above-quoted example — expressed in real terms and generally interpreted as a barter between the two countries — from the rest of the chapter?

These three main difficulties are of course linked together. We noted how the traditional approach solved the first problem: is here the solution different? As regards the second and third questions, they remain apparently unanswered in both interpretations.

A monetary theory of foreign trade

As a matter of fact, and even if this is not obvious as long as we focus our attention on the four magic numbers, Ricardo bases his views on foreign trade on an analysis of the behaviour of individual agents in markets, in the context of a monetary regime in which gold is the standard of money, is freely traded domestically and abroad, and where banknotes are convertible in gold on demand — i.e., an ideal gold standard: the analysis is slightly different in a regime of inconvertibility. Moreover his theoretical approach also entails a version of the quantity theory of money and a Humean-like specie-flow mechanism, both being essential for his theory of international trade — we disregard here the questions linked to the existence of bounties, taxes, etc. New research is presently developing on these essential aspects of Ricardo's thought, but it is possible to give some hints along the following lines.

Ricardo's developments are based on a simple idea: merchants engage in trade — be it domestic or foreign — only if it is profitable for them to do so. They buy and sell commodities considering their money prices and they trade if they have a reasonable expectation to sell them dearer

than they bought them, the transportations costs being included in the computation (Works I: 138, 170). Thus merchants do not barter but, at their individual level, calculate in monetary terms. When they buy abroad and import, they settle the transaction with a bill of exchange they buy in a specialized market, and they receive such a bill when they export commodities. In the exchange of wine and cloth between England and Portugal, this means that English merchants import wine if and only if the price of wine is higher in England than in Portugal, what seems intuitively the case owing to the costs of production, but also that English merchants export cloth if and only if cloth is dearer in Portugal than in England (ibid: 137) — what seems counter-intuitive in this specific case. Ricardo gives an example where the price of one unit of wine is respectively of 50£ in England and 45£ in Portugal, and that of one unit of cloth is 45£ in England and 50£ in Portugal (ibid: 138).

These prices are of course gold prices, expressed in terms of convertible — at its mint price — pounds sterling. Note also that the inequalities between the prices of wine and cloth in the two countries respect the inequality, stated above, between the cost ratios in the different countries. But the very notion of a comparative advantage somewhat vanishes at the micro level — it is of no use in decisions to trade — and, in this perspective, it is understandable that Ricardo did not refer repeatedly to it in his writings. As for the celebrated “gains from trade”, stated at the macro level, they can be considered as the unintended consequence of the actions of agents in the market, whose only purpose is their own individual monetary gain.

But why can such a trade of cloth between England and Portugal happen? This is because, Ricardo states, gold does not have necessarily the same value in different countries (Works I: 142-143). The monetary units of nations are defined by specific weights of gold, and currencies are convertible into each other at the rate given by the mint prices. But if gold does not have the same market value — its exchange ratio with such or such commodity — everywhere, gold prices of commodities will generally be higher, all other things being equal, where this market value

is lower, and lower where it is higher. Commodities produced in exactly the same conditions in terms of labour value will thus not have the same gold price, and it can happen that, like cloth in Ricardo's example, a commodity having the least labour value can have a higher price than the same commodity with a superior labour value. This — and not the alleged international relative immobility of capital and labour — is the explanation why, between countries, the exchange ratios between commodities might not be determined by the labour theory of value.

This state of things indicates the direction of the flows of trade and the respective specialization of countries in the usual cases. This also determines the prices at which the transactions are made. Contrary to J. S. Mill's approach, Ricardo's reasoning is straightforward: if competition prevails in markets, the price of an imported commodity is simply the price which prevails in the exporting country augmented by the costs of transportation, insurance etc. (Works I: 340-341, 374-375).

Now why and when does gold not have the same market value in different countries? Let us start from a situation of equilibrium to which Ricardo significantly refers with both phrases: "equilibrium of money" (ibid: 141-142, 145) and "trade of barter" (ibid: 137, 140). Suppose a strict international immobility of capital and labour: the balance of payment is thus reduced to the balance of trade. Equilibrium is defined as the situation when there is no (net) flow of gold between countries: it is a monetary equilibrium in the sense of Hume — gold is divided between the different countries according to the natural needs of trade. It is also the situation when, in modern parlance, the balance of trade equilibrates.

This state of things is of course hypothetical: many destabilizing shocks can throw a country out of equilibrium. How and with which consequence? A destabilizing shock is by definition one which will disturb in the end, one way or another, the optimal division of gold between nations and provoke a change in the market value of gold in the country, thus generating modifications in the gold prices and international flows

of commodities. In this process the comparative advantage of a country might change, temporarily or in a more lasting way.

A bad harvest, for example, will suddenly make the quantity of money “redundant” because there are less commodities to circulate. Prices will rise in consequence, and gold flows out of the country because it becomes one of the cheapest commodities. Consequently the market value of gold will rise and money prices fall until the situation equilibrates: in this process, during the period of disequilibrium, the comparative advantage of a country might change but for a time only, until the next harvest. Imagine however, with Ricardo, some technical improvement in the production of one commodity, wine in England for example (Works I: 137). In this case also equilibrium is disrupted: because of the fall of the price of wine, money will again become “superabundant” in the country, with the same initial consequences as before: but here the situation is a lasting one and the comparative advantage — and thus the flows of international trade — of the country might be durably modified, with the final attainment of another “equilibrium of money” or “trade of barter”.

See also:

Competition; Foreign Trade; Monetary Theory; Ricardo’s Four Magic Numbers.

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