OVERCOMING ABSOLUTE AND COMPARATIVE ADVANTAGE: A REAPPRAISAL OF THE RELATIVE CHEAPNESS OF FOREIGN COMMODITIES AS THE BASIS OF INTERNATIONAL TRADE

Journal of the History of Economic Thought, Volume 43, Issue 3

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DOI: 10.1017/S1053837220000401

Published online: 29 June 2021, pp. 433-449

Print publication: September 2021

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Summary

David Ricardo indicated in his famous numerical example in the *Principles* that it would be advantageous to Portugal to import English cloth made by 100 men, although it could have been produced locally with the labor of only 90 Portuguese men. As the production of the cloth required less quantity of labor in Portugal, it has been commonly inferred that this country had a production cost advantage over England in cloth making. This inference will be proven wrong here by showing that the English cloth had a lower cost of production than the Portuguese cloth. This finding refutes the widespread belief that Ricardo had formulated a new law, principle, or rule for international specialization, known as “comparative advantage.” He used the same rule for specialization as Adam Smith in the *Wealth of Nations*. Thus, the popular contraposition of Smith’s absolute versus Ricardo’s comparative cost advantage has to be dismissed.

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I. INTRODUCTION

“The motive which determines us to import a commodity, is the discovery of its relative cheapness abroad: it is the comparison of its price abroad with its price at home.”

David Ricardo, *Principles*

Economics textbooks tell a simple and compelling story about the theoretical foundation of international trade. According to the textbook tale, Adam Smith made us all believe that international exchanges were based on absolute cost advantages, until David Ricardo proved him wrong by revealing in chapter 7 of his magnum opus *On the Principles of Political Economy and Taxation* (1817) the law or principle of comparative advantage. With the help of *four magic numbers* (Samuelson 1969) Ricardo allegedly demonstrated there that Portugal would import cloth from England despite having a production cost advantage over the latter in cloth making. This is said to prove that international exchanges are based on a comparative rather than an absolute advantage in the cost of production.

The fact that most explanations of comparative advantage start with a reference to absolute cost advantage is a clear indication of the widespread appeal of the textbook narrative among economists. Nevertheless, some scholars have questioned specific aspects of the usual contraposition of Smith’s absolute cost advantage and Ricardo’s comparative advantage. Concerning the former, the range of criticism goes from the assertion that economic textbooks have misrepresented Smith’s theory of absolute cost advantage while also inadequately reducing his broader views on international trade to it (Schumacher 2012), to a flat-out denial that he had a theory of absolute cost advantage in the first place (Ruffin 2005). An even wider range of opinions can be found in the literature with respect to comparative advantage. John S. Chipman (1965, p. 480) questions whether Ricardo really grasped the insight, while John Pullen (2006) goes even further by claiming that Ricardo’s case for international specialization

is based on absolute advantage, not comparative advantage. An opposite assessment is given by Reinhard Schumacher (2013, p. 88) in the following quote: “Ricardo states that domestic and international trade are regulated by different rules, the former by absolute and the latter by comparative production cost advantages.” Unfortunately, Schumacher does not indicate the specific passage where Ricardo is supposed to have written this, and so far, I could not find a similar statement in the *Principles* nor any other of his writings. Denis P. O’Brien (2004, p. 211), on the other hand, claims that one can already find traces of comparative advantage in the *Wealth of Nations*. Istvan Hont (2005, p. 68) argues that Smith had already grasped the basics of this principle without as yet using the confusing term, while Lars Magnussen (2004, pp. 30-31) refers to Smith as a founding father of the comparative cost theory. Given all these conflicting assertions, the very least one can say is that the subject seems to be less clear-cut than the usual textbook narrative suggests.

Moreover, two scholars have recently proposed amendments to the familiar textbook narrative on comparative advantage to make it more compatible with the latest research results on the famous numerical example in the *Principles*. According to Farhad Rassekh (2015), the theory of comparative advantage is still the pinnacle of international trade theory, and it can already be found in the *Wealth of Nations*. He further claims that Henry Martyn (1701), by articulating the so-called *eighteenth-century rule*, “prepared the path for the intellectual transition from absolute advantage to comparative advantage as the basis of trade” (Rassekh 2015, p. 60). In essence, Rassekh proposes to add a third component to the familiar textbook narrative right in between the usual sequence of absolute and comparative advantage.

Gilbert Faccarello (2015), on the other hand, attempts to restate Ricardo’s approach to international trade by looking beyond the few paragraphs that deal with the principle of comparative advantage and the related gains from trade. This allows him to shed light on some long-omitted passages in the *Principles* which are in open contradiction with the notion that

Ricardo considered the law of comparative advantage as the basis of international trade. But instead of taking these statements as a starting point for critically reviewing the textbook narrative on comparative advantage, Faccarello tries to reconcile them by simply relegating the latter to the background. He claims that the principle of comparative advantage and the related gains from trade should not be seen as a “rule for action” but merely as “unintended consequences of the decisions of agents in free markets” (Faccarello 2015, pp. 787-788).

Both Rassekh and Faccarello do recognize that the amended narratives on comparative advantage are scantily supported, if not openly contradicted, by what is written in the *Wealth of Nations* and the *Principles*. Curiously enough, though, both scholars attribute the incompatibilities to alleged shortcomings of Smith and Ricardo. Rassekh suggests that Smith did not realize the significance of his own observation of comparative advantage, while Faccarello hints that Ricardo had poor writing skills.

This paper offers a different explanation for the incompatibilities. As will be shown below, the proposed amendments fail to address the fact that the textbook narrative on comparative advantage originated from and is still based on a fundamental misinterpretation of the famous numerical example in the *Principles*. From Ricardo’s indication that the making of the cloth would have required less quantity of labor in Portugal than in England, it has been erroneously inferred that the Portuguese cloth had to have a lower cost of production than the English cloth.¹ This raises serious doubts about the possibility of selling the English cloth in Portugal, as recognized by Faccarello (2015, p. 760). He imagined traders making arbitrages on commodities but also acknowledged that this kind of complicated solution did not respect Ricardo’s line of thought. In contrast, the solution proposed in this paper is not only strikingly

¹ See Anwar Shaikh (2016, p. 505) and Heinz D. Kurz (2017, p. 16) for recent examples of this interpretation.

simple but also compatible with the primary source: the English cloth could be sold in Portugal because it had a lower cost of production than the Portuguese cloth. This means of course that Portugal had no production cost advantage over England in cloth making.

This new interpretation of the famous numerical example in the *Principles* rebuts the common contraposition of Smith's absolute and Ricardo's comparative advantage in the cost of production. This allows reconstructing the original consensus between the two most prestigious and influential classical political economists on the basis of international trade and the corresponding rule for specialization. Both Smith and Ricardo viewed the cheaper price of foreign commodities as the logical starting point and *condicio-sine-qua-non* of most exchanges between countries. Hence, both considered the relative cheapness of foreign commodities as the basis of international trade, with its corresponding rule for specialization that one should acquire foreign commodities whenever they are offered more cheaply than local products of similar quality. In short, the paper aims to provide an alternative to the current textbook narrative on comparative advantage.

The paper is structured as follows. After this introduction, section two of the paper argues that the original source of the contraposition of absolute and comparative advantage in the cost of production is an essay published by John Stuart Mill in 1844. This explains why the now ubiquitous contraposition is completely absent from the *Wealth of Nations* and the *Principles*. The third section reconstructs what Smith actually wrote in the *Wealth of Nations* about the foundation of trade and the proper rule for specialization. Section four is dedicated to proving that Ricardo agreed with Smith on these issues. After presenting several passages of the *Principles* where Ricardo explicitly stated his agreement with Smith, it will be proven that both the English cloth and the Portuguese wine exchanged in the famous numerical example indeed had a lower cost of production than the local commodities. The last section before the conclusion indicates where and to what extent J. S. Mill misinterpreted Ricardo's numerical

example. It further explains why the contraposition of absolute and comparative production cost advantages is a misleading framework for propagating the true insights of Smith and Ricardo on the basis of trade and the rule for international specialization.

II. THE TRUE ORIGIN OF ABSOLUTE VERSUS COMPARATIVE COST ADVANTAGE

Ricardo's famous numerical example is credited in economics textbooks for refuting the theory of absolute advantage in the cost of production. Therefore, it seems to be the logical starting point for searching for the earliest contraposition of absolute and comparative advantage. A careful reading of the relevant paragraphs in the *Principles* reveals that what Ricardo originally intended to illustrate with the four numbers was the proposition that "the same rule which regulates the relative value of commodities in one country, does not regulate the relative value of the commodities exchanged between two or more countries" (Vol. 1, p. 133).² The rule he had in mind here was that of the respective quantities of labor embodied in these commodities (Vol. 1, pp. 134-135). Ricardo then mentioned a possible implication of this proposition, namely that Portugal might import cloth from England although it "could be produced there with less labour than in England" (Vol. 1, p. 135). As I have already shown in previous occasions (Morales Meoqui 2011, pp. 754-755; and 2017, pp. 39-40), it would have been impossible for him to prove this implication in a mutually beneficial exchange without contradicting one of the core tenets of his theory of value.

The term "comparative advantage", however, is nowhere to be found in the chapter *On*

² Throughout this paper, all direct quotations of Ricardo are extracted from *The Works and Correspondence of David Ricardo*, Volume I to XI, 2004, edited by Piero Sraffa. I will refer to them usually by indicating the volume and page numbers only.

Foreign Trade. It appears for the first and only time in the *Principles* in chapter 19 titled “*On Sudden Changes in the Channels of Trade*”, where Ricardo stated the following: “A new tax too may destroy the comparative advantage which a country before possessed in the manufacture of a particular commodity; or the effects of war may so raise the freight and insurance on its conveyance, that it can no longer enter into competition with the home manufacture of the country to which it was before exported” (Vol. 1, p. 263). Hence, Ricardo’s use of the term is not directly related to the two propositions he announced and fully proved in the famous numerical example.

The term *absolute advantage* – or *absolute cost advantage* –, on the other hand, is entirely absent from the *Principles*. More importantly, there is not even a trace of a critique towards Smith with regard to the proper rule for international specialization. This is indeed surprising, considering that Ricardo had announced in the preface of the book that he would “advert more particularly to those passages in the writings of Adam Smith from which he sees reason to differ” (Vol. 1, p. 6). As he was quite explicit with his criticism of Smith on many other issues, I wonder why he was so subtle in the case of Smith’s rule for international specialization?

The search for the term *absolute advantage* in the *Wealth of Nations* yields an equally unexpected result. Smith mentioned it only twice there, in relation to the advantages of the colonial trade for the metropolis.³ The term does not appear though in the two adjacent paragraphs which most scholars quote as textual evidence for his alleged adherence to the theory of absolute advantage in the cost of production.⁴

So, while the terms absolute advantage and comparative advantage are to be found in the *Wealth of Nations* and the *Principles*, respectively, there is no contraposition of them in these

³ See *WN* IV.vii.c.16, p. 594; and IV.vii.c.18, p. 595.

⁴ See *WN* IV.ii.11 and IV.ii.12, pp. 456–457.

books. Instead, the terms are mentioned on the fly, and neither Smith nor Ricardo bothered to offer a precise definition of them.

The real genesis of the popular contraposition of absolute and comparative advantage is John Stuart Mill's *Essays on Some Unsettled Questions of Political Economy* (1844). According to his account in the preface of the book, the five essays were written in 1829 and 1830. With the exemption of the fifth, though, the essays remained unpublished until 1844 due to a perceived lack of public interest in the respective topics. In the first essay titled "*Of the Laws of Interchange Between Nations; and the Distribution of the Gains of Commerce among the Countries of the Commercial World*", Mill stated the following:

"To render the importation of an article more advantageous than its production, it is not necessary that the foreign country should be able to produce it with less labour and capital than ourselves. We may even have a positive advantage in its production: but, if we are so far favoured by circumstances as to have a still greater positive advantage in the production of some other article which is in demand in the foreign country, we may be able to obtain a greater return to our labour and capital by employing none of it in producing the article in which our advantage is least, but devoting it all to the production of that in which our advantage is greatest, and giving this to the foreign country in exchange for the other. It is not a difference in the *absolute* cost of production, which determines the interchange, but a difference in the *comparative* cost" (Mill 1844, p. 2).

The above passage is indeed the very first occasion in which the later inseparable tandem of absolute and comparative advantage appeared together. Mill defines *absolute advantage in the cost of production* as the ability to produce an article with less labor and capital than a foreign manufacturer. He further claims that it is not necessary to have an absolute advantage in the cost of production to export to another country. One won't find a clear-cut definition of comparative costs or comparative advantage in the essay, though. Instead, Mill offers there

several numerical examples which allegedly illustrate that international trade is based on a comparative rather than an absolute advantage in the cost of production. Since he conveniently branded his propositions in the essay as further developments of Ricardo's principles of foreign trade (Mill 1844, p. 5 and p. 14), Mill laid the foundation for the currently predominant view that Ricardo had discovered a new law for international specialization. This explains why nobody referred to a law or principle of comparative advantage prior to the publication of the essay. There is no reference to this law, for example, in James Mill's rendering of Ricardo's insight in the *Elements* (Mill [1821] 1826) and in the article *Colony* for the *Encyclopædia Britannica* (Mill [1818] 1825). John Stuart's father was a close friend and collaborator of Ricardo. He passed away in 1836, a few years before the unpublished essays of his son were finally sent to the printing press.

In the next two sessions, I will analyze more in detail those passages of the *Wealth of Nation* and the *Principles* which are mostly associated with Smith's alleged theory of absolute cost advantage and the so-called Ricardian theory of comparative advantage, respectively. The aim is to find out whether the absolute-versus-comparative-advantage framework accurately conveys what they wrote about the basis of international trade and the rule for specialization.

III. SMITH'S GENERAL RULE FOR SPECIALIZATION

As cost-conscious consumers, we usually look to buy the necessities of life as cheap as possible. While searching for bargains, we do not bother much whether the desired commodities were produced within the country or beyond its borders. Moreover, whenever we are confronted with the rare choice of making a product by ourselves or buying it from someone else, our decision is often guided by the maxim that one should never attempt to make something that cost less to buy.

In this respect, we are probably quite similar to Smith and his contemporaries. As a keen

observer of the economic activities of his time, Smith realized that these common practices were not only beneficial for the individual consumer but the country as a whole. Consequently, he recommended governments to abstain from protecting national industries which could not produce commodities cheaper than their foreign competitors, stating in the *Wealth of Nations*:

“To give the monopoly of the home-market to the produce of domestick industry, in any particular art or manufacture, is in some measure to direct private people in what manner they ought to employ their capitals, and must, in almost all cases, be either a useless or a hurtful regulation. If the produce of domestick can be brought there as cheap as that of foreign industry, the regulation is evidently useless. If it cannot, it must generally be hurtful. It is the maxim of every prudent master of a family, never to attempt to make at home what it will cost him more to make than to buy” (*WN*, IV.ii.11, p. 456).

He further explained his point of view in the following paragraph:

“What is prudence in the conduct of every private family, can scarce be folly in that of a great kingdom. If a foreign country can supply us with a commodity cheaper than we ourselves can make it, better buy it of them with some part of the produce of our own industry, employed in a way in which we have some advantage. The general industry of the country, being always in proportion to the capital which employs it, will not thereby be diminished, no more than that of the above-mentioned artificers; but only left to find out the way in which it can be employed with the greatest advantage. It is certainly not employed to the greatest advantage, when it is thus directed towards an object which it can buy cheaper than it can make” (*WN*, IV.ii.12, p. 457).

Smith believed that individual consumers, as well as the country, benefit from acquiring commodities at cheaper prices. In line with this belief, it was of no importance to him whether the origin of the advantages that one country has over another for producing certain commodities more cheaply were natural or acquired (*WN*, IV.ii.15, pp. 458-459). The benefits

of buying commodities from the cheapest seller were so obvious to him that he thought they did not require much of an explanation:

“In every country it always is and must be the interest of the great body of the people to buy whatever they want of those who sell it cheapest. The proposition is so very manifest, that it seems ridiculous to take any pains to prove it; nor could it ever have been called in question, had not the interested sophistry of merchants and manufacturers confounded the common sense of mankind” (WN, IV.iii.c.10, pp. 493-494).

It takes indeed little effort to convince consumers that they should buy a cheaper commodity instead of a dearer one of similar quality, irrespective of its place of origin. They realize perfectly well that with the money saved, they can afford to buy additional commodities and services of local and foreign origin, and thus increase their level of consumption. By contrast, it is always a daunting task for interested merchants and manufactures to lure their compatriots into buying dearer commodities from them. Promotional campaigns in favor of buying locally produced goods often fail to convince enough people to have a significant economic impact. This is why protectionists usually prefer to call for tariffs and quotas, whose sole purpose is to make foreign commodities artificially dearer for consumers. If protectionists had any real faith in their arguments about the alleged benefits of buying locally produced commodities, they would present their case to the public, and then let consumers make their purchase decision based on undistorted market prices.

Smith was well aware of the fact that the cheapest producer of a commodity might not necessarily be the most productive one, as can be seen in the following quote:

“The most opulent nations, indeed, generally excel all their neighbours in agriculture as well as in manufactures; but they are commonly more distinguished by their superiority in the latter than in the former. Their lands are in general better cultivated, and having more labour and expence bestowed upon them, produce more, in proportion to the extent and natural fertility

of the ground. But this superiority of produce is seldom much more than in proportion to the superiority of labour and expence. In agriculture, the labour of the rich country is not always much more productive than that of the poor; or, at least, it is never so much more productive, as it commonly is in manufactures. The corn of the rich country, therefore, will not always, in the same degree of goodness, come cheaper to market than that of the poor” (*WN* I.i.4, p. 16).

Food producers in richer countries usually invest more than their competitors in poorer countries in a comparable acreage. This higher expenditure often results in a higher level of production, but not necessarily in proportion to the additional spending. Consequently, the producers in richer countries are not always able to match the prices of their competitors from poorer countries, despite having a productivity advantage over the latter. Smith attributed this to the fact that the agricultural sector does not admit the same degree of division of labor as manufactures. He then added: “But though the poor country, notwithstanding the inferiority of its cultivation, can, in some measure, rival the rich in the cheapness and goodness of its corn, it can pretend to no such competition in its manufactures; at least if those manufactures suit the soil, climate, and situation of the rich country” (*WN* I.i.4, p. 17). His dictum might have been valid for the economic realities of the late eighteenth century. Nowadays, however, developing countries export a wide range of manufactures to Europe and the U.S. as well.

In summary, it seems uncontroversial to affirm that Smith considered the possibility of acquiring commodities at lower prices as the main motivation for trading with other countries. Thus, it seems only logical to conclude that he viewed the relative cheapness of foreign commodities as the basis of international trade. Moreover, Smith’s corresponding rule for specialization was that one should not attempt to make a commodity that cost less to buy. A positive formulation of the rule would be that one should acquire commodities abroad whenever they are offered more cheaply than what their internal production would cost. The next section is dedicated to proving Ricardo’s agreement and recurrent use of what I like to

call the *classical rule for specialization*.

IV. RICARDO'S AGREEMENT WITH SMITH ON THE CLASSICAL RULE FOR SPECIALIZATION

It is quite easy to find passages in the *Principles* where Ricardo explicitly stated that he also considered the relative cheapness of foreign commodities as the basis of most international exchanges. Perhaps the clearest statement in this respect is the one already quoted in the introduction, where he affirms that “the motive which determines us to import a commodity, is the discovery of its relative cheapness abroad: it is the comparison of its price abroad with its price at home” (Vol. 1, p. 170). He further emphasized this rule by pointing out that if a farmer decides to sell his corn below the price at which it is currently imported, this importation will stop under the supposition that the importer cannot reduce the price of the foreign corn even further (Vol. 1, p. 269). In the following passage, Ricardo even expressed his explicit agreement with Smith on the benefits of acquiring commodities in the markets with the cheapest prices:

“Adam Smith, in his observations on colonial trade, has shewn, most satisfactorily, the advantages of a free trade, and the injustice suffered by colonies, in being prevented by their mother countries, from selling their produce at the dearest market, and buying their manufactures and stores at the cheapest. He has shewn, that by permitting every country freely to exchange the produce of its industry when and where it pleases, the best distribution of the labour of the world will be effected, and the greatest abundance of the necessities and enjoyments of human life will be secured” (Vol. 1, p. 338).

The above quotes are at odds with the current depiction of Ricardo's numerical example in economic textbooks. If the textbook interpretation were accurate, then the *master logician of political economy* (Maneschi 2004, p. 435) would have contradicted himself with the four

numbers. In reality, though, the numerical example is perfectly aligned with these quotes, as will be shown below.

In the featured barter trade in chapter 7 of the *Principles*, an unspecified amount of cloth produced by 100 Englishmen working for a year is exported to Portugal in exchange for an unspecified amount of wine which required the labor of 80 Portuguese men also working for a year. This exchange of unequal quantities of labor could not take place between individuals of the same country, as Ricardo indicated in the following paragraph:

“Thus England would give the produce of the labour of 100 men, for the produce of the labour of 80. Such an exchange could not take place between the individuals of the same country. The labour of 100 Englishmen cannot be given for that of 80 Englishmen, but the produce of the labour of 100 Englishmen may be given for the produce of the labour of 80 Portuguese, 60 Russians, or 120 East Indians. The difference in this respect, between a single country and many, is easily accounted for, by considering the difficulty with which capital moves from one country to another, to seek a more profitable employment, and the activity with which it invariably passes from one province to another in the same country” (Vol. 1, p. 135).

The featured barter trade could not take place between individuals of the same country, because according to Ricardo’s theory of value, the produce of 100 Englishmen would have to have a higher cost of production and exchange value than the produce of 80 Englishmen. It could take place between English and Portuguese traders, though, since the relative value of two lots of commodities produced in different countries is not determined by the respective quantities of labor devoted to the production of each lot. As Ricardo explicitly indicated, this is due to a difference in the rate of profit between countries (Vol. 1, p. 136). The difference persists as long as capital is relatively less mobile internationally than nationally.

A possible implication of the above proposition is that it might be beneficial for Portugal to import cloth from England, although she could produce it internally with less quantity of labor.

What makes this logical implication so counterintuitive is the inference that the English cloth made by 100 men would have to have a higher cost of production than the Portuguese cloth made by only 90 men. This inference will be proven wrong by showing that the English cloth had to have a lower cost of production than the Portuguese cloth. Consequently, the English cloth could be offered more cheaply in the Portuguese market than the locally produced cloth. In correspondence with the current *Zeitgeist* in economics, the proof will be presented in mathematical language.

Before diving into the proof, though, some terminological clarifications are required. In chapter seven of the *Wealth of Nations*, Smith distinguished between the market price and the natural price of a commodity. The latter was the price that is “sufficient to pay the rent of the land, the wages of the labour, and the profits of the stock employed in raising, preparing, and bringing it to market, according to their natural rates” (*WN* I.vii.4, p. 72). At the natural price, Smith added, the commodity is sold for what it really costs the person who brings it to market. This is important to remember, as the natural price also played a central role in Ricardo’s theory of value. After praising Smith’s chapter (Vol. 1, p. 91), Ricardo stated: “In speaking then of the exchangeable value of commodities, or the power of purchasing possessed by any one commodity, I mean always that power which it would possess, if not disturbed by any temporary or accidental cause, and which is its natural price” (Vol. 1, p. 92). He also stated later in the *Principles* that “the real and ultimate regulator of the relative value of any two commodities, is the cost of their production” (Vol. 1, p. 344). Both affirmations are equivalent, as the natural price of a commodity was for Ricardo just another name for its cost of production (Vol. 2, p. 46). He used indeed both terms interchangeably in his writings.⁵

⁵ See, for example, Vol. 1, p. 47, p. 382, p. 383, p. 385, and Vol. 2, p. 25, pp. 34-35, p. 47 and p. 219.

Ricardo also occasionally used the term *necessary price* (Vol. 1, p. 119, p. 120, p. 302 and p. 415).

Furthermore, it is inconsequential for the purpose of this proof whether the two countries have a common currency or not. In the latter case, one can simply presume that there is a given exchange rate between the two currencies at the moment of the exchange.

Let's define CC_{ENG} and CW_{POR} as the respective costs of production of the batches of English cloth and Portuguese wine traded. CW_{ENG} is the estimated cost of production if the lot of wine would have been produced in England, while CC_{POR} is the estimated cost of production of the lot of cloth in Portugal. Moreover, I will make the following three assumptions:

- (1) Since Ricardo's numerical example features a barter trade, the lot of English cloth must have the same cost of production (natural price) than the lot of Portuguese wine.⁶
- (2) The embodied quantities of labor determine the relative value of commodities made in the same country, but not of commodities produced in different countries.⁷
- (3) When the production of an unspecified amount of cloth requires more (less) quantity of labor than the making of an unspecified amount of wine in the same country, then one can also presume that the cost of production of the cloth is higher (lower) than the cost of production of the wine.⁸

⁶ Ricardo affirmed in the *Principles*: "All that I contend for is, that it is the natural price of commodities in the exporting country, which ultimately regulates the prices at which they shall be sold, if they are not the objects of monopoly, in the importing country" (Vol. 1, p. 375).

⁷ Ricardo stated: "The quantity of wine which she shall give in exchange for the cloth of England, is not determined by the respective quantities of labour devoted to the production of each, as it would be, if both commodities were manufactured in England, or both in Portugal" (Vol. 1, pp. 134-135).

⁸ In a letter from October 9th, 1820, Ricardo explained to his friend Thomas Robert Malthus the relationship between the cost of production and the quantity of labour as follows: "Cost of production, in money, means the value of labour, as well as profits. Now if my commodity be of equal value with yours its cost of production must be the same. But cost of production is with some deviations in

These three assumptions are supported by explicit statements in the *Principles* and Ricardo's correspondence, as indicated in the respective footnotes. Moreover, none of them is at odds with reality. This contrasts sharply with the many unrealistic assumptions of the textbook trade model of comparative advantage, which lack any foundation in Ricardo's writings and contradict quite openly core tenets of his economic theory.

As stated in assumption (1), the English cloth and the Portuguese wine traded have to have the same cost of production, or $CC_{ENG} = CW_{POR}$. Because of the assumptions (2) and (3), and the fact that the making of the wine in England would have required 20 additional men working for a year compared to the production of the cloth, it must be that $CW_{ENG} > CC_{ENG}$. The exchange is therefore beneficial for England, since it would have cost her more to produce the wine locally than to buy it from Portugal.

$$\text{Since } CC_{ENG} = CW_{POR} \text{ and } CW_{ENG} > CC_{ENG} \Rightarrow CW_{ENG} > CW_{POR}$$

By applying transitivity, thus, it is proven that the cost of production of wine in England has to be higher than in Portugal. There is nothing counterintuitive about this conclusion. On the contrary, it seems perfectly logical that the cost of production of the produce of 120 men (CW_{ENG}) is higher than that of 80 men (CW_{POR}). The counterintuitive insight appears in the analysis of Portugal's numbers.

Because of the assumptions (2) and (3), and the fact that the imported cloth would have required the labor of 90 men in Portugal, while the exported wine only required the labor of 80 men, we can presume that the local production of the cloth would have cost more than the making of the wine, or $CC_{POR} > CW_{POR}$. The exchange is therefore beneficial for Portugal, since it would cost her more to make the cloth than to buy it from England with the exportation

proportion to labour employed. My commodity and your commodity are both worth £1000 – they will therefore probably have the same quantity of labour realized in each" (Vol. 8, p. 279).

of wine.

$$\text{Since } CW_{POR} = CC_{ENG} \text{ and } CC_{POR} > CW_{POR} \Rightarrow CC_{POR} > CC_{ENG}$$

By simply applying transitivity, it is proven that the cost of production of cloth in Portugal has to be higher than in England. Thus, Portugal had no production cost advantage over England in cloth making. This result is not contradicted by the fact that the making of the English cloth requires the labor of 10 additional men working for a year compared to that of the Portuguese cloth, as Ricardo explained that the embodied quantities of labor do not determine the relative value of commodities produced in different countries. Thus, the cloth may well be produced more cheaply in England than in Portugal, although its production would have required less quantity of labor in the latter.

Furthermore, this interpretation is perfectly aligned with the content of the subsequent pages of chapter 7. Ricardo stated there that “cloth cannot be imported into Portugal, unless it sell there for more gold than it cost in the country from which it was imported; and wine cannot be imported into England, unless it will sell for more there than it cost in Portugal” (Vol. 1, p. 137). The cloth and wine can only be imported, though, as long as local producers are unable to undercut or at least match the prices at which these commodities are currently imported. After already mentioning on page 137 that the price of cloth in Portugal is indeed higher than in England, Ricardo indicated in the very next page that the price of wine in England is 50*l.* per pipe, and the price of a certain quantity of cloth is 45*l.*, while in Portugal the price of the same quantity of wine is 45*l.*, and that of the same quantity of cloth 50*l.*

By taking the famous four numbers as basis, and assuming that 45*l.* is the natural price (cost of production) of cloth in England and wine in Portugal, it is possible to make a sound estimate of the respective costs of production if the lot of cloth had been produced in Portugal and the pipe of wine in England. In the case of the latter, one has to multiply the 45*l.* by 1.2 (120/100), resulting in an estimated cost of production of 54*l.* for a pipe of English wine. After multiplying

the 45*l.* with 1.125 (90/80), one obtains an estimated cost of production of 50.625*l.* for the lot of Portuguese cloth. In both cases, thus, the estimated costs of production for the English wine and the Portuguese cloth are above 45*l.*, the natural price of cloth in England and wine in Portugal. This further confirms that the cost of production of the lot of cloth is higher in Portugal (50.625*l.*) than in England (45*l.*). Moreover, the estimated costs of production of the Portuguese cloth and the English wine are both above 50*l.*, the price of wine in England and cloth in Portugal indicated by Ricardo. Under these conditions, the cloth and the wine would not be supplied by local producers. Evidently, the master logician of political economy did not leave any loose ends.

This novel interpretation of the numerical example establishes, arguably for the first time, a logical connection between the quantities of labor and the prices indicated by Ricardo in chapter 7 of the *Principles*. Moreover, it gives the simplest possible answer to the question of why the merchant is able to sell the English cloth in Portugal: because it can be offered more cheaply than the locally produced cloth. Thus, the new interpretation of the numerical example eliminates the two alleged difficulties in Ricardo's text mentioned by Faccarello (2015, pp. 759-764).

All of the above indicate that Ricardo had the classical rule for specialization in mind when he carefully selected the four numbers. They are indeed perfectly in line with Smith's recommendation that one should always buy from the cheapest seller, irrespective of whether this seller is located in the same country or abroad. This further confirms a previous assertion (Morales Meoqui 2014) that the level of compatibility between the theories of international trade of Smith and Ricardo is significantly higher than currently reflected in the economic literature.

On the other hand, the famous four numbers offer no proof whatsoever for the claim that a foreign producer does not need to have a lower cost of production to sell a commodity of similar

quality in another country, which is the way they have been interpreted for over 170 years. This also explains why Ricardo never claimed to have discovered a new law, principle or rule for international specialization, and why the contraposition of absolute and comparative advantages in the cost of production is nowhere to be found in the *Principles*. These notions originated from an erroneous interpretation of Ricardo's numerical example popularized by J. S. Mill.

V. J. S. MILL'S MISINTERPRETATION OF RICARDO'S NUMERICAL EXAMPLE

Although the textbook trade model of comparative advantage is commonly referred to as the *Ricardian* model, many of its prominent features and unrealistic assumptions can be traced back to J. S. Mill. He was indeed the first, for example, in proposing to leave capital and the cost of carriage out of consideration (Mill 1844, pp. 5-7). Moreover, he also came up with the method of determining comparative advantage by comparing cost ratios, with the implicit assumption that the costs remain constant (Mill 1844, p. 12). These features and assumptions of the textbook trade model of comparative advantage, for which Ricardo has been unfairly criticized in the past, are significant departures from the original numerical example in the *Principles*. The comparison of cost ratios may even recommend an exchange which Ricardo would have deemed detrimental for the country (Morales Meoqui 2017, pp. 42-43).

In addition to this, the previous section has revealed that J. S. Mill misunderstood the four numbers in a more fundamental way than previously thought. From Ricardo's indication that the quantities of labor embodied in the cloth and wine did not determine how much wine should be given for the cloth, J. S. Mill derived the following:

“The principle, that value is proportional to cost of production, being consequently inapplicable, we must revert to a principle anterior to that of cost of production, and from

which this last flows as a consequence, – namely, the principle of demand and supply” (Mill 1844, p. 8).

This contradicts what Ricardo repeatedly stated in the *Principles* that “it is the cost of production which must ultimately regulate the price of commodities, and not, as has been often said, the proportion between the supply and demand” (Vol 1, p. 382). The reason for this contradiction between Ricardo and J. S. Mill pops up immediately when contrasting their respective definitions of the cost of production. For Ricardo, the natural/necessary price was synonymous with the cost of production, and the latter always included the ordinary profits (Vol. 1, p. 47; Vol. 2, p. 369, Vol. 4, p. 25). By contrast, J. S. Mill’s notion of the cost of production was different from that of the necessary price, as it did not include the ordinary rate of profit.⁹ It rather corresponded to what Smith called the *prime cost* of a commodity (*WN* I.vii.5, pp. 72-73). Nowadays it is mostly referred to as the *cost price* of commodities.

Two bundles of commodities with the same cost price but different profits rates do not have the same value. Therefore, J. S. Mill mistakenly inferred from the divergence of profit rates between countries that the cost of production could not be the ultimate regulator of the relative value of any two commodities in international exchanges. This inference is obviously incorrect in the case of Ricardo’s notion of cost of production, which includes the ordinary profits in the location where the commodities were produced. Thus, the determination of the commodity terms of trade in international exchanges was not a problem that Ricardo had left for subsequent generations of economists to solve.

J. S. Mill first published the solution for this alleged problem, the theory of reciprocal

⁹ J. S. Mill stated: “The cost of production, together with the ordinary profit, may therefore be called the necessary price, or value, of all things made by labour and capital” (Mill, [1848] 1965, Vol. III, p. 471).

demand, in the *Essay* (1844), and later reproduced it with some extensions and omissions in chapter XVIII of his *Principles of Political Economy with some of their Applications to Social Philosophy* ([1848] 1965). It was positively received by John Elliott Cairnes (1874) and Charles Francis Bastable ([1887] 1897). The initial statement in the form of arithmetical examples was later translated into geometrical form by Alfred Marshall (1879, 1923) and Francis Ysidro Edgeworth (1894). From this gradually emerged a new branch of international trade theory which, following Marshall, was called the *pure theory of international trade*. J. S. Mill's analysis of the relationship between reciprocal demand and the commodity terms of trade has been considered his chief claim to originality in the field of economics (Viner 1937, p. 535). So much so that Frank D. Graham's critique of Mill and his followers did not mention Ricardo at all (Graham 1923). Thus, it was indeed J. S. Mill "who gave the analysis of comparative advantage the form that became an engine of analysis for generations to come and the starting point for all further developments in trade theory" (Ruffin 2002, p. 742). Consequently, he also bears the bulk of the responsibility for almost two centuries of extreme confusion about Ricardo's numerical example.

Notwithstanding, J. S. Mill cannot be blamed for all the flaws in the current textbook narrative on the law of comparative advantage. So far, I have not found in his writings any explicit reference to the existence of such a law, nor did he attribute the theory of absolute cost advantage to Smith. Moreover, he even appears to have realized that the contraposition of absolute and comparative cost advantage was prone to originate confusion about the proper rule for specialization, as he stated in his monograph:

"Some things it is physically impossible to produce, except in particular circumstances of heat, soil, water, or atmosphere. But there are many things which, though they could be produced at home without difficulty, and in any quantity, are yet imported from a distance. The explanation which would be popularly given of this would be, that it is cheaper to import than to produce

them: and this is the true reason” (Mill [1848] 1965, Vol. III, p. 587).

As he further clarified in the next paragraph, what he meant to explain is why a “thing may sometimes be sold cheapest, by being produced in some other place than that at which it can be produced with the smallest amount of labour and abstinence” (Mill [1848] 1965, Vol. III, p. 587). Thus, J. S. Mill also considered the relative cheapness of foreign commodities as the basis for most international exchanges and used the same rule for specialization as Smith and Ricardo. His attempts of clarification ultimately failed, though, because he reiterated his previous claims that the cost of production did not regulate the relative value of commodities produced in different countries, and that Ricardo had allegedly shown that “it is not a difference in the *absolute* cost of production, which determines the interchange, but a difference in the *comparative* cost” (Mill [1848] 1965, Vol. III, p. 589).

Since the mid-nineteenth century, successive generations of economists have been trained to thinking about the proper rule for specialization mostly in terms of a dichotomy between absolute and comparative cost advantage. Hence, some scholars may conclude that I am claiming here that both Smith and Ricardo were advocates of the theory of absolute cost advantage, as King (2013, p. 466) suggested with respect to one of my previous papers. This is why I would like to emphasize that it is definitely not the case.

If the theory of absolute cost advantage is understood in the sense that commodities are always bought from those places where its production is cheapest, then I believe that neither Smith nor Ricardo would have subscribed to it. They knew too well that governments might grant subsidies and preferential tariffs to particular manufacturers and countries, which may offset any production cost disadvantage. But even in the hypothetical case that all governments would adhere to the principle of free trade and refrain from these policy tools, commodities might not always be acquired from the cheapest producer. For one thing, the cheapest producer might not have the production capacity to satisfy the world demand of the commodity. In

addition to this, one should remember that the cost of production includes not only the costs of the producer of the commodity, but also all the other expenses necessary to bring it to market – for example, the cost of carriage, insurance and advertising, among others –, as well as the ordinary profits for the producer and merchants. The cost of production of a commodity keeps adding up at every stage of the process of production and distribution. Thus, the natural price of a commodity at the factory gate is only a fraction of its natural price at the retail counter. It is therefore quite common to discover that the cheapest provider for a specific market is someone other than the producer who can afford to offer the lowest ex-factory price for the commodity.

For all the reasons mentioned above, it seems to me that neither absolute nor comparative advantage in the cost of production are proper notions to explain the basis of international trade and the proper rule for specialization. Given the problematic origin of these terms and the ongoing confusion generated by their contraposition, I would not recommend using them to popularize the genuine and still valid insights of Smith and Ricardo on international trade.

VI. CONCLUSIONS

The popular contraposition of Smith's absolute and Ricardo's comparative advantage arose from J. S. Mill's misinterpretation of the famous numerical example in chapter 7 of the *Principles*. He was indeed the first who claimed that Ricardo had allegedly proven there that international exchanges were based on a comparative rather than an absolute advantage in the cost of production. The paper refutes this interpretation by proving that the English cloth had to have a lower cost of production than the cloth made in Portugal. It further argues that J. S. Mill's misinterpretation was caused by his failure to include ordinary profits in the cost of production. His notion of the cost of production corresponded to that of the cost price. This is a significant departure from Ricardo's notion of the cost of production, which included

ordinary profits and was synonymous with the natural price.

Ricardo's numerical example was never meant to be a proof for a new law, principle or rule for international specialization. As he repeatedly indicated in the surrounding paragraphs, the original purpose of the four numbers was to illustrate the proposition that the relative value of two lots of commodities produced in different countries is not determined by the quantities of labor embodied in each lot. This is due to the divergence of profit rates among countries. The profit rates fail to equalize because capital is relatively less mobile internationally than within the same country.

It has been further shown here that both Smith and Ricardo considered the relative cheapness of foreign commodities as the basis of most international exchanges. They also used the same rule for international specialization throughout the *Wealth of Nations* and the *Principles*. The classical rule for specialization stipulates that one should not attempt to make a commodity that cost less to buy, and that it is generally beneficial to import commodities whenever they are bought more cheaply than what their internal production would cost. In line with this view, they were in favor of free trade and recommended governments not interfere in the importation of cheaper commodities by its residents.

This does not necessarily imply, though, that commodities will always be imported from the country with the lowest cost of production at the factory gate. It requires little effort to find examples of producers that are able to export to specific markets despite having a higher ex-factory cost of production than some of their foreign competitors. To explain this fact, one does not need to rely on the concept of comparative advantage or any ingenious model of international trade. It might be enough to point out that the cheapest producer might not have the production capacity to satisfy the world demand for the commodity; that the cost of production at the factory gate only accounts for a fraction of the natural price at the retail counter; that suppliers are sometimes chosen because of their proximity, flexibility and

reliability, although they might be more expensive than others; and that the quality of the product also matters.

Finally, to the extent that J. S. Mill's erroneous interpretation of Ricardo was the starting point of all further developments in international trade theory, the economics profession may have a colossal task ahead. It should perhaps carefully review every notion and model of international trade to assess and correct the potential damage created by the longstanding misinterpretation of Ricardo's numerical example. After being dominated by model builders during the last decades, the field of international trade seems to require now the work of diligent restaurateurs, demolition teams and clean-up crews.

ACKNOWLEDGEMENTS

I am grateful to Jorge Morales Pedraza and Reinhard Schumacher for providing detailed and valuable feedback on an earlier version of this paper. I would also like to thank Heinz D. Kurz, Roy Ruffin and James C. W. Ahiakpor for their comments and clarifications. A special thanks to Jimena Hurtado, José Bruno Fevereiro, Jérôme Lange, Michael Gaul and other participants of the 22nd Annual ESHET Conference in Madrid in June 2018, who also gave helpful feedback during the session in which the paper was presented. None of the mentioned scholars is responsible for the remaining errors and omissions, which are entirely my responsibility.

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