

## **The Classical theory of international trade after Sraffa**

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Piero Sraffa's contribution to the classical theory of international trade is twofold. The first contribution is direct and much earlier than in his 1960 book *Production of Commodities by Means of Commodities*. Indeed, in 1930, Sraffa published an article in which he demonstrates that John Stuart Mill's 1844 criticism against David Ricardo (1817), on the distribution of the gain of trade between nations, is not relevant. Sraffa's text remained unnoticed for a long time, probably because it looks like a short note in response to an article by Luigi Einaudi (1930). It is nevertheless essential as it enables to show that Mill's correction completely changes Ricardo's analysis in introducing the question of the determination of international values. It thus prefigures the neoclassical approach to international trade (Ravix, 1979). Sraffa's second contribution to the classical theory of international trade is indirectly stated. In his 1960 book, he does not raise the issues of international economy, but offers a new theory of price which was adopted by other scholars who attempted to develop a new theory of international trade. This theory had been called "neo-Ricardian" because it presented as an alternative to the neoclassical theory. Paradoxically, these post-sraffian works did not proceed to a reevaluation of the classical approach to external trade and the totally overlooked Sraffa 1930 contribution.

To explain this paradox, we show in the first part that the post-sraffian approaches to international trade were initially developed as a joint product of the Cambridge controversies on the theory of capital. They first challenged the main theorems of the neoclassical trade theory and then proposed different applications of the theory of prices of production to the field of international trade theory. However, in trying to answer the same questions that the neoclassical theory, and though they abandoned the theory of general equilibrium for the

theory of prices of production, all these attempts lead to a theoretical impasse, the implications of which on the classical theory of international trade will be clarified.

Then, it will be possible, in a second part, to reconsider how the main classical authors apprehend and analyse the effects of trade. In this context, we use Sraffa (1930) to discuss the conditions for the development of the principle of comparative advantage and their implications on the classical theory of international trade. We will then be lead to show that, contrary to the traditional interpretation, the originality of the classical theory of international trade does not lie in the principle of comparative advantage, but in the role that classical authors attributed to foreign trade in the development of the division of labour.

## **1. THE DIVERSITY OF POST-SRAFFIAN APPROACHES TO INTERNATIONAL TRADE**

Post-sraffian analyses of international trade are mainly developed over the twenty years between 1970 and 1990. Despite a number of significant contributions, these analyses did not leave any trace in recent textbooks on international economics. For example, the book by P. Krugman, M. Obstfeld and Melitz (2012) does not deal with post-sraffian analyses even though it echoes more recent theoretical developments. Three main reasons seem to explain this situation. The first one relates to the receipt of neo-Ricardian work by supporters of the neoclassical theory of international trade and the evolution of the latter. The second one is the ambiguities arising from the application of the Sraffian model to international economic relations. Finally, the third reason comes from the inability of neo-Ricardian authors to overcome the implications of the principle of comparative advantage to offer a genuine alternative approach from a classical point of view.

### **1.1. Capital in the theory of international trade**

The first post-sraffian analyses of international trade were undoubtedly a joint product of controversies on capital theory. In the preface of the book *Fundamental Issues in Trade Theory*, edited by Ian Steedman, which brings together the main contributions of the neo-Ricardian authors, we read: “The capital controversies of the 1960s reminded economists that (...) there are intrinsic logical difficulties in the notion of ‘capital’ as a ‘factor of production’. Since that notion has played a significant role in the dominant theory of international trade in recent decades, it is not surprising that in the late 1960s and throughout the 1970s a number of writers have sought to trace through the implications of the capital debates for orthodox trade theory and, where necessary, to provide some new trade theory” (Steedman, 1979a, p. vii). In the theory of international trade, the main target was obviously the Heckscher-Ohlin-

Samuelson model, which demonstration makes use of production functions with aggregate capital. In his “Introductory essay” which opens the same book, Steedman writes about the Heckscher-Ohlin-Samuelson theory: “It is more important here to consider further the treatment of production within that theory, for not only is that treatment open to criticism but such criticism also suggests the lines along which one can start to create a trade theory with an alternative ‘vision’, a theory which is concerned with growth and accumulation” (Steedman, 1979b, p. 3). The aim was twofold: questioning the foundations of the Heckscher-Ohlin-Samuelson theory on the one hand, and on the other hand, providing the basis for a different approach from which Ian Steedman would quickly provide the first elements in another book entitled *Trade Amongst Growing Economies* (Steedman, 1979c). However, in this last book, the author mobilizes formalizations explicitly referring to von Neumann and not to Sraffa. Similarly, it should be noted that among the sixteen articles collected in Steedman (1979a), most of which were previously published, only Mainwaring (1976 and 1978), Metcalfe and Steedman (1973) Parrinello (1973) and Steedman and Metcalfe (1973a) explicitly refer to Sraffa (1960).

Though contributions by the neo-Ricardian authors were discussed at the time while dealing with the criticism of the standard theory of international trade, they were never truly considered later because their attempts to rebuild the theory of international trade had failed to convince supporters of the neoclassical theory. For example, while evaluating the two books of Steedman, Avinash Dixit notes that: “Steedman provides a clear statement of their aims. He begins by criticising the usual static two-by-two model for treating capital as a scalar input made exogenously available in fixe quantity. According to Steedman, a proper treatment must recognize three features: the heterogeneity of capital goods, the fact of their being produced means of production, and the time needed for such production. It is clear that on all three counts the Heckscher-Ohlin-Samuelson model of elementary textbooks must plead guilty” (Dixit, 1981, p. 279). He also noted that if the exposition of Steedman (1979c) is “simple, clear, excellently organized, and geometric and algebraic methods Integrates really well”, “the model is very special. While it serves to illustrate some general features of the approach, some of techniques of analysis, as well as some of the detailed results, will not survive generalization” (*ibid.*, pp. 280-281). However, Dixit denies most of Steedman’s approach in stressing that “models which confine themselves to steady states are (...) simply inappropriate for answering real-world policy questions” (*ibid.*, p. 182). His views on Steedman (1979a) is even more critical since he found that “some of the general models (...) are well-expounded,

others are note”, and he adds: “Some others papers, however, spend an inordinate amount of time deriving and discussing the wage-interest frontier, first without input substitution, then with a choice of activities, etc. Surely most of this is standard stuff by now. The collection would have been much more readable if the papers had been revised to give a streamlined exposition, and that could have been done much more simply using unit cost functions” (*ibid.*, p. 281). Finally, Dixit concludes that “Steedman and associates have performed a most valuable service to the community of international trade theorists by alerting them to serious defects of the static two-by-two model that need to be remedied if it is to be useful in important dynamic contexts. The questions they have posed, and their analysis, have opened up useful avenues for further research. But I do not think success lies in the neo-Ricardian direction” (*ibid.*, pp. 293-294).

In his survey on “capital theory and trade theory”, Alasdair Smith expressed the same feeling than Avinash Dixit: “The neo-Ricardians’ objective seems to have been to make a radical revision of, rather than an extension to, the theory of international trade” (Smith, 1984, p. 318). After having discussed contributions published in Steedman (1979a), he asks: “What then of the neo-Ricardian contribution? There is no doubt that it is substantial and useful, and at least some of the ‘neoclassical’ theoretical developments surveyed above would have been different and poorer without the stimulus provided by the neo-Ricardians. On the grand question of whether we really are given an alternative ‘vision’ of international trade, only a personal view can be expressed and my answer is negative” (*ibid.*, pp. 319-320). And he adds: “On the positive-economic side, all the neo-Ricardian analysis can be interpreted from a ‘mainstream’ viewpoint as variants of or extensions to the ‘mainstream’ theory, but the converse statement cannot be made” (*ibid.*, p. 320).

Although these comments recognize the relevance of neo-Ricardian critics, they minimize its impact on the theory of international trade because “the limitations of static two-by-two textbook model do not arise solely from its neglect of capital. There are other purposes for which it has been augmented or altered, while preserving its character. The specific factor model is perhaps the most eminent example, but there are several others. The criticisms of Steedman et al. do not destroy the usefulness of such models in the appropriate contexts” (Dixit, 1981, p. 294). Moreover, since 1979, the international trade theory takes a new direction by studying the implications of increasing returns and imperfect competition (Helpman, 1984). Opening bridges with industrial organization (Krugman 1989), this new field dismiss questions stated by neo-Ricardian models. It follows that the debate was

restricted to post-sraffian authors who discussed issues raised by the extension of the Sraffa's price system to the analysis of international economic relations.

## **1.2. The extension of Sraffa's price system to international economics**

The main difficulty in applying Sraffa's model to international trade is the determination of international prices. Indeed, if we consider the simplest case of two economies of the same size, producing the same two basic commodities without fixed capital, we only have to suppose that they differ in their productive structure and (or) in their income distribution structure for their relative prices being also different. This constitutes a sufficient ground for the establishment of an international exchange. However, nothing ensures that it is necessarily beneficial for both countries (Mainwaring, 1974). It then becomes possible, with an assumption of constant returns to scale, to replace the two autarky systems by a new "international" system describing the complete specialization of each economy in one of the two commodities. However, without any additional hypothesis, such a system does not determine international prices since, unlike autarky situations; distributive variables have no reason to be identical in the two countries after the specialization (Montet, 1979).

To remove this indeterminacy, the first solution was to introduce an assumption of steady growth at a constant rate for each economy (Parrinello, 1973; Mainwaring, 1974; Steedman, 1979c). This procedure entails the complete price system of each economy by a system of equations defining the quantities, assuming that they depend on the rate of growth and consumption levels of both commodities. For the system defining the activity levels being consistent with corresponding price system, neo-Ricardians have generally retained a traditional savings function, specific to each country, in which the rate of growth depends only on the rate of profit through the capitalists' propensity to save. This approach requires the assumption that the two economies are growing at the same rate to avoid that one of the economies becomes too large, preventing thus a complete specialization of each economy; but also that the saving functions do not change with trade openness (Parrinello, 1973; Steedman, 1979c)<sup>1</sup>. Although this first solution actually solves the indeterminacy of international prices, it has nevertheless two important ambiguities with respect to the Sraffa's analysis. The first one is that, contrary to the logic of Sraffa, prices thus obtained depends mostly on consumer preferences, as they are based on propensities to save and consumption patterns characterizing

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<sup>1</sup> We must also assume that it is unable to finance investment by foreign saving considering that financial capital is immobile internationally. There is an analysis of the problems posed by the abandonment of this hypothesis in Metcalfe and Steedman (1979).

each economy. The second ambiguity is related to the assumption of equal growth rates that result from introducing a relationship between the two countries. This relationship is prior to international trade, since given propensities to save necessarily imply that the two economies are characterized by a stable differentiation in their rate of profit (Ravix, 1990).

Faced with these ambiguities, a second solution that excludes the hypothesis of steady growth in favour of the notion of “branche fictive” was proposed. This solution, was first introduced by Ghislain Deleplace (1976), and reconnect with the Sraffa’s approach (1960) according to which, when prices and wages are measured in terms of the Standard commodity, wage-profit relationship becomes linear and the maximum rate of profits or “Standard ratio” can be a parameter, defined as solution of the “Standard system”, because it only depends on the technical conditions of production (Sraffa, 1960, Ch. 4; Deleplace, 1976). However, the application of this method in international trade is problematic since, for each country, the Standard ratio of a closed economy is different from the Standard ratio of an open economy due to specialization; but especially in the latter case the calculation of the Standard ratio after specialization may not be as in a closed economy because the production structure of the country is reduced to a single industry. To resolve this problem, Deleplace introduced a “fictitious industry” into the Standard system in each country, after complete specialization. This “fictitious industry” simply reflects the fact that the quantity of goods that the country no longer produced, but still uses as a means production, should be obtained in exchange for the amount of the other product which requires the second country. This procedure is then used to show that, after specialization, “the rate of profit and prices are determined solely by the production methods, depending on the distribution of the value of the net product regardless to the consumer preferences” (Deleplace, 1976, p. 53). However, such a result is not satisfactory since in an open economy the means of production are evaluated on the basis of prices expressed in different and incommensurable standards (Montet, 1979)<sup>2</sup>.

This notion of “fictitious industry” was taken by Gilbert Abraham-Frois (1981), who gave it a different content. Indeed, the idea was to complete the price system of each country, after specialization, by a particular industry to ensure the supply of foreign commodity, assuming that the latter requires a certain amount of labour and that there is “no reason for the capital invested in the international exchange to receive different remuneration than in other industries” (Abraham-Frois, 1981, p. 457). Then, the particularity of this fictitious industry lies in the fact that the production coefficient characterizes itself as the ratio of the prices of

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<sup>2</sup> See also Deleplace (1979).

the two commodities that balance the international market. Applied to the international economy, this procedure leads to two systems of national prices which have the particularity to include “two kinds of prices: domestic production prices in an open economy (...) and international relative price” (Maurisson, 1986, p. 51). But this feature is purely formal, since domestic production prices depend largely on the international equilibrium price which directly affects the conditions of production fictitious industries in each country. Therefore, it follows that, in this approach, domestic prices follow the same logic that the international equilibrium price.

In order to correct this last difficulty, but also the logical inconsistency of Deleplace’s model, Patrick Maurisson (1986) proposed to consider this fictitious industry as a branch of foreign trade, without making particular hypothesis on the quantities, and fixing prices in terms of the Standard net product equal to unit. Then, if at the international level this solution allows to define prices systems which, because they are autonomous, ensure the determination of real domestic production prices in open economies, nothing ensures that these systems really describe trading specialized economies and therefore the very idea of international trade vanishes.

Thus, it is possible to see that these attempts lead to the impossibility to explain the international trade, or to abandon, explicitly or implicitly, Sraffa’s theory of price in favor of prices determined by supply and demand. The fundamental reason for this paradox comes from the fact that the non-equalization of distribution variables prevents the determination of international production prices. It is indeed easy to check that the indeterminacy disappears as soon as this assumption is abandoned, but in this case it becomes impossible to distinguish between a closed economy and a fully integrated global economy. Of course, it is always possible to admit, as Antoine Delarue (1975) does, that such an economy exists: it is also the only solution that really guarantees that international prices are actually production prices. However, in this case, it becomes impossible to explain the formation of such a global economy since specializations are given (Ravix, 1990). To overcome this last difficulty, we should be able to demonstrate that in closed economies, characterized by differentiated distribution variables, the transition to international trade through specialization leads to a situation in which these variables are equalized. Unfortunately, such a proposal is unverifiable in a post-sraffian approach (Steedman and Metcalfe, 1973a; Mainwaring, 1976 and 1978).

### 1.3. The post-sraffian approach of the Ricardian theory of international trade

In continuation of their analysis of the Heckscher-Ohlin-Samuelson theory, post-sraffian authors also criticized the neoclassical interpretation of the Ricardian theory of international trade. So, Ian Steedman disputes “what is commonly, if unfortunately, called ‘Ricardian’ trade theory in the textbooks, for that theory generally ignores the role of produced means of production, proceeds as if the rate of profit were zero, ignores the choice between alternative techniques of production and says nothing concerning growth” (Steedman, 1979c, p. 14). More generally, Takashi Negishi reported that “the wage rate in the neoclassical interpretation of Ricardian theory is the quasi-rent inputed to the given supply of labor, which is determined exclusively by the demand of labor, hence by the productivity of labor. This is quite un-Ricardian” (Negishi, 1985, p. 132). He can then deduced that “the neoclassical interpretation cannot explain the implication of Ricardo’s numerical example in which labor productivity in the cloth industry is lower in England, which seems to be the more advanced country, than in Portugal, which seems to be the less-developed country, since it is strange to consider that the wage is lower in the former than in the latter. It is, however, not the wage but the rate of profit which should be considered to lower in England, while the natural wage may not be lower in England” (*ibid.*, p. 133).

Yet, in their attempts to reformulate the foreign trade analysis developed by Ricardo, post-sraffian authors provide no real reinterpretation of classical thought in this area. In particular, Steedman and Metcalfe recalls that, “basing his analysis on the assumption that no-trade price ratios will equal the corresponding ratios of quantities of embodied labour, Ricardo obtained, amongst others, the following three important conclusions concerning foreign trade. First, trade will increase the rate of profits in a country, if and only if the imported commodities enter the real wage in that country. Secondly, the pattern of trade will be determined entirely by the methods of production available in the several trading countries. Thirdly, trade will ‘increase the mass of commodities, and therefore the sum of enjoyments’ in each of the trading countries” (Steedman and Metcalfe, 1973b, p. 99). In adopting a Sraffian reformulation, they show that “only the first of the three conclusions mentioned above is independent of the relation between no-trade price ratios and embodied labour ratios; in general, the pattern of trade could not be predicted by Ricardo from a knowledge of production methods alone and nor could Ricardo have shown that trade must increase the ‘mass of commodities’ available in each trading country” (*ibid.*, p. 100).

According to Negishi (1982 and 1985), another interpretation is possible: it is to consider that the capital is not absent from the Ricardian analysis, because in an open economy “the reason given by Ricardo for this unequal exchange of labor is the difficulty with which not the labor but the capital moves from one country to another” (Negishi, 1985, p. 135). In this new interpretation, the example of Ricardo considered as a special case in which the capital advanced to produce each commodity would consist of labour whose wages may be defined in terms of amounts of the two commodities. On this basis, Negishi developed the idea that, although Ricardo assumes that capital does not move from one country to another, it nevertheless admit that some international capital movements would be possible, if only to organize import and export operations. Indeed, Ricardo wrote: “When merchants engage their capitals in foreign trade, or in the carrying trade, it is always from choice, and never from necessity: it is because in that trade their profits will be some-what greater than in the home trade” (Ricardo, 1817, p. 293). According to Negishi, the whole problem is then to define the minimum rate of profit necessary to prevent capitalists to transfer their capital abroad, or to define a “rate of conversion” between profit rates in each country. With this additional relationship, Negishi can conclude that, contrary to the neo-classical interpretation, in Ricardo’s analysis, international prices are determine independently of international demands, because they are only a function of this rate of conversion, and that “trade increases the rate of profit in both countries” (Negishi, 1985, p. 137).

Though it is more consistent with Ricardo’s text than so called “Ricardian” neoclassical model, Negishi’s interpretation does not differs very much from the neo-Ricardian approach developed by Mainwaring, Steedman and Metcalfe or Parrinello. Indeed, in both cases, the determination of international prices through the given simple linear relationship in which an element set exogenously: either a rate of direct conversion between the rate of profit, or the propensity of the capitalists to save thus guaranteeing the identity of the steady state rate of growth in each country. However, this kind of solution is based on an approach that is not fundamentally different from that which is at work in the neoclassical theory. Both of them define the proper procedure to circumvent the lack of international competition, stated at the beginning of the analysis, to find a similar situation to that which would prevail if there were international capital mobility.

## 2. SRAFFA AND THE CLASSICAL THEORY OF FOREIGN TRADE

Although Piero Sraffa did not directly raised the issue of international trade, he nevertheless provided the essential elements for a reinterpretation of the traditional approach of foreign trade. In particular, in Appendix D of his book *Production of Commodities by Means of Commodities* (1960), he stressed the close link between his approach and the interpretation proposed in his introduction to the *Works and Correspondence of David Ricardo* (1951). Despite its brevity, his “References to literature” could incite to reconsider the principle of comparative advantage, which is the origin of the neoclassical theory of international trade, in the light of the debates of the classical school. However, as we noted in our introduction, in 1930 Sraffa provides a particularly enlightening comment on this point, but remains focused on the interpretation of the famous example of the trade in cloth and wine between England and Portugal, without explaining its genesis. Then, before assessing the implications of the Sraffa’s interpretation, it is essential to describe the evolution of classical thought on the gain from trade question.

### 2.1 The classical debates on the gains from international trade

The origin of classical analysis of international trade lies in Adam’s Smith *Wealth of Nations*. Two passages are more particularly concerned. The first one is in Chapter 9 *Of the Profit of Stock* of Book 1. According to it, supposing a stock of capital which remains unchanged, international trade will decrease the competition amongst capitalists in offering them new markets. This will lead to an increase in the general rate of profit:

“The acquisition of new territory, or of new branches of trade, may sometimes raise the profits of stock, and with them the interest of money, even in a country which is fast advancing in the acquisition of riches. The stock of the country not being sufficient for the whole accession of business, which such acquisitions present to the different people among whom it is divided, is applied to those particular branches only which afford the greatest profit. Part of what had before been employed in other trades is necessarily withdrawn from them, and turned into some of the new and more profitable ones. In all those old trades, therefore, the competition comes to be less than before. The market comes to be less fully supplied with many different sorts of goods. Their price necessarily rises more or less, and yields a greater profit to those who deal in them, who can, therefore, afford to borrow at a higher interest” (Smith 1776, vol. 1, p. 110)<sup>3</sup>.

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<sup>3</sup> Such was the case, according to Smith, “For some time after the conclusion of the late war, not only private people of the best credit, but some of the greatest companies in London, commonly borrowed at five per cent, who before that had not been used to pay more than four, and four and a half per cent. The great accession both of territory and trade, by our acquisitions in North America and the West Indies, will sufficiently account for this, without supposing any diminution in the capital stock of the society. So great an accession of new business to be carried on by the old stock must necessarily have diminished the quantity employed in a great number of particular branches, in which the competition being less, the profits must have been greater” (Smith 1776, vol. 1, p. 110).

The second passage where Smith deals with the advantages derived from international trade is in Chapter 1 *Of the Principle of the Commercial, or Mercantile System* of book 4 of the *Wealth of Nations*. There, Smith explained his “vent for surplus (Myint 1958) theory according to which international trade enables countries to sell the surplus of the goods they produced in excess for the home market. In addition, this leads to an increased international division of labour. The effects of this increased division of labour are the same than those experienced in a single country and described in the famous Chapter *Of the Division of Labour* of the *Wealth of Nations*: an increase in the productivity of the means of production, in the amount of commodities produced and in the revenue of the country. In other words, Smith also developed a “productivity doctrine” (Myint 1977) according to which international trade leads to a better division of labour and therefore increases wealth:

“Between whatever places foreign trade is carried on, they all of them derive two distinct benefits from it. It carries out that surplus part of the produce of their land and labour for which there is no demand among them, and brings back in return for it something else for which there is a demand. It gives a value to their superfluities, by exchanging them for something else which may satisfy a part of their wants, and increase their enjoyments. By means of it, the narrowness of the home market does not hinder the division of labour in any particular branch of art or manufacture from being carried to the highest perfection. By opening a more extensive market for whatever part of produce of their labour may exceed the home consumption, it encourages them to improve its productive powers, and to augment its annual produce to the utmost, and thereby to increase the real revenue and wealth of the society.” (Smith 1776, vol. 1, pp. 446-447)<sup>4</sup>.

Smith’s first argument according to which international trade may increase the general rate of profit by decreasing competition, seems to have been overlooked by most of the economists and scholars, with the exception of Ricardo<sup>5</sup>. By contrast, Smith “vent for surplus” theory was much discussed<sup>6</sup>. J. S. Mill considered it as a “surviving relic of the Mercantile Theory” (1848, vol. 2, pp. 592). James Mill opposed to this ‘vent for surplus’ doctrine in his 1808 pamphlet *Commerce Defended*. In this pamphlet, Mill developed for the first time his law of market according to which “the production of commodities creates, and is the one universal cause which creates a market for the commodities produced” (Mill 1808, p. 81) and argued that “foreign commerce, therefore, is in all cases a matter of expediency rather than of necessity. The intention of it is not to furnish a vent for the produce of the industry of the country, because that industry always furnishes a vent for itself” (Mill 1808, p. 86).

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<sup>4</sup> See also Smith 1776, vol. 1, pp. 372-3.

<sup>5</sup> Ricardo’s comments on this analytical point will be discussed below.

<sup>6</sup> On the different interpretations on this point, see Myint (1958 and 1977); Haberler (1968, pp. 103-4); S. Hollander (1973, pp. 268-76); Bloomfield (1975, pp. 472); Kurtz (1992).

Ricardo was more moderate than the “Mills”. He nevertheless observed that this thesis was in contradiction with Smith’s own analysis of the gravitation of market prices around natural prices and with the mobility of capital within the country Smith had so ably described:

“One would be led to think by the above passage (Smith vol. 1, p. 372), that Adam Smith concluded we were under some necessity of producing a surplus of corn, woollen goods, and hardware, and that the capital which produced them could not be otherwise employed. It is, however, always a matter of choice in what way a capital shall be employed, and therefore there can never, for any length of time, be a surplus of any commodity; for if there were, it would fall below its natural price, and capital would be removed to some more profitable employment. No writer has more satisfactorily and ably shewn than Dr. Smith, the tendency of capital to move from employments in which the goods produced do not repay by their price the whole expenses, including the ordinary profits, of producing and bringing them to market” (Ricardo, 1817, p. 291n)<sup>7</sup>.

While the “vent for surplus” doctrine was largely rejected by the classical economists, Smith “productivity doctrine” was generally adopted. This was the case in 1808 when both James Mill and Torrens published pamphlets to refute Spence and Cobbett’s protectionist position on international trade.

In *Commerce Defended*, Mill developed the Smithian idea that the “use and advantage of [foreign commerce] is to promote a better distribution, division and application of the labour of the country than would otherwise take place, and by consequence to render it more productive.” (Mill, 1808, p. 86). This “productivity” argument was illustrated by an example showing how much Great Britain could increase her wealth by producing corn and hardware and exchanging them against a greater quantity of flax than she would be able to produce with the same labour and land:

“Now commerce tends to increase this annual produce by occasioning a more productive application and distribution both of the land and of the labour of the country. Instead of raising flax, for example, or hemp, on our land, we raise corn; with that corn we feed a number of hardware manufacturers, and with this hardware we buy a greater quantity of flax than the land which raised our corn, and fabricated our hardware, would have produced” (Mill, 1808, p. 105).

Torrens developed an original view in *The Economists refuted* and differed from Mill on several important analytical points<sup>8</sup>. However his defense of commerce runs through the same lines than in Mill’s pamphlet: “commerce, by establishing divisions of labour between the individuals of different nations, is a mean of augmenting wealth” (Torrens, 1808, p. 34).

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<sup>7</sup> See also Ricardo, 1817, pp. 294-5.

<sup>8</sup> Torrens developed for example the opposite point of view with regard to the law of markets in writing that “it is a principle universally established, that effectual demand regulates supply” (Torrens, 1808, p. 25).

This he exemplified by illustrating the gain that England would derive from a trade with France:

“The only way, therefore of ascertaining the amount of the benefit derived from commerce, is to ascertain the degree in which the foreign division of labour augment the productiveness of human industry. Thus, if I wish to know the extent of the advantage, which arises to England, from her giving France a hundred pounds worth of broad cloth, in exchange for a hundred pounds worth of lace, I take the quantity of lace which she has acquired by this transaction, and compare it with the quantity which she might, at the same expense of labour and capital, have acquired by manufacturing it at home. The lace that remains, beyond what the labour and capital employed on the cloth might have fabricated at home, is the amount of the advantage which England derives from the exchange” (*ibid.*, p. 53).

Then, Both James Mill and Torrens admitted Smith’s “productivity doctrine”. Both also agreed that the benefit of this trade would be estimated for any country by the additional quantity of commodities that international trade provided to this country in comparison to the commodities this country would have been able to produce in autarky. However, neither Mill nor Torrens established a theory of the determination of international prices and therefore, though the gain from international trade was said to be “always reciprocal” (Torrens, 1808, p. 34), “no exact estimate can be made of what any nations gains by commerce” (Mill, 1808, p. 106).

## **2.2 The discovery of the comparative advantage theory**

In 1821, James Mill published his *Elements of Political Economy* which ran through three editions (1821, 1824 and 1826). Chapter III entitled “Interchange” included a section devoted to foreign trade where Mill dealt with “occasions on which it is the interest of Nations to exchange commodities with one another” (Mill, 1821, p. 83). After having reviewed “obvious cases” such as “commodities [that] can only be produced in particular places” (*ibid.*), Mill moved on to “another cause which requires rather more explanation” and broached the issue of comparative advantages.

Mill compared two situations where Poland and England both produce cloth and corn. In the first case, Poland has an absolute advantage in the production of cloth and of corn but no comparative advantage: “the cloth and the corn, each of which required 100 days’ labour in Poland, required each 150 days’ labour in England” (*ibid.*, p. 85). In the second situation, Poland has an absolute advantage in the production of cloth and corn but England has a comparative advantage in the production of cloth: “while the same quantity of cloth which, in Poland, is produced with 100 days’ labour, can be produced in England with 150 days’

labour, the facts are such, that the corn which is produced in Poland with 100 days' labour, requires 200 days' labour in England" (*ibid.*, p. 85).

	<b>Case 1:</b>			<b>Case 2:</b>	
	Days' labour required for producing a given quantity of			Days' labour required for producing a given quantity of	
	Corn	Cloth		Corn	Cloth
Poland	100	100	Poland	100	100
England	150	150	England	200	150

In the first case, Mill concluded that “no exchange would take place” because

“The cloth of 150 days' labour in England, if sent to Poland, would be equal to the cloth of 100 days' labour in Poland: if exchanged for corn, therefore, it would exchange for the corn of only 100 days' labour. But the corn of 100 days' labour in Poland was supposed to be the same quantity with that of 150 days' labour in England. With 150 days' labour in cloth, therefore, England would only get as much corn in Poland as she could raise with 150 days' labour at home; and she would, on importing it, have the cost of carriage besides” (*ibid.*, pp. 85-6).

In the second case, when England has no absolute advantage but a comparative one in the production of cloth, “an adequate motive to exchange would immediately arise”. Indeed:

“With a quantity of cloth which England produced with 150 days' labour, she would be able to purchase as much corn in Poland as was there produced with 100 days' labour; but the quantity, which was there produced with 100 days' labour, would be as great as the quantity produced in England with 200 days' labour. England, therefore, would obtain her corn with less labour, through the medium of her cloth.

Poland would profit in the same manner. A quantity of corn which cost her 100 days' labour, being equal to the quantity produced in England by 200 days' labour, would purchase, in England, the produce of 200 days' labour in any other commodity; for example, in cloth. But the produce of 150 days' labour in England in the article of cloth, is equal to the produce of 100 days' labour in Poland. If, with the produce of 100 days' labour, she can purchase, not the produce of 150, but the produce of 200, she gains to the amount of 50 days' labour; in other words, a third” (*ibid.*, pp. 86-7).

As several scholars (Pennington, 1840, pp. 35-6; Einaudi, 1930, p. 166; Sraffa, 1930, p. 540) stressed, James Mill's reasoning contains an error. Indeed, he attributed to both countries the whole gain of the exchange. While focusing on England, Mill supposed that the international exchange ratio of corn for cloth was one for one (that is the Polish internal rate of exchange in autarky). Therefore, the whole gain derived from international specialization benefited to England. However, in the second paragraph, while he focused on Poland, Mill supposed that the international rate of exchange of corn to cloth was one to one and a third (that is the English rate of exchange in autarky). In this case, the whole gain benefited to

Poland<sup>9</sup>. Of course, such a “double” international price was impossible, and Mill calculation of the gain derived from international specialization was faulty.

Mill corrected this error in 1826. In the third edition of his book, he indicated that if the exchange of corn for cloth was made at the Polish autarkic price (one for one), “the whole of the advantage would be on the part of England; and Poland would gain nothing, paying as much for the cloth she received from England, as the cost of producing it for herself” (Mill 1826, p. 121). On the other hand, if the English autarkic relative price was adopted as the international rate of exchange, this is Poland which “would obtain the whole of the advantage” (*ibid.*, p. 122). Mill finally adopted a middle way between these two extremes and concluded that “the result of competition would be to divide the advantage equally between them” (*ibid.*, p. 122).

Scholars formulated different hypothesis on how this correction happened. Einaudi (1930) conjectured that it may have originated from James Pennington who might have made the correction “on the occasion of some scientific debate” at the Political Economy Club in 1824 or 1826 (Einaudi, 1930, p. 170). Einaudi’s thesis followed the authority of Robert Torrens who had affirmed, in the preface to the second edition of his *Principles and Practical Operation of Sir Robert Peel’s Act of 1844* (1857), that the “error was corrected by Mr. Pennington; and the correction, if I rightly remember, was adopted by Mr. James Mill in the third edition of his *Principles of Political Economy*” (Torrens, 1857, p. XV-XVI).

However, the “Pennington hypothesis” was unfounded. Indeed, as Sraffa demonstrated, Torrens’s allusion to Pennington did not refer to any debate at the *Political Economy Club* but to a pamphlet Pennington published in 1840 – that is 14 years after the third edition of Mill’s *Elements*. This pamphlet, *A Letter to Kirk-man Finlay, Esq., on the Importation of foreign Corn, and the Value of the Precious Metals in Different Countries*, contained

“A very able tho belated criticism (...) of James Mill’s fallacy; and (...) also the conclusion that the ratio of interchange will depend upon the strength of the demand of each country for the other country’s product (pages 40-41). The long quotations from the *Elements* given by Pennington make it clear that he was using the second edition (1824), in which the argument of the first is repeated with merely verbal alterations; and that he was quite un-aware that the error had already been corrected in a third edition” (Sraffa, 1930, p. 542).

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<sup>9</sup> Actually, as Aldrich (2004, p. 391) indicated, Mill also committed a mistake while calculating the gain from trade of Poland: “the parallel argument is that a unit of Polish corn costing 100 days’ labor buys 200/150 units of cloth in England, which would have cost 133 days’ labor in Poland, representing a gain of 33. Mill does not get this answer; he makes the wrong comparison (...) Perhaps he thought the answer must be fifty, the same as England’s gain. (...) This mistake was not corrected in the [second nor in the] third edition”.

To explain Torrens' (and after him Einaudi's) mistake, Sraffa recalled that he (they) may have ignored the 1826 edition of Mill's *Elements* which sale was so poor that the remaining copies were used in a 1844 edition with a new title page<sup>10</sup>. It is then possible that "Torrens was misled by one of these copies, which bear the imprint of 1844, when he suggested that in the third edition the correction had been adopted from Pennington's pamphlet of 1840" (Sraffa, 1930, p. 543). However, according to Sraffa himself, a more likely explanation is that Torrens just ignored the date the third edition of Mill's *Elements* was published and that on this point, "his only source was J. S. Mill's essay of 1844" (Sraffa, 1930, p. 543). Indeed, in the first of his *Essays on Some Unsettled Questions in Political Economy* (1844) J. S. Mill had asserted that his father had corrected in the third edition of the *Elements* the mistake he had made in the two former editions. However, J. S. Mill did not specify the publication date of this third edition.

However, Sraffa went further than just demonstrating that Pennington cannot be considered as the one who first pointed out the error contained in the first two editions of James Mill's *Elements*. He also demonstrated that the correction did not come from James Mill either. The proof emerged from J. S. Mill's *Autobiography*. In a passage alluding to the meetings of his study group which started in 1825, J. S. Mill wrote:

"Our first subject was Political Economy. We chose some systematic treatise as our text-book; my father's 'Elements' being our first choice. One of us read aloud a chapter, or some smaller portion of the book. The discussion was then opened, and any one who had an objection, or other remark to make made it [...] The theory of International Values which I afterwards published, emanated from these conversations, as did also the modified form of Ricardo's theory of Profits, as laid down in my Essay on Profits and Interest.

The theories of International Values and of Profits were ex-cogitated and worked out in about equal proportion by myself and Graham (...) I may mention that among the alterations which my father made in revising his *Elements* for the third edition, several were grounded on criticisms elicited by these Conversations; and in particular, he modified his opinions (though not to the extent of our new speculations) on both the points to which I have adverted." (J. S. Mill, 1873, p. 125)

Thus, as Sraffa concluded, this was not James Mill who first identified the error regarding the gain of the exchange in the first two editions of his *Elements* but his son John Stuart and George Graham.

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<sup>10</sup> These two title pages bear the same indications except for the date (1844 instead of 1826) and for the editor. As Sraffa stressed, "the original edition (1826) was published by Baldwin, Cradock and Joy; on the title-page of the reissue of 1844, H. G. Bohn appears as the publisher. Probably Bohn had bought up Baldwin's stock when the latter failed (see Bain's *James Mill*, p. 187)" (Sraffa, 1930, p. 543).

Finally, Sraffa's intervention in this debate on "who first corrected the error" contributed to clarify another question were all J. S. Mill, Torrens and Einaudi appear to have been misled. This second question was "who first committed the error". According to J. S. Mill, the error first appeared in Ricardo's *Principles* (1817) and was then repeated by James Mill. In his *Essay Of the Laws of Interchange between Nations; and the Distribution of the Gain of Commerce among the Countries of the Commercial World*, J. S. Mill wrote:

"Mr. Ricardo (...) unguardedly expressed himself as if each of the two countries making the exchange separately gained the whole of the difference between the comparative costs of the two commodities in one country and in the other. But, the whole gain of both countries together, consisting in the saving of labour; and the saving of labour being exactly equal to the difference between the costs, in the two countries, of the one commodity as compared with the other; the two countries taken together gain no more than this difference: and if either country gains the whole of it, the other country derives no advantage from the trade. (...) This, (...) was first corrected in the third edition of Mr. Mill's *Elements of Political Economy* (pp. 122-24)" (J. S. Mill, 1844, pp. 235-6)

The same thesis attributing the responsibility of the error to Ricardo was repeated by Torrens in 1857: "In the view of the question presented by Mr. Ricardo, the advantages derived from foreign trade were confined to only one of these countries." (Torrens, 1857, p. xv)<sup>11</sup>. Finally, Einaudi who took Torrens' statement at face value propagated the same story on the origin of this error<sup>12</sup>.

Once again, it was Sraffa who first enlightened the question and corrected this error regarding Ricardo's theory. Indeed, in his *Principles*, Ricardo gave the famous example of English cloth exchanging for Portuguese wine but did not commit the error. He supposed that the wine produced in Portugal by the labour of 80 men for one year required the labour of 120 men in England while cloth produced in Portugal by the labour of 90 men for one year needed the labour of 100 English men:

	Number of men required for one year in order to produce a given quantity of	
	Cloth	Wine
England	100	120
Portugal	90	80

<sup>11</sup> In the same *Preface*, Torrens claimed priority over Ricardo with regard to the discovery of comparative advantages. On this much debated question, see Ricardo (1951-73, vol. 7, pp. 179-80); Torrens (1857, p. xv-xvi); J. S. Mill (1848, vol. 2, p. 589). Seligman (1911); Einaudi (1930, pp. 164-5); Robbins (1958, p. 23); Chipman (1965, p. 482); Maneschi (1998), support Torrens' claim to priority. On the Ricardo's supporters are J. Hollander (1910, pp. 90-6); Sraffa (1930, p. 543); S. Hollander (1979); Ruffin (2002, p.728; pp. 731-2 and p. 735). Finally, Thweatt (1976 and 1987) promotes James Mill.

<sup>12</sup> Note that the error was not committed by Pennington.

Ricardo concluded that it would be advantageous for both countries if England produces cloth and Portugal wine, England exporting cloth for Portuguese wine while Portugal exported wine for English cloth: “England would give the produce of the labour of 100 men, for the produce of the labour of 80” (Ricardo, 1817, p. 135). As Sraffa stressed: “We find no trace of the error, or even of a mere oversight” (Sraffa, 1930, p. 541).

## 2.2 Ricardo on the gain from trade

Ricardo’s contribution to the theory of foreign trade is characterized by his opposition to Smith’s doctrine of foreign trade reducing competition and thus increasing the rate of profit. This he clearly stated at the beginning of Chapter 7 *On Foreign Trade* of the *Principles*:

“It has indeed been contended, that the great profits which are sometimes made by particular merchants in foreign trade, will elevate the general rate of profits in the country, and that the abstraction of capital from other employments, to partake of the new and beneficial foreign commerce, will raise prices generally, and thereby increase profits. (...) They who hold this argument agree with me, that the profits of different employments have a tendency to conform to one another; to advance and recede together. Our variance consists in this: They contend, that the equality of profits will be brought about by the general rise of profits; and I am of opinion, that the profits of the favoured trade will speedily subside to the general level” (Ricardo, 1817, pp. 128-9)<sup>13</sup>.

This position may appear surprising if one considers Ricardo’s position in the corn-law debate. Indeed, Ricardo advocated for almost ten years the repeal of the corn-law on the motive that this would increase the general rate of profit in Britain. So how can Ricardo argue at the same time that “any change from one foreign trade to another, or from home to foreign trade, cannot, in my opinion, affect the rate of profit” (*ibid.*, p. 345).

Actually, according to Ricardo, two different cases have to be clearly distinguished. First, the case of an extension of foreign trade leading to the importation of corn (or more generally of basic goods). This will decrease the value of corn as well as the natural wages and thus, will increase the general rate of profit. Second, the case of an importation of luxury goods which has no consequence, neither on the natural wage nor on the natural rate of profit, but only increases the general wealth of the country:

“It has been my endeavour to shew throughout this work, that the rate of profits can never be increased but by a fall in wages, and that there can be no permanent fall of wages but in consequence of a fall of the necessaries on which wages are expended. If, therefore, by the extension of foreign trade [...] the food and necessaries of the labourer can be brought to market

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<sup>13</sup> See also Ricardo, 1817, p. 23.

at a reduced price, profits will rise. If, instead of growing our own corn, or manufacturing the clothing and other necessaries of the labourer, we discover a new market from which we can supply ourselves with these commodities at a cheaper price, wages will fall and profits rise; but if the commodities obtained at a cheaper rate, by the extension of foreign commerce [...] be exclusively the commodities consumed by the rich, no alteration will take place in the rate of profits. The rate of wages would not be affected, although wine, velvets, silks, and other expensive commodities should fall 50 per cent., and consequently profits would continue unaltered” (*ibid.*, p. 132).

Now, while he considered the gains of the extension of trade to foreign countries, Ricardo always considered the “productivity doctrine” as the only one and overlooked the possible effect of foreign trade on the general rate of profit:

“Foreign trade, then, though highly beneficial to a country, as it increases the amount and variety of the objects on which revenue may be expended, and affords, by the abundance and cheapness of commodities, incentives to saving, and to the accumulation of capital, has no tendency to raise the profits of stock” (*ibid.*, p. 133)<sup>14</sup>.

Ricardo’s point may be explained by distinguishing between the consequences deriving from opening the market to foreign trade that are “necessary effects” and those that are only “possible effects”. Indeed, according to Ricardo, the extension of foreign markets will necessarily lead to an increase in the division of labour and then to a general increase of wealth. Foreign trade may also have an effect on the rate of profit but only in the particular case the commodities that are exchanged are wages goods. Furthermore, even in this case, only the importing country will see his general rate of profit decrease. The exporting country will have to increase its production of corn and then to have recourse to inferior soils thus increasing the natural price of his corn:

“No very great quantity [of corn] could be obtained from abroad, without causing a considerable increase in the remunerating price of corn in foreign countries. (...) To raise a larger supply, too, those countries would be obliged to have recourse to an inferior quality of land, and as it is the cost of raising corn on the worst soils in cultivation requiring the heaviest charges, which regulates the price of all the corn of a country, there could not be a great additional quantity produced, without a rise in the price necessary to remunerate the foreign grower” (Ricardo, 1815, p. 265)<sup>15</sup>.

The consequences of this increased price of corn in Ricardo’s theory are well known: an increase in the natural wage and a fall in the general rate of profit.

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<sup>14</sup> Ricardo had developed the same argument in his 1815 *Essay on Profits* (Ricardo, 1815, pp. 25-6).

<sup>15</sup> See also Ricardo, 1817, p. 375.

Ricardo considered that the repeal of corn-law would have a positive effect on the general rate of profit in England which was an importing country<sup>16</sup>. However, on a theoretical point of view, it was impossible for him to draw any necessary consequence about the effect of opening the market to foreign trade on the rate of profit. The effect could happen (in the case of basic commodities) or not (in the case of luxury goods), and even when it happens, it could increase (in the case of importing countries) or lessen (in the case of exporting countries) the general rate of profit. Therefore, the only effect that Ricardo ascribed to opening the market to foreign trade was the “productivity doctrine” described by Smith and adopted by James Mill and Torrens.

There is however an important difference between Ricardo’s exposition of the comparative advantages and that of J. Mill and Torrens. It does not concern the figures but the kind of commodities considered. Indeed, in J. Mill case, Poland produces corn while England produces clothes. Torrens developed the same example of corn from Poland and clothes from England when he explained his own version of the comparative advantage theory in his *Essay on the External Corn Trade* (Torrens, 1815, pp. 263-5). In his example Ricardo substituted wine for corn, that is he substituted what he considered as a luxury good (see Ricardo, 1817, p. 132), for a basic good (corn).

This point has been rightly stressed by Gehrke (2013, pp. 20-1) while discussing “the standard view [according to which] Ricardo had failed to provide a rule for the determination of international values, had supposed an arbitrary distribution of the gain from trade, and had omitted to specify the limits for the terms of trade”. Indeed, in the case considered by Ricardo, the commodities are luxury goods not entering in the wages basket. Then, the distributive variables in the two exchanging countries (the rates of wage and the rates of profit) are not affected by the exchange. The international prices of these commodities are determined only by their conditions of production in the exporting country at the average rates of wage and profit.

The same principle, according to which it is the natural price of commodities in the exporting country, which ultimately regulates the international prices, also applied in the case of basic goods. As stated by Ricardo:

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<sup>16</sup> “If the legislature were at once to adopt a decisive policy with regard to the trade in corn [...] we should undoubtedly be a regularly importing country. We should be so in consequence of the superiority of our wealth and population, compared to the fertility of our soil over our neighbours” (Ricardo, 1815, pp. 26-7).

“Corn, like every other commodity, has in every country its natural price, viz. that price which is necessary to its production, and without which it could not be cultivated: it is this price which governs its market price, and which determines the expediency of exporting it to foreign countries. If the importation of corn were prohibited in England, its natural price might rise to 6l. per quarter in England, whilst it was only at half that price in France. If at this time, the prohibition of importation were removed, corn would fall in the English market, not to a price between 6l. and 3l., but ultimately and permanently to the natural price of France, the price at which it could be furnished to the English market, and afford the usual and ordinary profits of stock in France; and it would remain at this price, whether England consumed a hundred thousand, or a million of quarters. If the demand of England were for the latter quantity, it is probable that, owing to the necessity under which France would be, of having recourse to land of a worse quality, to furnish this large supply, the natural price would rise in France; and this would of course affect also the price of corn in England. 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” (Ricardo, 1817, pp. 374-5).

Then, in the case of basic goods, the problem becomes more complex. Indeed, as explained in the first part of this paper, in case of basic goods, the system becomes undetermined and it is impossible to determine the natural prices of commodities as well as the rates of profits in the different countries.

However, whether the commodities considered are basic or luxury goods, their natural price in the exporting country always regulates their international prices for Ricardo. In this respect, his theory differed essentially from that of John Stuart Mill who considered that in foreign exchanges, “the principle, that value is proportional to cost of production, being inapplicable, we must revert to a principle anterior to that of cost of production (...) namely, the principle of demand and supply” (J. S. Mill, 1844, p. 8). Another problem appeared in J. S. Mill’s interpretation of Ricardo with regard to the gain of trade. Indeed, Mill considered the question “in what proportion the increase of produce, arising from the saving of labour, is divided between the two countries” (*ibid.*, p. 5) and as “this question was not entered into by Mr. Ricardo”, this led him to the error of attributing to each country the whole gain of trade – an error which, as we have seen, James Mill committed but not Ricardo. Once again, J. S. Mill’s interpretation is erroneous. For Ricardo, the gain of trade, though it did not consist in a division of an increased produce as in J. S. Mill, was nevertheless easy to calculate. For Ricardo, the gain of trade consisted in the saving of labour that each country experienced while obtaining the commodity for which it was comparatively less productive by trade rather than by producing it. In his example, England imported wine she would have produced by 120 men and exported cloth produced by 100 men. The gain was then  $120-100 =$  the labour of 20 men. As for Portugal, it was the labour of ten men (90-80).

## Conclusion

Sraffa's contribution to the understanding of the classical theory of international trade lies mainly in his 1930 article in which he showed that Ricardo did not commit error and that J. S. Mill modified the terms of the Ricardo' example. From this result it is possible to draw two main implications.

The first is to refute the argument according to which "Ricardo's exposition of the laws governing trade between two nations was extremely concise, and not entirely free from ambiguity" (Chipman, 1965, p. 479). The argument was that Ricardo would have committed a logical error in the statement of his principle when he wrote that: "England may be so circumstanced, that to produce the cloth may require the labour of 100 men for one year; and if she attempted to make the wine, it might require the labour of 120 men for the same time. England would therefore find it her interest to import wine and to purchase it by the exportation of cloth" (Ricardo, 1817, p. 135). Indeed, Chipman believes that: "this is a *non sequitur*, since nothing so far has been said about Portugal (Chipman, 1965, p. 479). He adds that the sentence from Ricardo's text, defining the advantage of Portugal, "is equally unsatisfactory, except when read in conjunction with the first" (*ibid.*, p. 480). Yet, as Sraffa (1930) has shown, it is not necessary to compare the situation of England with that of Portugal to state that both will have an interest in specializing. Indeed, the benefit derived by each country does not depend on international prices, or on the conditions of production in the other country, but only on their own production conditions. In fact, Chipman's argument would be relevant only if one assumes that Ricardo would reason as J. S. Mill, which is not the case. Then, it becomes also possible to dismiss the interpretation developed by Ruffin (2002), and supported by Maneschi (2004)<sup>17</sup>, to criticize Chipman's position (1965). Indeed, these authors show that there is no logical error in the statement of the principle of comparative advantage; simply because Ricardo would have considered that the international relative price would be given. This explanation is not satisfactory either, because it is developed in the context of J. S. Mill's framework, where the determination of international prices is a prerequisite to the definition of the gains of each country. However, as we have seen, the Millian issue of "international values" is not relevant for Ricardo.

The second implication which may be deduced from Sraffa (1930), is that when Ricardo says that, because of the number of men annually required to produce cloth and wine at home, "England would therefore find it her interest to import wine, and to purchase it by

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<sup>17</sup> This interpretation is also adopted by Morales Meoqui (2011)

the exportation of cloth” (Ricardo, 1817, p. 135) ; he merely repeats Smith’s view according to which: “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” (Smith, 1776, I, p. 457). So, contrary to the claims of all international trade textbooks, there is no real break between Smithian absolute advantage and Ricardian comparative advantage. Once this result is accepted, it is possible to go one step further by noting that the idea of comparative advantage is meaningful only in the purely static perspective of perfect competition, which is opened by J. S. Mill and developed by traditional neoclassical approach. This last point is confirmed by the fact that the new trade theory, which incorporates imperfect competition, shows that international trade is not explained by comparative advantages, but by increasing returns to scale (Krugman, 1990; Grossman and Helpman, 1991). Several authors have stressed the importance of these developments may have for a reinterpretation of the classical theory of international trade, in particular for Smith’s analysis (West, 1990; Elmslie and James, 1993; Blecker, 1997). As indicated by Blecker: “Smith’s idea that the ‘division of labour’ can be increased through the market-widening effects of foreign trade can be seen as foreshadowing some arguments entertained by the ‘new international trade theory’, in which economies of scale – rather than comparative costs – are the driving force behind trade flows” (Blecker, 1997, p. 527). However, the rediscovery of the Smithian “productivity theory” imply to be “extremely cautious in comparing Smith’s classical approach with the new neoclassical trade models, which typically assume strict optimizing behaviour and some form of imperfect competition” (*ibid.*). Indeed, the theory of competition developed by classical economists has the specificity of articulating market price and natural price. As a consequence, and despite its analytical difficulties, “this common interpretation is radically opposed to that of the neoclassical economics” (Arena, 1979, p. 119). Similarly, in the extension of Young (1928), George Richardson shows that “Smith (...) views the economy as in a state of constant and generally generated change. Perpetual motion results from the fact that the division of labour is at once a cause and an effect of economic progress” (Richardson, 1975, p. 351). Then, it follows that “increasing returns may lead not to market concentration but to specialization and interdependence” (*ibid.*, p. 357). While examining the question why “will we not find, at the end of the road, precisely that state of monopolistic competition described by Chamberlin, the only difference being that differentiation takes place in the vertical as well as the horizontal dimension?”, Richardson notes: “One answer to this question, and the most fundamental, is

that the end of the road may never be reached. And this indeed is the implication of Smith's evolutionary theory" (*ibid.*).

It is therefore only in a perspective of economic transformation, fundamentally foreign to the neoclassical approach, that the classical theory of international trade finds its unity and its specificity. Indeed David Ricardo, James Mill and Robert Torrens all agree with Adam Smith to recognize that foreign trade, promoting the extension of the division of labor, contributes directly to economic development.

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