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12 January 2012

Online at <https://mpra.ub.uni-muenchen.de/35905/>
MPRA Paper No. 35905, posted 12 Jan 2012 19:03 UTC

**Title: On the Distribution of Authorship-Merits for the
Comparative-Advantage Proposition**

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Abstract

Due to a better understanding of the logical interrelationships between the comparative-advantage proposition, the classical rule of specialization and the proposition regarding the non-appliance of the labor theory of value in international exchanges in Ricardo's famous numerical example in the *Principles*, it is now possible to arrive to a definite conclusion regarding the longstanding academic debate about the true author of the comparative-advantage proposition. Torrens is not entitled to the same amount of merit as David Ricardo with regard to the comparative-advantage proposition since he fell short of formulating a full prove of it prior to the publication of Ricardo's *Principles*. In the 1815 example of English cloth being traded for Polish corn, Torrens missed to apply the classical rule of specialization for Poland. For the featured international exchange to take place, though, there has to be gains from trade for both trading partners. More importantly, Torrens also failed to recognize the crucial role of Ricardo's insight regarding the non-appliance of the law of value in international exchanges in proving the comparative-advantage proposition. Therefore, the bulk of the authorship-merit for this proposition rightly belongs to Ricardo.

Keywords: comparative advantage, David Ricardo, Robert Torrens, international trade theory, classical political economy

Introduction

*In science the credit goes to the man who convinces the world,
not to the man to whom the idea first occurs.*

Francis Darwin

Since the first half of the nineteenth century until the present there has been an ongoing debate among economists about the accurate attribution of authorship-merits for the comparative-advantage proposition. Resuming the many twists and turns of this long-standing controversy, Ruffin (2002, pp. 727-728) critically asserts:

“Historians of the law of comparative advantage have turned a relatively simple and beautiful story into a confused tangle of claims of priority, error, incompleteness, and attribution. It has been said that Robert Torrens (1780-1864) deserves the credit for discovering the law; James Mill (1773-1836) gave the theory to Ricardo; Ricardo had no interest in the law after it appeared; and Ricardo's exposition is deeply incomplete.”

For the sake of turning the page on this apparently endless academic dispute, some may think that it is perhaps better to simply bypass this cumbersome issue altogether. After all, what really matters is to grasp the content of the comparative-advantage proposition, right? I respectfully disagree with this point of view, since I am convinced that the accurate distribution of merit for the formulation of the comparative-advantage proposition is not merely an issue of fairness towards its rightful author, but is also an indispensable exercise for further clarifying and deepening the understanding of the proposition itself.

It turned out recently that with the notable exemptions of Sraffa (1930) and Ruffin (2002), all the main participants in this longstanding academic dispute had either an incomplete or flatly wrong understanding of Ricardo's famous numerical example of chapter seven of the *Principles*. Given this fact, it seems now perfectly understandable why there has been such a hassle in identifying the rightful author of the comparative-advantage proposition.

Ruffin (2002; 2005) has recently been the most outspoken scholar in favor of granting Ricardo the exclusive merit for the comparative-advantage proposition. Along with the rediscovering of Sraffa's correct interpretation of Ricardo's four numbers, he presents in the first paper (2002) some valuable insights about the concrete circumstances and probable date of Ricardo's formulation of the proposition.

Despite the relevance and accuracy of Ruffin's insights, the authorship-debate over comparative advantage seems to be far from over. In a paper published as recently as 2006, Kemp & Osaka suggest again that Ricardo took the comparative-advantage insight from Torrens,

calling it the *Torrens-Ricardo Principle of Comparative Advantage*. This paper may have prompted Ruffin to take another shot on the issue. In his second paper on the subject, Ruffin (2005) rejects Torrens' claim of authorship over comparative advantage by affirming that the latter was the author and main advocate of the so-called absolute cost advantage theory of trade. According to Ruffin, this automatically disqualifies Torrens for claiming authorship for comparative advantage, since one cannot pretend to be the author of two mutually exclusive propositions at the same time.

The present paper argues that Torrens' presumed advocacy of the absolute advantage theory of trade – even if it turns out to be true – is rather irrelevant for judging his merits with respect to the comparative-advantage proposition. A direct and more effective way of rejecting Torrens' claim consists in highlighting the crucial omissions and shortcomings of his enunciation of the comparative-advantage proposition in the 1815 pamphlet *Essay on the External Corn Trade*.

Two Approaches for Rejecting Torrens' Claim of Authorship

Ruffin (2005) refers to several passages of the above-mentioned pamphlet in order to fundament his assertion that Torrens was the author of the absolute advantage theory of trade. As already mentioned, the explicit purpose of attributing this theory to Torrens is to disqualify him from claiming authorship for the comparative-advantage proposition.¹ In essence, Ruffin argues that Torrens' claim over comparative advantage has to be rejected because of his alleged lack of consistency on the subject. This argumentation is based on the presumption that the absolute cost advantage theory of trade is the precursor and main alternative to the comparative-advantage proposition. This presumption, however, has been partially questioned in a previous paper (Morales Meoqui, 2010). There I have argued that the absolute cost advantage theory of trade does not contradict the comparative-advantage proposition if by absolute cost advantage one merely means a nominal or money cost advantage of one country over another.

Moreover, Ruffin's line of argumentation is unlikely to persuade those scholars who do not share his high appreciation for consistency. They will probably counter that consistency is not an indispensable requirement for deserving at least some credit for the formulation of a new concept, proposition or theory. In order to be considered as the main author of the comparative-

¹ Ruffin (2005, pp. 711-712) states: "Although Torrens used a phrase that fit the law of comparative advantage, he surrounded the phrase with both nonsense (as will be shown) and the main alternative to that law. This would seem to be an unlikely basis for claiming that someone discovered the scientific theory or law. As has often been said, the hard part of discovering something important is recognizing it."

advantage proposition, it might be perfectly enough if Torrens had formulated an adequate demonstration of this proposition prior to the publication of the *Principles*.

Taking into consideration the above objections, I believe that the approach of rejecting Torrens' claim by linking him to the absolute cost advantage theory of trade will not resolve the longstanding debate in favor of Ricardo. This does not imply by any mean, though, that Torrens' claim of authorship over the comparative-advantage proposition has to be accepted. On the contrary, this unsuitable claim can be rejected in a more effective way by indicating rather precisely the crucial shortcomings and omissions of his enunciation of the disputed proposition in the 1815 pamphlet.

As can be expected in such a prolonged debate, this alternative approach for rejecting Torrens' claim has been pioneered by other scholars before. One hundred years ago, Jacob Hollander (1911) already referred to the incomplete nature of Torrens's statement. Ruffin (2005) briefly mentions Torrens' omissions as well, but does not offer a detailed analysis of the relevant passage.² The incomplete and inadequate nature of Torrens' enunciation of the comparative-advantage proposition in the 1815 pamphlet can be explained in much greater detail here as a result of new insights regarding the logical construction of Ricardo's original demonstration in chapter 7 of the *Principles*. More precisely, there is now a better understanding of the logical interrelationships between the comparative-advantage proposition, the classical rule of specialization and the proposition regarding the non-appliance of the labor theory of value in international exchanges in Ricardo's original demonstration (Morales Meoqui, 2011). This deeper understanding of his famous numerical example sheds a brighter light on the deficiencies of Torrens' enunciation.

Specifying the Achievement regarding Comparative Advantage

Before dipping into the analysis of Torrens' statement, though, it is necessary to unmistakably specify what should be considered as the central achievement regarding the comparative-advantage proposition. After all, any accurate and fair attribution of merit for the formulation of a new concept, proposition or theory has to start with a clear definition and delimitation of the subject for which somebody should get credit. Without such a precise specification of the achievement, any distribution of merit ultimately becomes an arbitrary and disputable exercise.

² Ruffin (2005, p. 717) states: "Torrens's 1815 assertion neither stated the key assumption of trade theory, that factors of production are relatively immobile between countries when compared to goods, nor spelled out a comparison of the real costs of production of manufacturing and corn in England and Poland. Ricardo correctly laid out all of the costs of producing the amounts of goods traded."

As is generally known, comparative advantage is the proposition that a country might import a certain amount of a commodity although it could produce it internally at lower real costs than the exporting country. One of the reasons why it has been so difficult to identify the legitimate author of this counterintuitive proposition is the fact that it is logically intertwined with other important insights of the classical theory of international trade, first and foremost with the classical rule of specialization.

The classical rule of specialization stipulates that it is beneficial for a country to import commodities whenever it can obtain them in exchange for exports whose production entails less real cost compared to the home-production of the same amount of the imported commodities. This rule can also be reformulated in order to highlight the gains in output instead of input-savings. In that case the classical rule of specialization would stipulate that it is beneficial for a country to import commodities whenever it can obtain them in greater quantities at the same expense of labor and capital by exporting some other commodity than by producing them at home.

As Jacob Viner (1937, p. 441) correctly points out, the comparative-advantage proposition is indeed a logical implication of the classical rule of specialization.³ The task of proving this logical implication, though, is not a trivial exercise, as has been demonstrated by the difficulties that both James Mill and his son John Stuart Mill encountered when trying to reproduce Ricardo's comparative-advantage proposition.⁴ These difficulties can be partially attributed to the fact that both formulated numerical examples which omitted any reference to another crucial proposition in Ricardo's original demonstration in the *Principles*, i.e. the non-appliance of the law of value in international trade when the factors of production are immobile between countries. Since comparative advantage is a corollary of this omitted proposition, it is indeed a rather difficult exercise to prove the former without referring to the latter.

Since the classical rule of specialization was already well known and repeatedly used in the economic literature before 1815, neither Torrens nor Ricardo is entitled to any particular credit for it. Thus, the laurels for the comparative-advantage proposition should go to the economist who first came up with a full proof of it – not to the one who merely mentioned it as a possible implication of the classical rule of specialization.

³ Viner calls the classical rule of specialization the *eighteenth-century rule*, while other authors refer to it as the *gains-from-trade proposition*.

⁴ See James Mill (1826, pp. 119-124) and John Stuart Mill (1963-1991, Vol. III, pp. 587-617; Vol. IV, pp. 232-261).

It is now established beyond doubt that Ricardo published a full prove of the comparative-advantage proposition in the *Principles*. Therefore, supporters of Torrens' claim would have to bring up a satisfactory prove of this proposition prior to 1817, the year of publication of this book. There is indeed a passage in Torrens' 1815 *Essay on the External Corn Trade* in which he mentions the possibility that England would import some amount of corn from Poland even if it had more fertile lands than the later. Many Torrens' supporters as well as influential authors on history of economic thought like Samuel Hollander (1979, p. 461) have referred to this paragraph as the main evidence for the legitimacy of his claim of priority over comparative advantage. Furthermore, there can be no dispute about the fact that Torrens had already published his essay well before Ricardo arrived to the full prove of the comparative-advantage proposition, which Ruffin (2002, pp. 735-743) dates around the first two weeks of October 1816. But is this undisputed fact a sufficient reason for establishing the priority of Torrens over Ricardo as the legitimate author of the comparative-advantage proposition? It might be, but only in case that Torrens' statement contains a satisfactory proof of the comparative-advantage proposition, at least equal if not superior to Ricardo's formulation in the *Principles*. So let's analyze in greater detail the relevant passage in the next section.

Torrens' Omissions

Torrens' claim of authorship regarding comparative advantage is based on the following paragraph of his *Essay on the External Corn Trade* of 1815:

“If England should have acquired such a degree of skill in manufacturing, that, with any given portion of her capital, she could prepare a quantity of cloth, for which the Polish cultivator would give a greater quantity of corn, than she [England] could, with the same portion of capital, raise from her own soil, then, tracts of her territory, though they should be equal, nay, even though they should be superior, to the lands in Poland, will be neglected; and a part of her supply of corn will be imported from that country. For, though the capital employed in cultivating at home, might bring an excess of profit, over the capital employed in cultivating abroad, yet, under the supposition, the capital which should be employed in manufacturing, would obtain a still greater excess of profit; and this greater excess of profit would determine the direction of our industry” (Torrens, Vol. 2, pp. 264-265).

He was well aware of the counterintuitive nature of this proposition, since he wrote at the beginning of the paragraph:

“Let us suppose, that there are, in England, unreclaimed districts, from which corn might be raised at as small an expenditure of labour and capital as from the fertile plains of Poland. [...] [It] seems natural to conclude, that if industry were left to take its most profitable direction, capital would be employed in raising corn at home, rather than in bringing it from Poland at an equal prime cost, and at a much greater expense of carriage. But this conclusion, however obvious and natural it may, at first sight, appear, might, on a closer examination, be found entirely erroneous” (Torrens, Vol. 2, pp. 263-264).

Does the above paragraph contain a satisfactory prove of the comparative-advantage proposition? In order to answer this question in a proper way one has to acknowledge right from the beginning that ‘Torrens’ example is built on a different logical construction than Ricardo’s. Whereas ‘Torrens’ compares the amounts of cloth and corn produced with a given quantity of capital and labor, Ricardo compares the amounts of laborers working for a year which are required for producing some unspecified quantity of cloth and wine traded. So each of them applies a different – although equally valid – version of the classical rule of specialization with its corresponding way of defining and calculating the gains from trade. In Ricardo’s numerical example the gains from trade consist in the respective amounts of labor saved in England and Portugal by the exchange; in ‘Torrens’ example the gains from trade consist in the greater amount of corn that England is able to obtain with the same amount of resources by importing it from Poland rather than producing it at home.

The acknowledgement of these distinctive logical constructions prevents us from judging ‘Torrens’ example through the spectacles of Ricardo’s four magic numbers. Robbins (1958, p. 23) appears to have incurred in this error when affirming that ‘Torrens’ missed to point out the cost ratios. If ‘Torrens’ had used specific numbers in his example, they would have indicated some amount of output – not inputs or cost ratios. Therefore, ‘Torrens’ missing element is not the comparison of cost ratios but the application of the classical rule of specialization for Poland. For the featured international exchange of English cloth for Polish corn to actually take place, it has to be of mutual interest for both trading partners. Thus, ‘Torrens’ should have applied the classical rule of specialization not only to England but to Poland as well.

For further highlighting the incomplete nature of ‘Torrens’ statement of comparative advantage, let us represent England’s exchange of a certain amount of cloth for a certain amount of Polish corn in a table. ‘Torrens’ does not specify in the above paragraph the amounts of cloth and corn that can be produced in England and Poland with a given quantity of capital and labor, so I will use the parameters a , b , c and d to refer to these amounts.

| | Amounts of goods that can be produced with a given quantity of capital and labor in the respective countries | |
|---------|--|------|
| | cloth | corn |
| England | a | b |
| Poland | d | c |

Table 1: Torrens' Example

Torrens affirms that $c > b$, i.e. the amount of corn that England imports from Poland in exchange for its cloth is higher than the amount of corn that England could have managed to produce internally using the same amount of capital and labor currently employed in the production of the cloth exported to Poland. He does not indicate, however, whether the costs of capital and labor for producing c and d in Poland are the same as for producing a and b in England.

One may think that such an explicit specification of Poland's factor costs is not necessary, since the real costs of production for the amounts of English cloth and Polish corn traded have to be equal under the postulates of a real cost theory of value. But if the respective real costs of production in Poland and England were indeed the same, and Torrens indicates at the same time that $c > b$, then it would follow that Poland is more productive than England in the production of corn. This of course would contradict the whole point that Torrens is trying to make, i.e. that England would import corn from Poland despite being more productive in the production of this commodity.

If, on the contrary, the amounts of capital and labor employed in the production of the cloth and corn in the respective countries are not equal, then the English cloth and the Polish corn traded would have to have different exchange values under the postulates of a real cost theory of value. Since England is assumed to be more productive than Poland in the production of both cloth and corn, i.e. $a > d$ and $b > c$, it follows then that the English commodities would have to be produced with less real factor costs and, for the same reason, should also have less exchange value than the Polish commodities.

Nowadays it is rather difficult to assess whether Torrens was aware of the theoretical difficulties of offering a complete proof for this counterintuitive but logical implication of the classical rule of specialization. What seems clear now is that he simply bypassed these theoretical difficulties by skipping the application of the classical rule of specialization for Poland, and thus

avoiding any explicit reference to the costs of capital and labor in that country. This explains why Torrens has nothing to say about the non-appliance of the law of value in international exchanges, which is a crucial proposition in Ricardo's numerical example. As a consequence, he also fails to mention the critical assumption responsible for the non-appliance of the law of value in international trade: the inability of labor and capital to move from a country where productivity is low to another country with a higher level of productivity.

For economists who adhere to the neoclassical theory of value, Torrens' omissions may not seem as particularly important. According to the neoclassical theory of value, the real costs for the amounts of cloth and corn traded do not determine the relative value of these commodities, and therefore do not have to be necessarily equal. Therefore, a neoclassical economist could not be held accountable if his or her demonstration of the comparative-advantage proposition would have had similar deficiencies. The same kind of indulgence, however, cannot be applied to a classical political economist like Torrens.

In order to be fair one has to admit that many Torrens' supporters would presumably share the assessment that their candidate's demonstration of the comparative-advantage proposition is rather unsatisfactory. Their argumentation in favor of granting him the authorship over Ricardo has always rested more on the alleged deficiencies in Ricardo's demonstration of comparative advantage rather than the specific merits of Torrens' exposition. For this reason, the accurate interpretation of Ricardo's numerical example in the *Principles* is the equivalence of a knock-out punch against Torrens' claim, since it proves the allegations against Ricardo wrong while further highlighting the incomplete nature of Torrens' demonstration of the comparative-advantage proposition.

In resume, Torrens may deserve some credit for realizing that the comparative-advantage proposition is indeed a possible implication of the classical rule of specialization. But since he did not offer a satisfactory prove of the proposition, he cannot be considered as its legitimate author nor granted precedence over Ricardo, as Samuel Hollander (1979, p. 461) does. It took the keener mind of a master logician like Ricardo's to recognize the subtleties and theoretical challenges surrounding the proof of this counterintuitive proposition. As Ruffin (2002, p. 731) correctly states: "*There is a difference between hinting at a result and providing the tools to prove a theorem.*" It was Ricardo – not Torrens – who provided the necessary tools for proving the comparative-advantage proposition.

Conclusions

The comparative-advantage proposition is a logical implication of the classical rule of specialization. As such it is highlighted – perhaps for the first time – in a pamphlet written by Torrens two years before the publication of the *Principles*. Although Torrens may deserve some credit for being the first to mention this possible implication of the classical rule of specialization, he cannot be considered as the legitimate author of the comparative-advantage proposition, because he did not offer a satisfactory prove of it.

Torrens clearly missed to apply the classical rule of specialization for Poland in his 1815 example of English cloth being traded for Polish corn. For this featured international exchange to take place, though, there has to be gains from trade for both trading partners. As a consequence of this omission, Torrens failed to recognize the crucial role of the law of value in proving the comparative-advantage proposition, since the later is a corollary of the non-appliance of the law of value in international exchanges. Because of these important omissions, Torrens' authorship-claim over the comparative-advantage proposition can be rejected without having to take the rather tortuous and questionable approach of portraying him as the author and outspoken advocate of the absolute-advantage theory of trade.

So Ricardo was indeed the first economist who offered a full and yet ingeniously simple prove of the comparative-advantage proposition in the famous numerical example of chapter seven of the *Principles*. Consequently, he rightly deserves the bulk of the authorship-merit – if not the whole credit – for this proposition.

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