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THE TRANSFORMATION OF VALUE INTO COMPETITIVE PRICE: RESCUING MARX' VALUE THEORY FROM HISTORICAL MISINTERPRETATION

ABSTRACT

The central contention of this paper that the commentators of Marx's "Transformation Problem" have failed to understand the nature of the problem with which Marx is dealing in "*Capital*", volume III, chapter 9, which is to refute Ricardo's refutation of the labor theory of value in "*Principles*", chapter 1, section IV. The commentators of Marx, and especially his critics, have failed to understand the very terms in which Marx formulates the problem of "Transformation", and, especially, the notion of "*Warenwerte*" ("commodity-value") or, what is the same, the thesis that labor is the *immanent* measure of value. This fundamental Marxian thesis is totally absent in the commentaries on the "Transformation Problem", which are thus fundamentally mistaken right from the start. In this paper, my aim is to contribute to recover the Marxian Theory of Value from its current misunderstanding and oblivion.

Kepa M. Ormazabal
Department of Foundations of Economic Analysis I
University of the Basque Country
Lehendakari Agirre etorbidea 83
E-48015 Bilbo, Bizkaia
Phone: 34-94-6013772
Fax: 34-94-6013774
e-mail: jeporsak@mail.bs.ehu.es

Introduction

The first necessary step to solve any problem is to know what exactly that problem is. It is the contention of this paper that the commentators of Marx's "Transformation Problem", friends and foes alike, have failed to understand the nature of the problem with which Marx is dealing in "*Capital*", volume III, chapter 9, "*Verwandlung der Warenwerte in Produktionspreise*", where he takes up this issue. The ultimate cause of the misdeed is the failure to understand the notion of "commodity-value" ("*Warenwerte*"), or, what is the same, the thesis that labor is the *immanent* measure of value. This failure mortgages the standard commentaries of the "Transformation Problem", which are thus fundamentally mistaken right from the start. In this paper, my aim is to recover Marx' original formulation of the "Transformation Problem" by recovering his thesis that labor is the immanent measure of value.

According to the current standard interpretation, Marx' aim when dealing with the "Transformation Problem" is to put to test the labor theory of value by solving a problem about quantities. I totally reject this interpretation. As Marx himself makes clear in the title of "*Capital*", volume III, chapter 9, the problem at stake is the "Formation of a General Profit Rate" *(*"*Bildung einer allgemeinen Profitrate (Durchschnitts-Profitrate)*)" by the transformation of commodity-value into production price. In my opinion, what Marx is doing when dealing with "Transformation" is to refute Ricardo's refutation of the labor theory of value in "*Principles*", chapter 1, section 4, which, for Marx, was the most interesting refutation of the determination of value by labor.

As Marx explains with detail in the corresponding part of his "*Theorien über der Mehrwert*", Ricardo believed to have found that the formation of a uniform profit rate under competition rules out the determination of value by labor. Since capitalism implies competition and competition a uniform profit rate, it follows, for Ricardo, that the determination of value by labor contradicts the competitive determination of prices.

Marx answers to Ricardo that the formation of a uniform profit rate is totally irrelevant for the determination of value by labor; his answer is, precisely, the "transformation of value into competitive price". Marx replies to Ricardo that the question as to whether the profit rate is or is not uniform is totally irrelevant to the question as to the nature of exchange value. Exchange value consists in labor no matter whether the profit rate is or is not uniform. For Marx, the determination of value by labor is logically independent of whether prices are or are not determined in competitive conditions. Marx wants to refute Ricardo on his own camp, and so he employs the categories of Ricardo, who, remember, claims to have found a contradiction between *value* and *price* that rules out the determination of *value* by *labor*. Accordingly, Marx answers to Ricardo in terms of *value* and *price*, but his point is, precisely, that value and price belong to different conceptual levels; price is an external measure of value, whereas labor is the immanent measure of value.

To refute Ricardo, one of the things Marx does is to re-elaborate the numerical example on the basis of which Ricardo argued against the determination of value by labor in "*Principles*", chapter 1, section 4. Marx' re-elaboration of this numerical example in "*Capital*", volume III, chapter 9 is not intended to demonstrate anything nor to solve any conceptual problem. It is an illustration of a thesis that rests on entirely independent basis, namely, that labor is the immanent measure of value. By re-elaborating Ricardo's numerical example Marx is showing that any quantitative determination of price is compatible with the labor theory of value. In fact, his view is that the labor theory of value is not a theory about the *quantity* of exchange value, but about its *nature*.

Ricardo correctly saw that, in competition, exchange value tends to take on the particular determination of competitive price. As the composition of capital need not be uniform, he mistakenly deduces that something that is not labor is causing value, that competitive prices diverge from values because something else than labor is causing value. Marx' answer is that what he has discovered is that competition causes a systematic reallocation of surplus labor among capitals so as to produce a uniform profit rate. According to Marx, this means nothing about the nature of exchange value.

The commentators of Marx (and, especially, his critics) have systematically overlooked the title of "*Capital*", volume III, chapter 9 and the fact that, for Marx, the process of "transformation" of "commodity-value" into production price is the process of formation of a general profit rate. Instead, they have kept the error of Ricardo and, looking from it at Marx, they have systematically misunderstood Marx.

The failure to understand Marx' thesis that labor is the immanent measure of value can be seen in the ubiquitous formulation of the starting point of the "Transformation

Problem" as a set of "labor-values" which are waiting to be "transformed" into prices. This very formulation of the problem, the origin of which is in Ricardo, contradicts Marx' thesis that labor is the immanent measure of value. For Marx, "commodity-value" as such has no objective existence (apart from money price, of course) and, "*a fortiori*", lacks quantitative determination. To start from a set of "labor-values" is, for Marx, to start from a set of *prices*, that is, from an objective expression of value as price; not competitive price, of course, but still price.

For Marx, on the contrary, the thesis that price is the objective expression of exchange value implies that exchange value as such, that is, "commodity-value" does not exist objectively, but only in the particular prices of particular commodities. In other words: for Marx, social labor as such does not exist, that is to say, does not exist *as an object*; what exists as an object is the particular moments of social labor, that is, particular productive activities that produce particular use-values. To start from a set of quantitatively determined "labor-values" amounts, for Marx, to the rejection of the thesis that labor is the immanent measure of value. To start from quantitatively determined values is to start from prices, so, instead of transformation of value into price, we have transformation of price into price.

Since as early as Bortkiewicz, however, the commentaries on Marx' "Transformation" that have shaped our standard understanding of Marxian Value Theory contradict Marx' view that labor is the immanent measure of value and by starting from a set of quantities of social labor. I shall call this approach to the analysis of the Marxian theory of value the Bortkiewiczian tradition.

Part of the blame of Bortkiewicz's error, however, is to be put on Marx himself. It is my contention that, in the famous numerical example of "*Capital*", volume III, chapter 9, Marx was not comparing values with prices, but non-competitive prices with competitive, or, as he says, production prices. Marx failed to make this sufficiently clear. I venture to say that the cause of this confusing language on the part of Marx is that he was trying to refute Ricardo in his own terms. However it may be, Marx' occasional misuse of language should not prevent us from doing justice to his theory and depriving us from a key thesis to understand Capitalism.

What in standard textbooks of History of Economic Thought (and in a good deal of professional literature) passes as Marxian Theory of Value, is, actually, a reedition of

Ricardo that stands in contradiction to Marx. Marxian Value Theory is the victim of a quite interesting and, for me at least, intriguing historical miscomprehension. The aim of this paper is to contribute to rescue the Marxian theory of value from its current oblivion by bringing to light the Marxian conception of "*Warenwerte*", that is, of labor as the immanent measure of value.

As Marx makes abundantly clear, "commodity-value" must take on the form of "production-price" if competition prevails. As the accumulation of capital in general implies the competition among the particular expressions of capital, competition tends to prevail as Capitalism develops. To use Marx' own phrase, "competition reveals the innermost structure of capital". This means that the concept of capital presupposes the development of exchange value into money and, thus, the abolition of the material determinations of wealth in money. This implies that capitals of the same magnitude are equally good as capitals and, therefore, that they have the same right to profit, no matter what their composition or ability to produce surplus labor may be. It follows that every capital must receive profit according to its magnitude, and therefore, regardless of its composition; in other words, that as capitalist production develops, the profit rate tends to be uniform. This is the reason why the proper objectification of "commodity-value" as price is, under capitalism or competition, the objectification of "commodity-value" as *production-price*.

Marx' view is that competition logically implies the transformation of "commodity-value" into "production-price" because competition logically implies a uniform profit rate, and the uniform profit rate is the essential feature of "production-price" as opposed to other possible systems of prices that are not "production-price". To the extent that competition does not prevail, the profit rate need not be uniform, and "commodity-value" will not be objectified as or "transformed" into "production price", but into price that does not involve a uniform profit rate.

As labor is the immanent, and, therefore, no external measure of value, Marx cannot be comparing "values" to "prices" in "*Capital*", volume III, chapter 9, but systems of money prices that involve a uniform profit rate with systems of money prices that do *not* involve a uniform profit rate. A system of prices without a uniform profit rate is "transformed" into a system of prices with a uniform profit rate by redistributing total surplus value among the particular expressions of capital so as to equalize the profit rate.

Contrary to Ricardo, the “deviations” of price from “value” (non-competitive price, actually) do not show that something else than labor is causing exchange value so as to equalize the profit rate, but that exchange value is being redistributed from some capitals to others. Marx is surprised to see how Ricardo fails to understand the meaning of the figures in his own numerical example, as he himself notes that what the “deviations” of price from value are doing is to put all the capitals “on a par”, that is, to level out the profit rates of all the particular capitals. Such “leveling out” does not involve any creation of new vale, but only the reallocation of the already existing value.

I begin the paper by analyzing, in the first section, the standard anti-Marxian formulation of the “Transformation Problem”. To define with accuracy the concepts, I focus on Bortkiewicz’s presentation. I connect Bortkiewicz to Ricardo in order to make sense of the often nonsensical statements of Bortkiewicz. Bortkiewicz repeats the error of Ricardo of confusing the concept of the measure of value with the concept of the standard of price, which leads to the error that the standard of price is the unit of value. Because of this error, Bortkiewicz’s presentation fails very often to make sense and needs to be “reconstructed”. However, the source of confusion is Ricardo, on whom Bortkiewicz depends totally. The error that the standard of price is a unit of value is a by-product of the self-contradictory Ricardian idea of an “invariable measure of value”, which, in turn, is a by-product of the mistaken conception of “absolute value”. Bortkiewicz repeats the ideas of Ricardo in different words when he claims that the problem of “Transformation” is to establish a rule of correspondence between two measure units of value, namely, labor and money. Bortkiewicz is another victim of Ricardo and his conceptual framework prevents him from understanding Marx.

Another outstanding victim of Ricardo and of Bortkiewicz himself is Paul Samuelson. Unlike Bortkiewicz, who mistakenly believes to have restored coherence to Marx, Samuelson believes, even more mistakenly than Bortkiewicz, to have refuted the Marxian view that labor is the substance of exchange value. I deal with Samuelson’s repetition of Bortkiewicz because it has been very influential and regarded as a refutation of Marx, which by any means it is not.

After having presented and diagnosed the current formulation of the “Transformation Problem”, in the second section I turn to Marx and look at his fundamental idea that labor is the immanent measure of value. It is the key to correctly formulate the "Transformation Problem". I appeal to Marx' texts in order to answer the question as to why value is not measured by labor but by some particular commodity, that is, why value needs an objective expression external to value itself or why value needs to become price, why money is different from social labor. The purpose of this section is to explain why, for Marx, exchange value is not an objective category and why, among other things, value as such does not admit of quantitative determination. This is the distinction between the *immanent* measure of value, which is unique and is social labor, and the many *external* measures of value in particular commodities, which are different forms of price.

On this basis, in section three, I proceed to analyze Marx' famous numerical example of volume III, chapter 9 and the relevant texts. My contention is that Marx is not looking for any rule of correspondence of quantities, but refuting Ricardo's contention that the formation of a uniform profit rate rules out the determination of exchange value by labor. The final section is devoted to conclusions.

1. The "Transformation Problem" According to the Bortkiewiczian Tradition

Bortkiewicz is a key figure in the history of the "Transformation Problem". He is the originator of the tradition that views the Marx' transformation problem as a problem about the determination of a rule of correspondence (or, precisely, of *transformation*) between two units of measure of exchange value: labor and money. According to this, the problem of transformation that Marx tried to solve was to determine a correspondence rule between the measure of value in terms of labor units and the measure of value in terms of money units. The "transformation" of value into price is a change in the unit of measure of exchange value. The problem is to determine the relation between the two units of measure. This is the problem that Marx solved incorrectly in "*Capital*", volume III, chapter 9 and that compromises the validity of his whole theory of value.

As I said, my contention is that this conception of the "Transformation" of value into production price is totally alien to Marx and contradicts his conceptions of value, price, money and labor. Let us see why.

Bortkiewicz starts his criticism of Marx' by making some assumptions:

"The different spheres of production from which Marx composes social production as a whole can be put together into three departments of production. In Department I means of production are produced, in Department II workers' consumption goods, and in Department III capitalists' consumption goods. At the same time we shall assume that in the production of all three groups of means of production, that is, those which are used respectively in Departments I, II, and III –the organic composition of capital is the same. Finally, we shall assume "simple reproduction." (Bortkiewicz, 1907, in Sweezy, 1949, 200)

It is noteworthy that Bortkiewicz mixes the analysis of transformation with the conditions of simple reproduction, subjects that in Marx are, of course, related, but nonetheless, logically independent. In accordance with Marx, I think that, as far as transformation is concerned, it is irrelevant whether we do or do not group together industries that produce capital goods or production goods. Also, for the transformation problem, it is irrelevant whether there is simple or extended reproduction. It is to be noted as well that Bortkiewicz's division of social production into three departments does not correspond to Marx' division in "*Capital*" volume II, which is where Marx studies the reproduction schemes. Unlike Bortkiewicz, Marx divides social production not into *three*, but into *two* departments, namely, production goods and consumption goods. This divergence is, as I argue elsewhere, a reflection of Bortkiewicz's radically mistaken comprehension of Marx' theory of capital.

"Let c_1, c_2, c_3 stand for the constant capital, v_1, v_2, v_3 for the variable capital and s_1, s_2, s_3 for the surplus value in Departments I, II, and III respectively. The conditions of simple reproduction are expressed in the following system of equations:

(1) $c_1+v_1+s_1 = c_1+c_2+c_3$

(2) $c_2+v_2+s_2 = v_1+v_2+v_3$

(3) $c_3+v_3+s_3 = s_1+s_2+s_3$" (Bortkiewicz, 1907, in Sweezy, 1949, 200)

These equalities of Bortkiewicz are not the conditions of simple reproduction. As a matter of fact, they are not the conditions of simple reproduction that Marx provides in the volume II of "*Capital*", but this is not the point now; the point is that these equations have nothing to do with the conditions either of simple or of extended reproduction. They express a decomposition of the total labor objectified in commodities which is logically independent from the conditions of reproduction. For the treatment of the problem of transformation, these equalities obscure rather than clarify the nature of the problem under discussion. Marx never posed the problem in these terms, and with good reason. In Marx' numerical example of volume III, chapter 9 we have five commodities the use value of which is not even mentioned –because it is irrelevant for the question at stake.

"$c_1+v_1+s_1$" represents the total value of the output of the goods that make up the constant capital of the economy. It says that this value can be divided into paid labor, "c_1+v_1", and unpaid labor "s_1". Thus, the production of constant capital goods gives rise to a profit for the capital invested in it and requires investments in variable and in constant capital. "$c_1+c_2+c_3$" is but the total value of the constant capital invested throughout all the economy, which, as it has been produced by the capital invested in the production of constant capital goods, must be equal to "$c_1+v_1+s_1$".

There is simple reproduction when the production of constant capital goods just makes up for the consumption of constant capital goods. In extended reproduction, the production of constant capital goods is greater than the depreciation requirements, but this does not break the equality "$c_1+v_1+s_1=c_1+c_2+c_3$"; no matter whether there is simple or extended reproduction, it always holds good that the total existing output of constant capital goods has a value and that this value can be decomposed into paid and unpaid labor. The same can be said about the equation of Bortkiewicz about variable capital goods.

It is interesting to look at equation 3. It says that in simple reproduction the output of surplus goods is just enough to make up for the consumption of surplus goods. Bortkiewicz is giving a separate existence to capital and to surplus value. His procedure amounts to asking: What is the value of capital as such? And its price? What is the value of surplus value? And its price? This view gives rise to more senseless puzzles; for instance, since the production of surplus value goods must yield surplus value, the price of surplus value must be greater than the value of surplus value. These nonsensical puzzles do not arise in Marx.

Bortkiewicz goes on:

"If we now designate the rate of surplus value by r, then we have

$r = s_1/ v_1 = s_2/ v_2= s_3/ v_3$

and equations (1), (2) and (3) can be rewritten as follows:

(4) $c_1+(1+r)v_1 = c_1+c_2+c_3$

(5) $c_2+(1+r)v_2= v_1+v_2+v_3$

(6) $c_3+(1+r)v_3= s_1+s_2+s_3$

The problem now is to convert these value expressions into price expressions which conform to the law of equal rate of profit." (Bortkiewicz, 1907, in Sweezy, 1949, 200)

In the following sections, I am going to argue that, in Marx, the problem of transformation has nothing to do with a conversion of "value expressions" into "price expressions". The *transformation* of commodity values into production price is the process of *formation* of a uniform profit rate when the capitals of the economy are not equally productive of surplus labor. The uniform profit rate is not formed by changing measure units. Bortkiewicz's "transformation" of Marx' transformation problem is a radical distortion of it. Indeed, on what evidence does Bortkiewicz conclude that Marx' problem was that the three equations are expressed in terms of labor units and they ought to be expressed in money units? For Marx, the problem is that, since the ratio *r* is uniform and the composition of capitals is not uniform, the profit rate will not be uniform, which is inconsistent with competition. The contradiction is solved by prices that allocate surplus value to each capital according to the same rate. This is not in any way a problem of measures and, of course, the competitive allocation of surplus value to capitals is totally irrelevant to the inquiry into the nature of that which is allocated, that is, to the theory of value.

Bortkiewicz does not inquire into why the profit rate must be uniform under competition. He takes it as a brute fact. Marx says that under competition the profit rate must be uniform and that this is a law. So be it, says Bortkiewicz.

Bortkiewicz goes on:

"Marx' solution consists first in forming the sums

(7) $c_1+c_2+c_3=C$

(8) $v_1+v_2+v_3=V$

(9) $s_1+s_2+s_3=S$

next, in determining the sought-for average rate of profit, which will be designated by ρ, from the formula

(10) $$\rho = \frac{S}{C+V}$$

and, finally, expressing the production prices of the commodities produced in the three departments by

(11) $c_1+v_1+\rho\ (c_1+v_1)$

(12) $c_2+v_2+\rho\ (c_1+v_2)$

(13) $c_3+v_3+\rho\ (c_3+v_3)$

from which it emerges that the sum of these three price expressions, or the total price, is identical with the sum of the corresponding value expressions, or the total value (C+V+S)." (Bortkiewicz, 1907, in Sweezy, 1949, 200-1)

To be equal, or identical as Bortkiewicz says, total value and total price must be commensurable. Ironically, Marx would say that Bortkiewicz' "value expressions" and "price expressions" are commensurable; they are so because they all are, in fact, *price* expressions. Without being aware of it, Bortkiewicz is comparing price expresions to price expresions. He mistakenly thinks that he is comparing value expresions to price expresions because he does not understand that, in Marx, value as such does not have objective existence. According to Marx, "value expressions" cannot be compared to "price expressions" because the very notion of "value expression" is, precisely, that of price. Exchange value as such does not have objective existence and, thereby, lacks quantitative determination. For Marx, as soon as value is expressed at all, that is, as soon as value comes to have objective existence, it becomes price. Price can be expressed in terms of gold, apples or, even, of some particular labor, but never in terms of social labor. The medium in which value is objectively expressed as price is, precisely, the particular commodity that functions as money.

Having failed to understand the terms in which Marx himself poses the problem of transformation, Bortkiewicz looks at the numerical example of Marx that illustrates what he has failed to understand and comments:

> "This solution to the problem cannot be accepted because it excludes the constant and variable capitals from the transformation process, whereas the principle of the equal profit rate, when it takes the place of the law of value in Marx' sense, must involve these elements." (Bortkiewicz, 1907, in Sweezy, 1949, 201)

According to Bortkiewicz, Marx made a mistake which is very easy to see; indeed, too easy: the value of capital, of *c* and *v*, has not been transformed into price. Only the values of the outputs have been transformed into prices. The exchange value of *c* and *v* is still measured in terms of labor units but coherence requires that they also be measured in terms of money units. Without this, not all the values have been transformed into prices, thinks Bortkiewicz.

How is it that Marx made such a blatant mistake? In my opinion, what Bortkiewicz regards as an omission is not such. There are two basic reasons why Marx does not do the calculation missed by Bortkiewicz. First, because capital as such does not exist, that is, because capital is not any particular commodity, so capital as such does not have value or price. Secondly, because "transformation" does not consist in the "conversion" of magnitudes measured in labor to magnitudes measured in money. Indeed, what Bortkiewicz regards as a change in the measure unit of outputs is not such for Marx. From the standpoint of Marx, Bortkiewicz's demand for a "conversion" of the "value expression" of capital into "price expression" is totally out of question and reveals a profound misunderstanding of the nature of exchange value.

However, Bortkiewicz is on to something. Interestingly enough, a look at "*Capital*", vol. III, chapter 9 shows that Marx had already seen and solved the problem that Bortkiewicz senses but fails to understand. It is convenient to analyze this passage because it provides a good reference point to assess how little Bortkiewicz understands Marx. As

Marx sees it, his numerical example poses a problem about the aggregation of the accounts of the five firms or branches of capital that are mentioned in the example. This problem of consolidation is relevant to the empirical application of the categories of value theory, but not to their validity. Marx writes:

> "Under capitalist production the elements of productive capital are, as a rule, bought on the market, and for this reason their prices include profit which has already been realised; hence, include the price of production of the respective branch of industry together with the profit contained in it, so that the profit of one branch of industry goes into the cost-price of another." (Marx, 1981, 259-60)

Accordingly, we cannot say that a firm that buys a machine priced at $100 is investing a capital of $100, because part of these $100 represent the profit of the manufacturer of the machine, which means that part of what the firm regards as capital is actually profit for the manufacturer of the machine. Also, the materials with which this manufacturer built the machine will include the profit of the supplier, so it seems that we cannot escape multiple-counting and, what is more interesting, that we cannot speak of "capital invested" because capital as such is not bought and sold in the market, but only goods which repay production cost and leave a profit. According to this, Marx cannot write that, say, firm I, invests $80 in constant capital; all he could write is that firm I buys a machine priced at $80, but, as part of this $80 represents the profit of the manufacturer of the machine, we cannot say that firm I invests $80 on machinery. It is clear that the price of the machine is $80, but what is its value, that is, the capital actually invested by firm I? This is the problem that Bortkiewicz senses in Marx' numerical example and leads him to accuse Marx of not having "transformed" the value of capital into price.

In contrast to Bortkiewicz, Marx is well aware that capital as such does not have objective existence: this is, precisely, one of the basic theses of his value theory. This means that you will never observe capital as such in empirical experience, just like you will never observe "humanity" in empirical experience, but particular human beings. Likewise, all we can empirically observe and, therefore, count is particular goods employed in production, that is, empirical expressions of capital as oil, wood or whatever. Accordingly, we will never see in empirical experience capital giving rise to surplus value: all we can see is firms that employ goods and people and make profits. The reason is that all that is bought and sold in the markets is particular commodities, never capital as such or surplus value as such.

This means that if you want to set on business, you cannot buy capital anywhere; all you have to do is go to the market and acquire productive particular goods none of them is materially capital, but oil, wood or whatever. The closest we have in empirical experience to pure capital or value is money capital. In any other industry, the investor has to transform his money into particular commodities produced by somebody else whose profit is included the price of the commodity. In money capital, by way of contrast, as money is not transformed into something else than money, the problem about the eventual “producer” of the money “bought” does not seem to arise. I do not mean to say thereby that it does not arise, however; indeed I think that it does, but in a more circuitous way.

Marx does not consider that the eventual multiple-counting may pose any problem to the illustrative power of his numerical example:

“In dealing with surplus-values, we have seen in Book I that the product of every capital may be so treated, as though a part of it replaces only capital, while the other part represents only surplus-value. In applying this approach to the aggregate product of society, we must make some rectifications. Looking upon society as a whole, the profit contained in, say, the price of flax cannot appear twice -not both as a portion of the linen price and as the profit of the flax. There is no difference between surplus-value and profit, as long as, e.g., A’s surplus-value passes into B’s constant capital. It is, after all, quite immaterial to the value of the commodities, whether the labour contained in them is paid or unpaid. This merely shows that B pays for A’s surplus-value. A’s surplus-value cannot be entered twice in the total calculation.” (Marx, 1981, 260)

But it is not clear how this is to be avoided:

“But the difference is this: Aside from the fact that the price of a particular product, let us say that of capital B, differs from its value because the surplus-value realised in B may be greater or smaller than the profit added to the price of the products of B, the same circumstance applies also to those commodities which form the constant part of capital B, and indirectly also its variable part, as the labourers' necessities of life. So far as the constant portion is concerned, it is itself equal to the cost-price plus the surplus-value, here therefore equal to cost-price plus profit, and this profit may again be greater or smaller than the surplus-value for which it stands. As for the variable capital, the average daily wage is indeed always equal to the value produced in the number of hours the labourer must work to produce the necessities of life. But this number of hours is in its turn obscured by the deviation of the prices of production of the necessities of life from their values. However, this always resolves itself into one commodity receiving too little of the surplus-value while another receives too much, so that the deviations from the value which are embodied in the prices of production compensate one another. Under capitalist production, the general law acts as the prevailing tendency only in a very complicated and approximate manner, as a never ascertainable average of ceaseless fluctuations." (Marx, 1981, 261)

Whatever the procedure to consolidate particular accounts into a an aggregate account may be, the point is that consolidation does not involve any comparison of labor values with money prices nor any difficulty for the labor theory of value.

Thus, when Marx calculates average profit as the quotient of *S* to *C+V*, he takes it for granted that the accounts of all the firms of the economy have been consolidated, so we can ascertain which part of the total circulation of money represents constant capital, variable capital or surplus value. This has nothing whatsoever to do with the (un-Marxian) theses that exchange value is measured in units of labor or that the formation of uniform profit rate consists in the change in unit of measure of value from labor units to money units.

Having totally misunderstood the nature of the problem of transformation that Marx is actually treating of in volume III, chapter 9, Bortkiewicz goes on with the pseudo-problem that he has created for himself:

"The correct transition from value quantities to price quantities can be worked out as follows." (Bortkiewicz, 1907, in Sweezy, 1949, 201)

This is the problem for Bortkiewicz: the transition from value *quantities* to price *quantities*. Not for Marx, for whom the thesis that there is such a thing as "value quantities" amounts to rejecting the labor theory of value, the theory that labor is the immanent measure of value.

Note also that Bortkiewicz's mode of expression raises a doubt. What is the problem, to find a correspondence rule between two measurements of the same quantity, or to find a correspondence rule between two measurements of two different quantities? In the latter case, the unit in which the two quantities are measured must be the same, for two different quantities measured in different units cannot be compared. As I said, Bortkiewicz's formulation suggests that he poses the problem in the first way: to find a transformation rule between two measurements of the same quantity which is exchange value. Other texts suggests this view; for instance:

> "Tugan-Baranowsky sets up his value schema in terms of labor units instead of money units. This is legitimate enough, but it turns attention away from the real difference between value calculation and price calculation." (Bortkiewicz, in Sweezy, 1949, 205n)

In Bortkiewicz, Marx is faced with an absurd problem, namely, that of establishing two different measures of exchange value. Bortkiewicz does not ask himself: why did Marx need two measures of exchange value, labor and money? Why two units of account, units of labor and units of money? Why was not he content with one? Bortkiewicz suggests that Marx was forced to measure exchange value with two different standards because of the labor theory of value. According to this view, originated by Bortkiewicz, the labor theory of value gives necessarily rise to a "Transformation Problem" in the sense that, by definition, it involves two standards of measure of value: money and labor. The labor theory of value involves two measurements (labor and money) of the same magnitude (value in exchange). Thus, the labor theory of value naturally poses the question as to whether there is a correspondence rule between the two measure units of value. Not a trace of Marx' conception of value remains in Bortkiewicz.

Bortkiewicz understands that the Marxian labor theory of value is that labor is some privileged measure of exchange value; in Ricardian terms, that it is the "invariable" measure of value, the commodity the value of which does not change. Money prices may change because of changes in the standard of price or because of changes in the value of money, but the labor values underlying a system of money prices do not change. Otherwise we could not tell a change in prices caused by a change in the value of money from a change in prices caused by a change in the value of commodities. The labor theory of value is the theory that claims that the value of labor is invariable and, therefore, that the value of labor provides the invariable measure of value that we need to ascertain the real causes of the changes in the prices of commodities. For Marx, this is wrong: the labor theory of value is not the theory that claims that labor is the *invariable* measure of value, but the theory that claims that labor is the *immanent* measure of value. Ricardo's *invariable* measure of value is, still an *external* measure of value. Bortkiewicz thinks in the same terms as Ricardo: thus, he misunderstands Marx and thinks that the Marxian view that labor is the *immanent* measure of value means that labor is the *invariable* (but external) measure of value.

An outstanding author in the tradition inaugurated by Bortkiewicz is Paul Samuelson. I stop for a while on his treatment because it has been most influential and, I am afraid, misleading. According to Samuelson, the existence of a transformation rule can be seen as a test or "vindication" of the labor theory of value. If there exists a rule of transformation that establishes a definite relationship between money prices and labor values, that is, between labor-times and money prices, we have shown that labor determines value. Marx would be saying: if the labor theory of value is true, then, starting from any system of relative prices, we can determine the system of labor values which lays beneath the observed system of money prices and is "causing" or determining it. The labor theory of value is, according to Samuelson's reading of Marx, the theory that holds that any set of money prices is determined by an underlying set of labor-values.

> "Let a_{0j}=[a_{0j}] be the two vector of direct labor inputs needed to produce the output of *n* industries; a = [a_{ij}] be the Leontief square matrix whose elements denote the input of *i*th good needed to produce the output of the *j*th industry; m = [m_i] be the column of vector of minimum-subsistence goods needed as real wage to cover the cost of production and reproduction of labor. Karl Marx in Volume I of *Capital* assumes that every industry adds to cost outlays on labor and raw materials a constant percentage of the wage payments alone, namely *s* the "rate of surplus value or labor exploitation" (…)
>
> An alternative –and incompatible system unless a_{0j}/A_{0j} happen to be identical for all industries- is that provided by the competitive "prices" of bourgeois economics (so-called Walrasian equilibrium) and of Marx's posthumous volume III [KMO: chapter 9]. Here the row vector of prices, P = [P_j], is determined by adding to cost outlays a constan percentage rate of profit or interest, *r*, reckoned on all cost outlays (wage payments plus raw materials outlays)." (Samuelson, 1970, 423)

Note that Samuelson starts from quantities of social labor. Again, the idea that labor is the immanent measure of value is totally absent and, in fact, the discussion starts from a set of prices which will be related to another set of prices. At most, what Samuelson would find is a "transformation rule" between different sets of prices, the existence or non-existence of which is totally irrelevant for the question as to the nature of exchange value. Indeed, there is nothing about value as such here.

Note also how Samuelson suggests that Marx' position was: as Ricardo noticed, the labor theory of value implies that labor determines value if and only if all the capitals have the same organic composition. If not all the capitals have the same organic composition, then relative value is determined by factors other than labor, such as the turnover period of capital, for instance. Against Samuelson, I contend that Marx did not hold that Ricardo was right in saying that labor determines value if and only if all the capitals are of the same composition; according to Marx, value consists in labor regardless of the uniformity of the composition of capital. For Marx, unlike for Ricardo, the composition of capitals is irrelevant for the determination of value by labor. The composition of capitals, according to Marx, is relevant for the determination of prices, not for the determination of value in general.

Samuelson understands that Marx had to different systems of accounting: one of labor-values and another one of prices. The reason why he had to resort to two units of account is the labor theory of value. The system of values measures the values of commodities in units of labor and the system of prices measures the prices of commodities in terms of money. The problem, as Samuelson sees it, is whether the price quantities can be inequivocally related to labor quantities. In "*Capital*", volume III, chapter 9 Marx was looking for such a "transformation rule", on the belief that if he succeeded in finding it, he would have a basis to claim that labor alone determines value. But, as Bortkiewicz showed, Marx's Mathematics were bad and he did not make the right claculations. Bortkiewicz tried to improve on Marx and established a correspodence rule between labor quantities and money quantities. However, Samuelson analyzes Bortkiewicz's "transformation rule and reaches this nihilist conclusion:

"The traditional transformation problem (..) has frequently been regarded as a vindication of Marx's Volume I analysis. However, direct and simple substitution (…) shows that the latter's Bortkiewicz algorithm [KMO: Bortkiewicz's "transformation rule"] (…) can be described logically as the following procedure: "(1) Write down the value relations; (2) take and eraser and rub them out; (3) finally write down the price relations –thus completing the so-called transformation process"." (Samuelson, 1970, 156)

In other words: the labor-value magnitudes and the money-price magnitudes are totally unrelated. It is impossible to establish any rule of "transformation" between the two systems of magnitudes. They measure different things in different units, so any commensuration is out of place. The analysis of Bortkiewicz "completion" of Marx' "Transformation" shows that the "Transformation of value into price" is a totally arbitrary substitution of some set of figures for another set of figures. For Samuelson, this shows that the labor theory of value has no explanatory power whatsoever.

What is most striking in Samuelson's criticism of Bortkiewicz and Marx is how silly Marx was. All he did to prove the fundamental thesis that exchange value consists in labor, the thesis on which all his thought rests, is to arbitrarily substitute one set of figures which he declares to represent measures of labor-values for another one which he declares to represent measures of money-prices. It is surprising to see Samuelson saying that Marx believed that he was "vindicating" the labor theory of value with this silly substitution because it determines the labor-value magnitudes that lie beneath the money-price magnitudes.

We can see that Samuelson starts from the same principle as Bortkiewicz, namely, that labor-values exist objectively. This anti-Marxian view undermines their discussions of Marx, which, in fact, are repetitions of Ricardo's errors.

2. Why Exchange Value Becomes Money Price: Labor As the **Immanent** ***Measure of Value***

It is a fundamental thesis of Marx that *labor time does not measure value*. There is no set of determined labor values that "lies beneath" money prices; the only way in which we can empirically observe labor value is as money price; that is to say: money price is the only objective expression of labor value. That value in exchange consists in a relationship between particular instances of objectified social labor does not mean in any way that labor time *measures* value. That exchange value consists in labor does not mean that labor is the *measure* of value, but, as Marx would say, that labor is the *substance* of value. Labor cannot measure value because labor in general only exists objectively as money. There is no unit of labor in general; labor in general cannot be counted because it does not have objective existence and does not have parts.

Money arises from exchange as the objectification of labor in general, or, alternatively, from the development of the division of labor. In Marx, there is no set of labor values waiting to be transformed into money prices. Apart from money, labor in general does not have any determinate or objective existence and, "*a fortiori*", has no quantitative determination either.

Marx makes this point in another way. He says that labor is the *immanent* measure of value. By "immanent" he means the contrary to "external", so what he is saying is that labor is not a *external* measure of value. A external measure of value is the expression of exchange value in something which is not exchange value itself, but a particular form of existence of exchange value, that is, a particular commodity. For instance, the exchange value of a two apples is four nuts. In this formula, the exchange value of two apples, which is a particular form of existence of exchange value, is not expressed as exchange value, but as nuts, that is, as a definite quantity of nuts. Exchange value is a relation between apples and nuts; not thing, but a relation between things, which are not related as apples and nuts, but as particular expressions of exchange value.

For Marx, the value of no particular commodity can be compared to labor in general; it must be expressed in some other particular commodity. Nonetheless, and this is why labor is said to be the *immanent* measure of value, the particular commodities are compared as far as they are particular instances of social labor, that is, as they are particular expressions of labor in general, as they have a common substance which is labor. Accordingly, we may express the value of a commodity in terms of gold, of apples, or even hours of the labor of, say, a carpenter, but never in terms of labor as such, because social labor does not exist as a particular commodity which can be compared to other particular commodities. Likewise, one can buy and sell works of art, but never art as such, art in general. Art as such is not any particular work of art, though all the works of art are objective manifestations of art. Art only exists in its particular objective manifestations. We can compare Handel's "*Messiah*" to Mozart's "*Figaro*", but not to music as such.

Likewise, exchange value exists only in the determinate exchange relations between particular commodities and, therefore, these relations cannot be expressed in terms of social labor, but in terms of the particular commodities related, which are objective manifestations of social labor. Hence Marx' thesis that labor is the *immanent* measure of value, that is, that labor is the substance or essence of exchange value.

The "*Grundrisse*" offers a brief and accurate explanation of the Marxian conceptions of labor, money and exchange value. One may look for relevant texts in "*Capital*", but I have found texts in the "*Grundrisse*" that are very clear and, very importantly, that are short. The following quotation is worth nearly every word of it:

> "It is because the commodity is exchange value that it is exchangeable for money, is posited = to money. The proportion of its equivalence with money, i.e. the specificity of its exchange value, is *presupposed* before its transposition into money. The proportion in which a particular commodity is exchanged for money, i.e. the quantity of money into which a given quantity of a commodity is transposable, is determined by the amount of labour time objectified in the commodity. The commodity is an exchange value because it is the realisation of a *specific* amount of labour time; money not only measures the amount of labour time which the commodity represents, but also contains its general, conceptually adequate, exchangeable form. Money is the physical medium into which exchange values are dipped, and in which they obtain the form corresponding to their general character. Adam Smith says that labour (labour time) is the original money with which all commodities are purchased. As regards the act of production this always remains true (as well as in the determination of relative values). In production, every commodity is continuously exchanged for labour time. The necessity of a money other than labour time arises precisely because the quantity of labour time must not be expressed in its immediate, particular product, but in a mediated general product; in its particular product, as a product equal to and convertible into all other products of an equal labour time; of the labour time not in a particular commodity, but in all commodities at once, and hence in a particular commodity which represents all the others." (Marx, 1973, 167)

Accordingly, what is objectified in money is the very relation of exchange among the particular commodities, among the different use values which, as such, have, at most, a *physical* relation, but not a *political* or *economic* relation. Exchange value is a relation between commodities that, without exchange, are separated. These relations of exchange or connection between the particular products of particular labors is but the relations established by the division of labor. As the division of labor goes on and the technical separation between the goods becomes larger, and the degree of coordination of the particular producers increases, this coordination or connection takes on an increasing presence which is objectively shown by the concentration of the function of connective in a particular commodity.

“Labour time cannot directly be money (a demand which is the same, in other words, as demanding that every commodity should simply be its own money), precisely because in fact labour time always exists only in the form of particular commodities (as an object): being a general object, it can exist only symbolically, and hence only as a particular commodity which plays the role of money. Labour time does not exist in the form of a general object of exchange which is independent of and separate (in isolation) from the particular natural characteristics of commodities. But it would have to exist in that form if it were directly to fulfil the demands placed on money. The objectification of the general, social character of labour (and hence of the labour time contained in exchange value) is precisely what makes the product of labour time into exchange value; this is what gives the commodity the attributes of money, which, however, in turn imply the existence of an independent and external money-subject.” (Marx, 1973, 167)

The connection or the relation between the particular labors is not itself another particular labor. This is why to say that commodities are directly exchanged for labor time amounts to saying that each commodity be its own money, that is, that al the commodities are the commodity-money at the same time, which is absurd. The development of the division of labor is objectively shown in the progressive separation of a particular commodity from the rest, a particular commodity that is gradually used more in relations of exchange than according to its own particular use value.

“A particular expenditure of labour time becomes objectified in a definite, particular commodity with particular properties and a particular relationship to needs; but, in the form of exchange value, labour time is required to become objectified in a commodity which expresses no more than its quota or quantity, which is indifferent to its own natural properties, and which can therefore be metamorphosed into -i.e. exchanged for- every other commodity which objectifies the same labour time. The object should have this character of generality, which contradicts its natural particularity. This contradiction can be overcome only by objectifying it: i.e. by positing the commodity in a double form, first in its natural, immediate form, then in its mediated form, as money. The latter is possible only because a particular commodity becomes, as it were, the general substance of exchange values, or because the exchange values of commodities become identified with a particular commodity different from all others. That is, because the commodity first has to be exchanged for this general commodity, this symbolic general product or general objectification of labour time, before it can function as exchange value and be exchanged for, metamorphosed into, any other commodities at will and regardless of their material properties. Money is labour time in the form of a general object, or the objectification of general labour time, labour time as a *general commodity*. Thus, it may seem a very simple matter that labour time should be able to serve directly as money (i.e. be able to furnish the element in which exchange values are realised as such), because it regulates exchange values and indeed is not only the inherent measure of exchange values but their substance as well (for, as exchange values, commodities have no other substance, no natural attributes). However, this appearance of simplicity is deceptive. The truth is that the exchange-value relation -of commodities as mutually equal and equivalent objectifications of labour time- comprises contradictions which find their objective expression in a *money which is distinct from* labour time." (Marx, 1973, 167-8)

Compare this to Blaug:

"What makes Marx so deceptive to read is his tacit assumption that the total direct and indirect labour embodied in commodities can be determined quite simply by 'looking and counting'." (Blaug, 1998, 225)

It is surprising that one can make such a statement after having read Marx. But it is to be noted that Blaug is not the only one to hold that Marx' value theory rests upon the "tacit assumption" that value can be counted in "labor units". In fact, all the "modern" interpreters of Marx undertake the analysis of Marxian value theory on the anti-Marxian basis that labor is an *external* measure of value, so that the particular exchange value of a particular commodity can be measured in "labor units". Bortkiewicz' "correction" of Marx' "Transformation of commodity-values into production-prices" is actually a total "corruption" of it.

For Marx, exchange is the movement through which the particularity of the particular labor is negated, thus, it is the process or intermediation through which it becomes clear that the different particular labors are, actually, particular moments of social labor and only make sense in the context of social labor. Exchange connects as far as it negates the *separation* between the particular manifestations of social labor. The end of labor is the production of goods. But the development of the productivity of labor implies the division of labor, that is, the division of social labor, which is held together by the intermediation of exchange. The development of exchange value and of the division of labor are two sides of the same coin.

When the division of labor has reached a certain degree of development, money appears in the middle of *every* exchange. Money is connecting all the particular labors; all the particular labors have to become money for production and consumption to continue. As the division of labor develops, the role of intermediary in exchange between particular goods becomes more concentrated on one particular commodity. In the end, money appears as the *universal* intermediation, as the objectification of value in exchange in general. This means that money is the objective form of existence of abstract labor. The measure of value is, thus, money, not labor. Labor in general is not yet another particular side by side with the particular labors. Money is the particular objective mode of existence of exchange value as such.

Labor in general does not exist, but only as money. Labor cannot measure the value of a particular good and the particular goods cannot be exchanged against social labor, or better, a particular good can be exchanged for social labor only by the exchange for other particular products of social labor. Labor in general is not commensurable with any particular labor; if it were, labor in general would be a particular labor, which is a contradiction in terms. Value in exchange is measured by labor in general, but through the intermediation of money. Labor in general does not have parts, and, therefore, does not have the determination of quantity. By way of contrast, money has an objective existence, which means that it is materially a particular good, and, therefore, that it has parts, which means that it is the subject of quantitative determination.

Capitalism is the accumulation of wealth in the abstract, of money, of labor in general. It is the second stage in the development in history of human consciousness and political life: the society founded upon the accumulation of money is necessarily imperfect as far as money is abstract wealth, and, as such, it satisfies no need. Thence the surprising fact that capitalism is founded upon the general restriction of consumption, upon general poverty.

There is another interesting place where Marx makes the point that labor is the immanent measure of value against Ricardo's misleading notion of "absolute value". Marx quotes Bailey's objection to Ricardo's notion of "absolute value":

"Instead of regarding value as a relation between two objects, Ricardo and his followers consider it as a positive result produced by a definite quantity of labor. (…) They regard value as something intrinsic and absolute." (Bailey, 1825, 30 and 8; quoted in Marx, 1978, 172)

By "absolute value" Ricardo refers to the labor objectified in commodities; what he wants to stress is that the *relative* value of commodities is determined by the labor objectified in these commodities, which is not itself a relation *between commodities,* but a relation between *each commodity and the labor objectified in it*, that is, the labor that each commodity represents. In order to stress that *relative* value is determined by objectified labor, Ricardo employs the expression "absolute value" to refer to the labor objectified in commodities. But the very notion of "absolute value" contradicts that of "relative value", and the very concept of value involves that of a relation, that is, that value as such must be relative, that the very notion of "absolute value" is a contradiction in terms. This is what Bailey objects to Ricardo's presentation of the labor theory of value. Marx comments that Bailey has brought to light a defect in Ricardo's *understanding* of the labor theory of value, but not in the theory itself, which Bailey himself misunderstands too; he writes:

"The latter reproach (KMO: that of Bailey's) arises from Ricardo's inadequate presentation, because he does not even examine the form of value –the particular form which labour assumes as the substance of value. He only examines the magnitudes of value, the quantities of this abstract, general, and, in this form, social labour which engender differences in the *magnitudes of value* of commodities. Otherwise, Bailey would have recognised that the relativity of the concept of value is by no means negated by the fact that all commodities, in so far as they are exchange-values, are only *relative* expressions of social labour-time and their relativity consists by no means solely of the ratio in which they exchange for one another, but of the ratio of all of them to this social labour which is their substance. On the contrary, as we shall see, Ricardo is rather to be reproached for very often losing sight of this "real" or "absolute" value, and only retaining "relative" or "comparative" values." (Marx, 1978, 172)

What Marx stresses against Ricardo and Bailey is that social labor is the *universal* of which the multitude of existing commodities are but the particulars in which the universal really exists. We could say, in the same way, that the multitude of existing actual men, each with his or her own peculiarities, are the particulars in which the universal "*humanity*" really exists. The relation between the different particular men as men is that they are particular objective expressions of the universal "humanity", that is, that each man is a particular instance of "humanity", which is the universal, that is, the "*unum in diversis*". Likewise, all the commodities are related as particular objectifications of the universal "social labor", so the commodities that we empirically observe are particular expressions or limited forms of existence of social labor. Exchange is the movement, the intermediation through which the particularity of the particular objective expressions of social labor (commodities) is negated. Labor, that is, labor in general, social labor as a real entity ("real", note well, not in the sense that it is itself another particular labor, but real as the universal) is the "substance" of exchange value, that is, the "nature" or "essence" of exchange value. Therefore, social labor is the immanent measure of exchange value, whose only form of objective existence is price.

The relation between commodities, what Ricardo calls "relative value", is the objective expression of the identity of commodities as particular objectifications of social labor. The commodities exchanged are different as use values, but the identical as exchange-values. The relation, that is, the exchange value, being a particular relation between two particular commodities, takes on a quantitative expression, which is thus a limited or determined expression of exchange value, a determined *magnitude*. That the value of A is so much B is to state that A and B are the same as social labor, despite their different natural properties and use values. The relation between commodities and social labor, what Ricardo calls "absolute value", is not the identity of the particular moments of the universal, but the identity of the *particulars* and the universal in relation to which the particulars are particulars; the relation of social labor with its manifold products or objectifications.

This is why Marx refers to Ricardo's "relative value" as *external* measure of value (there are as many as commodities) and to Ricardo's "absolute value" as *the immanent* measure of value, which is unique, because it is the "substance" of exchange value. The external measures of value, being limited forms of existence of value, have quantity, that is, magnitude, whereas the immanent measure of value, being the nature of value, has no quantitative determination, because it is itself a *substantial determination*, whereas *quantity is an accidental determination*. Likewise, this or that man have a determinate weight or tallness, but humanity as humanity has no weight or tallness, no quantitative determination.

As it is widely known and the reader can see, Marxian thought is dialectical; as he himself claims, it is inspired in Hegel. Dialectics is not senseless language. The lack of understanding of Dialectics cannot be cured with games of manipulation of symbols, more commonly known as “sophisticated Mathematics”. Marx was not any sub-standard Mathematician or sub-standard theorist driven by passion who needs a competent Mathematician to show that his grand theory of capitalism is impaired by an elementary mistake in elementary Matrix Algebra. To discuss or criticize Marx, the first thing one has to make sure is that he has some idea of Dialectical Thinking.

3. The “Transformation of Commodity-Value into Production-Price” **(“Verwandlung der Warenwerte in Produktionspreise”)** ***In*** **“Capital”,** ***volume III***

With the remarks of the previous section in mind, we can go back to the original texts of Marx’ transformation problem. What did Marx mean when he wrote the numerical example of book III, chapter 9, which supplies the basis for the traditional discussions of the “Transformation Problem”?

Marx takes up the “Transformation Problem” in Part Two of volume III of “*Capital*”. This part is entitled “The Transformation of Profit Into Average Profit”. Note well: not the transformation of *labor values* into *money prices*, but the transformation of *profit* into *average profit*, which is different. Part Two goes from chapter 8 to chapter 12. For our problem, the crucial chapters are 9 and 10. It is good to remember the titles of these chapters:

Chapter 9: “*Bildung einer allgemeine Profitrate (Durchnschnitts-Profitrate) und Verwandlung der Warenwerte in Produktionspreise*”: “Formation of a general rate of profit (average rate of profit), and transformation of commodity values into prices of production”.

Chapter 10: “*Ausgleichung der allgemeinen Profitrate durch die Konkurrenz. Marktpreise und Marktwerte. Surplusprofit*”: “Equalization of the general rate of profit through competition. Market prices and market values. Surplus profit”.

The expression "*transformation of value into price*" ("*Verwandlung der Warenwerte in Produktionspreise*") occurs in the title of chapter 9. But note that it occurs in the context of the "formation" (*bildung*) of a general profit rate; that is: the "transformation" of value into price is the process whereby a general profit rate is formed. That is to say: that labor value is objectively expressed as money price is something that is in the nature of exchange value and money. But value is objectively expressed as "production price" only as far as competitive capitalism prevails. The problem is that exchange value, which consists in social labor, may be objectified in money prices that involve a uniform profit rate but it may be objectified as well in money prices that do *not* involve a uniform profit rate. To the extent that competition prevails, money prices will involve a uniform profit rate.

In volume III, chapter 9, Marx notes that, if the surplus rate is uniform but the composition of capitals is not uniform, the profit rate will not be uniform. This poses a problem because the concept of competition implies that the profit rate must be uniform, regardless of the uniformity in the composition of capital. Marx introduces his famous numerical example in order to illustrate how competition, as opposed to monopoly, involves a certain kind of "common property" of capital in which the particular material determinations of capital become irrelevant and what counts is only the magnitude of value, that is, the magnitude of capital and surplus value. Accordingly, the "production" or competitive prices of commodities are an objective expression of value in which total surplus value is reallocated among the capitals of the economy so as to equalize the profit rate for any capital invested, regardless its composition. To get rid of unnecessary complications, I have taken the yearly depreciation rate to be equal to 1.

MARX "*CAPITAL*", vol. III, chapter 9

	c	*v*	*s*	*Value*	*Cost Price*	*Profit*	*Production Price*
I	80c	+ 20v	20s	120	100	22	122
II	70c	+ 30v	30s	130	100	22	122
III	60c	+ 40v	40s	140	100	22	122
IV	85c	+ 15v	15s	115	100	22	122
V	95c	+ 5v	5s	105	100	22	122
Total	500c	+ 110v	110	610	500	110	610

If commodities were exchanged for money according to their “values”, there would not be a uniform profit rate. If, on the contrary, commodities are exchanged for money according to their “production prices”, all the capitals of the economy yield profit at a uniform profit rate.

However, bearing in mind what we saw in the previous section, what sense does it make to say that commodities are exchanged *for money* according to their *values*? None. The figures in the column “value”, do mean the exchange value of commodities measured in labor? It would be a too obvious contradiction with a theory of value that Marx defends at many places in his works; indeed, the thesis that value only exists objectively as price is typically Marxian. My guess is, therefore, that, in his numerical example, he is not comparing *values* with *prices*, but *prices* with *prices*, that is, two different *objectifications of value*. The uniformization of the profit rate is accomplished by a reallocation of surplus value among capitals that involves a systematic deviation of competitive prices not from value as such, but from *non-competitive prices* such that the resulting profit rate is uniform. What Marx is comparing is a system of *non-competitive* prices with a system of competitive (“*production*”) prices in which the profit rate is equalized.

If there is no competition, value is objectified as non-competitive price, which means that labor value is objectively expressed in a system of money prices which does not involve a uniform profit rate because every capital gets the surplus value that it produces. The numerical example, on the contrary, is intended to show that how competition involves a certain communal property of capital which redirects surplus labor produced by some capital towards other capitals so as to equalize the profit rate.

Then, the problem that the numerical example tries to illustrate is not a change in the measure units of exchange value, a “transformation” rule of the unit of labor into the unit of money, but how the profit rate is equalized by reallocating surplus value and, thus, by comparing a system of non-competitive prices with a system of competitive prices. Marx is not comparing value with price, but price with price. Otherwise, he would be contradicting his whole theory of value in a way that is too obvious. In volume III, chapter 9, he is concerned with the equalization of the profit rate. It is true, however, that he may have warned the reader that the terms of the comparison are not values and prices, but prices and prices. However, let us remember that, in the passages at issue, his problem is the formation of a uniform profit rate under competition, and not exactly the relations between the immanent and the external measures of value.

Marx wants to explain the formation of a uniform profit rate under competition; he does not want to determine a correspondence rule between two standards of measurement of exchange value. We have seen that this is how the Bortkiewiczian tradition understands him. For Marx, the only standard for the measurement of value is money, that is, the only form of objective existence of labor in general is money. The adversary of Marx in "*Capital*" volume III, chapter 9 is Ricardo: by solving the "Transformation Problem", Marx is trying to refute Ricardo's refutation of the labor theory of value in "*Principles*" chapter 1, section IV, which contemporary literature deems correct, but which Marx deems incorrect.

Ricardo rejected the labor theory of value on the ground that capitals with a non-uniform composition cannot yield profit at a uniform rate. For Ricardo, a uniform profit rate necessitates a uniform composition of capital; a non-uniform composition of capital implies necessarily a non-uniform profit rate. But it is a fact that the composition of capital is not uniform and it is a fact that competition involves a uniform profit rate. Therefore, it is impossible that exchange value consists in labor, or rather, in labor alone. For Ricardo, the thesis that value consists in labor leads to a contradiction, the terms of which are, on the one hand, a uniform profit rate under competition and, on the other hand, a non-uniform composition of capital.

Marx rejects the Ricardian thesis that the existence of a uniform profit rate with non-uniform composition of capital implies that labor alone does not determine value. Marx holds that there is not any contradiction where Ricardo believes to see one. There is no contradiction between a uniform profit rate and a multiform composition of capital. Note that Marx agrees with Ricardo that competition logically implies that the profit rate must be uniform. His answer to Ricardo's refutation of the labor theory of value is to say that labor time is objectified in a system of production prices which has the effect of allocating surplus value to each capital so as to equalize the profit rate. The objectification of social labor in a system of prices that involves a uniform profit rate is the "transformation" of value into production price.

To explain his refutation of Ricardo, Marx puts forward his famous numerical example. It is interesting to see Marx' numerical example in connection with Ricardo's numerical example in chapter 1, section 4 of the "*Principles*". For Marx, rather than a counterexample that falsifies the labor theory of value, Ricardo's example supplies a starting point to show that the competitive uniform profit rate implies nothing as to the validity of the labor theory of value:

RICARDO "*PRINCIPLES*", Chapter 1, Section IV: VALUE CALCULATION

	c	*v*	*s*	*Value*
I) wheat	0c	+ 5,000v	+ 775s	= 5,775
II) manuf. goods	5,500c	+ 5,000v	+ 775s	= 5,775
Total	5,500c	+ 10,000v	+ 1,550s	= 11,550

The two commodities have the same value, because though there is constant capital in the manufacture of cotton, Ricardo assumes that this constant capital is infinitely lived, which means that the portion of its value that is transmitted to the value of the product every year is 0. The rate of surplus labor is 15.50%. The production of wheat and that of cotton set in motion the same amount of labor-power every year, but, because of the constant capital of the manufacturer, the rate at which his capital makes profit is about half the rate at which the farmer's capital makes profit. Under competitive conditions, this cannot be so, for competition forces the redistribution of the total surplus value among the two capitals so as to equalize the profit rate.

This Ricardo does in the following way. First, he computes the uniform profit rate as the ratio of total surplus value to the total capital invested, namely, 1,550 to 15,500, which implies a uniform profit rate of 10%; then:

RICARDO "*PRINCIPLES*", Chapter 1, Section IV: PRICE CALCULATION

	c	*v*	*Cost Price*	*Total Capital*	*Profit*	*Price*
I) wheat	0c	+ 5,000v	5,000	5,000	500	5,500
II) manuf.	5,500c	+ 5,000v	5,000	10,500	1,050	6,050
Total	5,500c	+ 10,000v	10,000	15,500	1,550	11,550

If we look at Marx' table in "*Capital*", volume III, chapter 9, we can see that he is arguing in exactly the same terms as Ricardo:

MARX "*CAPITAL*", vol. III, chapter 9

	c	*v*	*s*	*Value*	*Cost Price*	*Profit*	*Production Price*
I	80c	+ 20v	20s	120	100	22	122
II	70c	+ 30v	30s	130	100	22	122
III	60c	+ 40v	40s	140	100	22	122
IV	85c	+ 15v	15s	115	100	22	122
V	95c	+ 5v	5s	105	100	22	122
Total	500c	+ 110v	110	610	500	110	610

Both in Ricardo and in Marx, the formation of a uniform profit rate is accomplished through a change in the distribution of total surplus value among the capitals that produced it. The outcome of this process is the equalization of the profit rate (which, without this process of compensation, would not be uniform). Precisely, Marx accuses Ricardo of not understanding what he himself has done, which has nothing to do with the *determination* of value (even less with whether labor determines value), but with transforming an uneven *distribution* of surplus value among capitals into an *even* one. Marx' Transformation is the same as Ricardo's Transformation and consists in a change in the *distribution* of exchange value which, in addition to showing nothing about the determination of value, presupposes it. The materialization of exchange value as competitive price is irrelevant for the nature of exchange value itself.

Instead of "value", Marx should have written in that column "non-competitive price". But, leaving this defect aside, we can see that what Marx does to arrive at the column of "production price" or "competitive price" is to modify the non-competitive prices by redistributing total surplus value so as to equalize the profit rate in the same way as Ricardo had done in "*Principles*", section 1, chapter 4.

With Ricardo's own example in hand, Marx accuses him of not having noted that the seeming refutation of the labor theory of value is not actually such, because the redistribution of surplus value among capitals does not imply that labor does not determine exchange value. Moreover; the logic of Ricardo's example is shown to be that of a redistribution of value that presupposes that value is already determined. This is why Marx says that there seems to be a contradiction where there is actually none: there seems to be a contradiction between the labor theory of value and a uniform profit rate (so thought Ricardo), but there is none, *as Ricardo's own example shows and as Ricardo himself should have realized*. For Marx, that the profit rate is or is not uniform means nothing as to the validity of the labor theory of value: what he wants to stress is, precisely, that the inquiry into the nature of exchange value is logically independent from the particular expressions of exchange value as different types of prices.

For Marx, the profit rate is not equalized *after* the expression of value as price, but *in* this process; this is why he speaks of "competitive determination of price". By "transformation" Marx refers to the change in *form*, that is, in *formal determination*, of exchange value, not to a change in the unit of measure of exchange value. Instead of "transformation" ("*Verwandlung*"), he might have written "objectification" ("*Vergegenständlichung*"). Accordingly, instead of entitling chapter 9 of volume III of "*Capital*" "*Formation* of a general rate of profit, and *transformation* of commodity values into prices of production" Marx might have written "*Formation* of a general rate of profit by the *objectification* of the value of commodities (which does not have objective existence) as price of production (which does)".

For Marx, the profit rate is not equalized by the expression of value as money price, so, when competition does not prevail, values are not objectified as money prices. The end of the process of "Transformation" is not *money price* in general, but *competitive money price in particular*. In volume III, chapter 9, Marx is not dealing with the objectification of value as price in general, but with the particular objectification of value as competitive price under developed capitalism. His thesis is that, under competition, value is objectified as money price in a way different in which it would be if competition did not prevail. For Marx, value is not an objective category and needs of some external objectification which by, definition, is price. Price is the objectification of value, which means that price and value are not alternative measures of the same thing (a *thing* which would have to be value!). The difference between competitive and non-competitive prices is not a change in the measure unit of value, or that the labor theory of value is valid when there is no capitalist competition and invalid when there is, but that the profit rate is or is not uniform. This means nothing as to the nature of exchange value, and is rather a question about the particular form in which exchange value is objectively expressed, namely, as production price if competition prevails, but as price without a uniform profit rate to the extent that competition does not prevail.

The "transformation process", that is, the process of formation of a uniform profit rate even when the composition of capital is not uniform, does not give rise to the rate of surplus value or to the rate of exploitation or to exchange value itself, but presupposes it; it presupposes the determination of exchange value by labor. To answer to Ricardo's objection, it does not matter whether the rate of surplus value is or not the same throughout the economy: what matters is that there is a principle which leads necessarily to the uniform distribution of the expression of surplus labor-time as money among the particular non-uniform capitals so as to equalize the profit rate.

This principle why capitalist production involves competition and why competition is taken as the "normal" context for the determination of prices is but the very concept of capital. The concept of *capital* is but the concept of *salaried labor*. Capital and salaried labor are two sides of the same coin, the coin being abstract wealth. The notion of capital implies that of competition, that is, the abstraction from all the material determinations of commodities and the reduction of commodities to money prices, to determinate or limited expressions of exchange value (of the same "substance", to use Marx' expression). Just as all the material determinations of any particular labor disappear in money when labor develops into salaried labor, all the material determinations of the objective conditions of production disappear in money when capital dominates production, that is, when exchange value dominates production and the accumulation of money becomes the end of production, so that production consists primarily in production of wealth as money, as exchange value.

The word "transformation" refers to a change in form, in determination. Competition, which, according to Marx himself, reflects the innermost structure of capital, implies logically a determinate social organization of labor which is salaried labor. Salaried labor is not the only form or determination of social labor, which, as such, is still abstract. In addition to salaried labor, history shows us, at least, slave labor and feudal labor. The concept of capital is incompatible with slave labor or with feudal bondages; these forms of social labor do not produce wealth as money, but as luxury, monuments and, in general, as particular goods, not as money. The concept of capital as the self-expanding value ("*sich selbst verwentender Wert*"), in which all material determinations of wealth are abolished, implies the concept of salaried labor, where all the material determinations of labor all abolished, and any type of labor can be exchanged for money in the market.

That social labor is salaried labor is a "transformation" of labor in general into salaried labor, a determination of social labor. The free competition of capital is implied in the very concept of capital, in which all material determinations of wealth have been abolished, as I just said. A capital invested in seeds is as capital as a capital invested in bubble-gum: the material determination of capital is accidental. The defining feature of capital is its magnitude. Capital of equal magnitudes are equal capitals, no matter what their material elements are. As equal capitals, they have a right to an equal profit. This is competition, the process whereby profit is equalized independently of the composition of capital. Under monopoly, the concept of capital is not perfectly developed. This gives rise to a contradiction between capital, which implies competition, and concentration and centralization, which are necessary features of the accumulation of capital. The study of this dialectics lies outside the scope of this paper.

The point is that the process of formation of the general profit rate is the process whereby the whole of social labor becomes salaried labor, the process whereby capital and salaried labor prevail and require a determinate transformation of value into price, determinate in the sense that the profit rate must be uniform and the difference between constant and variable capital is disconnected from the profit that each particular capital makes.

It is not the case that there are two parallel systems of accounting in Marx, because labor in general is not a system of accounting, because it has no quantitative determination. Marxian "transformation" consists of "objectification", in a determinate form of objectification, not of a relation between two sets of quantitative determinations according to some rule of transformation. Price is the objectification of value, not a different measurement of value, which, as such, is not liable of measurement. The measurement of value is money, price.

Marx concludes:

> "The price of production includes the average profit. We call it price of production. It is really what Adam Smith calls *natural price*, Ricardo calls *price of production,* or *cost of production,* and the physiocrats call *prix nécessaire*, because in the long run it is a prerequisite of supply, of the reproduction of commodities in every individual sphere. But none of them has revealed the difference between price of production and value. We can well understand why the same economists who oppose determining the value of commodities by labour-time, i.e., by the quantity of labour contained in them, why they always speak of prices of production as centres around which market-prices fluctuate. They can afford to do it because the price of production is a completely externalized and *prima facie* irrational form of the value of commodities, a form as it appears in competition, therefore in the mind of the vulgar capitalist, and consequently in that of the vulgar economist." (Marx, 1981, 300)

Nobody has understood the difference between value and production price, claims Marx. Production price is a "completely externalized" form of value, that is, an objective expression of value in which the "subjective" aspect of value, labor, is totally absent. The transformation of social labor into salaried labor involves, thus, the complete "externalization" or "objectification" of social labor, the total separation of labor from consciousness, the total separation of exchange value from any particular form of labor. It seems that production price and the associated uniform profit rate are self-consistent entities the origin of which is not in social production, but something that prevails upon social production and conditions its working and development: it is this sense that Marx says that production price is a completely externalized form of the value of commodities. Production price also is an "irrational" form of value (at first sight, "*prima facie*"; not after logical analysis) because production price involves a uniform profit rate, and the production of surplus value is not as a rule uniform, but all the contrary, uneven. There is a long journey from production price to exchange value in general, which Marx claims to have completed. Apart from its relationship to social labor, that is, to value, production price is a brute fact and its inner constitution remains unknown for the economist.

Conclusions

From the preceding discussion, we can establish the following conclusions.

1) The Marxian conception of value, that is, the Marxian thesis that labor is the immanent measure of value has been forgotten or misunderstood in the post-Marxian literature on Marx.

2) The standard commentaries on Marx' "Transformation Problem" in "*Capital*", volume III, chapter 9 fail to understand Marx because they fail to understand that labor is the immanent measure of value and think of labor as an external measure of value. This gives rise to a series of numerical riddles that have no theoretical import and that attribute to Marx views that he never upheld.

3) The labor theory of value is no theory about the *quantity* of exchange value, but about the *nature* of exchange value. It is totally independent of any quantitative determination of value and, therefore, is compatible with any such determination.

4) The Bortkiewiczian tradition is wrong to understand that Marx' problem of transformation of values into prices was a problem about the change in the measure unit of value. For Marx, abstract labor, which is the "substance" of exchange value, cannot measure value, because it is value itself. To measure value, we have to look at the value relation from the things related. The relation, value, can only be expressed in the things related, particular commodities. This "externalization", "reification" or "objectification" of the value-relation is price. In price, we see the relation between the goods as the equality between determinate amounts of particular goods that do not have an identity as goods. We can sum up this conception of value and price saying that labor is the immanent measure of value, and that there are as many external measures of value as particular goods related by exchange. Bortkiewicz fails to understand Marx' conception of value and thinks of labor as a yet another external measure of value.

5) By the "transformation of commodity-values into production prices" Marx did not intend to refer to the objectification of labor value as money price as such, but to the particular objectification of commodity values as money prices that involve a uniform profit rate. What Marx is actually comparing is a system of prices where there is no competition and each capital gets the entire surplus value that it produces with a system of prices where there is competition and the profit rate is equal, even though the capitals of the economy are not equally productive of surplus value.

6) By comparing a non-competitive system of prices with a competitive system of prices, Marx wants to refute Ricardo and show that whether prices are determined under competition or monopoly says nothing about the validity of the labor theory of value; in more general terms, that the quantity of value means nothing to the nature of value.

References

Blaug, Mark (1998): "*Economic Theory In Retrospect*", Cambridge U.P.: New York.

Bortkiewicz, Ladislaus von (1907): "*On the Correction of Marx' Fundamental Thoretical Construction in the Third Volume of* Capital", in Sweezy, Paul M. (ed.) (1949): "*Karl Marx and the Close of His System*", Augustus M. Kelley: New York. I quote the 1984 reprint by Orion Editions: Philadelphia, PA.

Marx, Karl (1973): "*Grundrisse. Foundations of the Critique of Political Economy (Rough Draft)*", Penguin Books: London, England. Translated by Nicolaus, Martin. Original title: "*Grundrisse der Kritik der Politischen Ökonomie (Rohentwurf)*"

Marx, Karl (1981): "*Capital. A Critique of Political Economy. Volume Three*", Penguin Books: London, England. Translated by Fernbach, David. Original title: "*Das Kapital. Kritik der Politischen Ökonomie. Dritte Band*"

Marx, Karl (1970): "*A Contribution To The Critique of Political Economy*", Progress Publishers: Moscow, Russia. Translated by Ryazanskaya, S.W. Edited by Dobb, Maurice. Original title: "*Kritik der Politischen Ökonomie*"

Samuelson, Paul A. (1970): "*The Transformation from Marxian "Values" to Competitive "Prices": A Process of Rejection and Replacement*", in "*The Collected Scientific Papers of Paul A. Samuelson. Volume III*", edited by Robert C. Merton, The M.I.T. Press: Cambridge, MA and London, England.