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The "Quantitative Approach" to the Marxian Concept of Value

Kepa M. Ormazabal

This paper is concerned with what I call the "quantitative approach" to the "transformation problem" of chapter 9 of volume 3 of capital, very widespread in the literature. I call it so because it conceives the "transformation of value into competitive price" as a relationship between quantities of labor-value and quantities of money price. Such a conception of the transformation of value into competitive price presupposes that value has quantitative determination. My central contention in this paper is that this presupposition contradicts Marx's idea that labor is the substance or immanent measure of value. In Marx, labor cannot be money, which means that value as such does not have a quantitative determination apart from price expressed in some product of labor. Accordingly, there are no such things as "labor-values" and the transformation of value into competitive price does not contradict the determination of value by labor or Marx's "law of exchange": it is the process through which labor-value becomes objectified as money price in such a way as to equalize the profit rate of capitals of a nonuniform composition. With the "transformation" of value into competitive price, Marx refutes Ricardo's refutation of the labor theory of value in principles (chap. 1, sec. 4).

Key Words: Transformation Problem, Marxian Theory of Value, Labor-value, Production Price

Ever since publication of volume 3 of *Capital,* a recurring feature in the commentaries on its ninth chapter has been the idea that the transformation of value into competitive price (*Verwandlung der Warenwerte in Produktionspreise*) is essentially a quantitative problem or, at least, a problem in which the quantitative aspect is crucial. The problem consists in the deviation of the quantities of money price from the quantities of labor-value embodied in commodities because of the requirement of a uniform profit rate. It is taken for granted that value has quantitative determination; precisely the problem is that the quantity of value is different from the quantity of money price. Let me call this idea that value has quantity apart from money price the "quantitative approach" to the transformation problem.

The thesis of this paper is that this approach, far from contributing to the clarification of the Marxian theory of value, contradicts Marx's own conception of value (*Wert* or *Warenwert*): more concretely, his thesis that labor is the *substance* or *immanent measure* of value. The thesis that I want to defend in this paper is that

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"value" in Marx is not an entity liable of quantitative determination because it is a universal, an abstract. Accordingly, the transformation of value into competitive price does not consist in any quantitative change, in any relation between quantities of value and quantities of money; the reason is that there is no such a thing as "quantities of value." When Marx says that values differ from competitive prices, he does not mean to say that values are some quantities and competitive prices other quantities that are different and have to be related by some rule.

Marx's frequent statement that values differ from competitive prices means that competitive prices are the *objective form of existence of value in the capitalist stage of history*. Value as such, being the substance or identity of value, does not have an objective existence, which implies, among other things, that it is not liable of quantitative determination. The "substance" of value, which is not itself any particular labor but labor as such (that is, social labor or labor in the abstract), does not exist as an object, but, because of its inner logic, it demands an objective form of existence which, in general, is *price* and, in the capitalist stage, *competitive price*. We can compare the quantitative determinations of competitive and noncompetitive *prices,* price under capitalism with price under feudalism, but not the quantitative determinations of competitive *price* with those of *value,* because the notion of value is not at the same conceptual level as that of price and, concretely, it does not have objective existence by itself. Values are not objects that can be compared to other objects that are prices. In Marx, competitive price is one of the objective forms that value has taken on in the course of its dialectical development in history. *Competitive price* is the adequate expression of *value* in the capitalist stage of history.

The limited and multiple forms of existence of the universal "value" are the prices expressed in money—that is, in some particular, objective form of existence of labor, in commodities which are not themselves labor. As Marx stresses in his criticisms of Utopian socialists, labor as such is not and cannot be money. The Utopian project of abolishing money and adopting the labor content of commodities as money (if this made any sense) is logically impossible because the "value-creating labor," which is social labor, is a universal, and the universal exists only in its particular moments—that is to say, in some objective form of price expressed in some product of labor. Labor cannot be money, and has to become objectified as price in a money different from labor itself. The objectification of value as price in a money which is not labor is not any anomaly or useless step in the expression of value, but a necessary stage in the dialectical development of human labor, in the movement of self-recognition of human conscience through labor.

Marx makes the same point in an alternative way when he draws a sharp distinction between the *immanent* measure of value, which is *labor,* and the multiple *external* measures of value which are the multiple products of *labor*. Marx stresses that, without this distinction, it is impossible to make any progress in value theory. The "quantitative approach" ignores this fundamental distinction of Marx's and thus gets entangled in problems that, in actual fact, do not arise in Marx's theory.

It would be difficult to produce an exhaustive list of authors in whose work the quantitative approach is present. Before the Second World War, we may cite

Böhm-Bawerk or Bortkiewicz. After the war, the "quantitative approach" is easier to see as it gave rise to explicitly mathematical models on the basis of which chapter 9 of volume 3 is typically assessed. One may name authors such as Winternitz, Seton, Morishima, Catephores, Okishio, Meek, or Roemer. Perhaps, as a Nobel Laureate and one of the most influential economists of the twentieth century, Samuelson deserves special mention. This paper is not concerned with the contribution of any particular author but with the idea (generally taken for granted) that value has quantity and, therefore, that the transformation of value into competitive price is basically a quantitative problem the solution of which is some correspondence rule. The point of this paper is that the thesis that value has quantity is the thesis that value can be directly expressed in labor, and it contradicts Marx's idea that labor is the substance of value.

Despite its obvious quantitative manifestations in the magnitude of competitive price, the transformation of value into competitive price, in Marx's original texts, is not any quantitative problem, in the sense that the quantitative aspects of transformation are not substantial, but accidental determinations of the process at issue. This means that quantitative methods are useless to assess and understand the Marxian conceptions of value and competitive pricing and, in particular, the point that Marx is making in chapter 9 of volume 3.

As I understand Marx, the transformation of value into competitive price is the process whereby value comes to have objective existence as competitive price under capitalism—and precisely as competitive price. Competitive price is the objective form of existence of value (labor) in the capitalist stage of the dialectical development of human consciousness through labor. The view that the value of commodities can directly be expressed in labor amounts to conceiving "labor-value" as yet another external measure of value: as a matter of fact, to conceiving "labor-values" as noncompetitive *prices,* as objective expressions of value (labor) not regulated by the uniform profit rate that the very concept of capitalist production necessarily implies. It is obvious that, unless the composition of capital should be uniform, noncompetitive prices will be different from competitive prices because of the requirement of a uniform profit rate. Marx's point is precisely that, notwithstanding Ricardo and his followers, this obvious fact means nothing as to the validity of the labor theory of value.

I introduce Ricardo into the discussion because I think that he is indispensable to understanding chapter 9 of volume 3. Remember that its full title is "Bildung einer allgemeinen Profitrate (Durchschnittsprofitrate) und Verwandlung der Warenwerte in Produktionspreise." The uniform profit was precisely the weapon with which Ricardo refuted the determination of value by labor in *Principles*, chapter 1, section 4. In his writings, Marx deals with different strategies to refute the determination of value by labor, but Ricardo's is one to which he devotes a good deal of attention. By explaining how capitals of a nonuniform composition yield a uniform profit rate under competition, Marx is replying to Ricardo that the fact that competition logically requires the equalization of the profit rate implies nothing as to the nature of exchange value—that is, as to the view that the exchange relations that we observe are the objective reflection of the way we

conceive our labor and our labor leads us to live, the explanation of which is the dialectics of labor.

Against Ricardo, Marx says that the only difference between noncompetitive and competitive pricing consists in the allocation of surplus labor to the particular capitals that make up social capital. The uniform profit rate does not regulate *value,* as Ricardo mistakenly believes, but *competitive price;* moreover: it is value that regulates the uniform profit rate. Ricardo has not found any cause of value apart from labor; on the contrary, he has made the fundamental mistake of *identifying value* and competitive *price,* of confusing them, thus overlooking that, in capitalism, value has to be transformed into competitive price. The ultimate cause of Ricardo's fundamental error is his superficial conception of value.

The idea that commodities have labor-values and money prices opened up the door, already in Marx's times, to the objection that the very transformation of value into price destroys the determination of value by labor. The reason is that, if commodities exchange at competitive prices, they do not exchange at labor-values. In my opinion, Böhm-Bawerk and his heirs are right to say that it does not matter whether the deviation of labor-values from money prices does or does not obey a law or whether the transformation algorithm excludes or includes capital, which was the accusation of Bortkiewicz against Marx. Both objections are based on a misunderstanding of Marx's conception of value. Even some outstanding defenders of Marx make a similar mistake; look, for instance, to the reply by Hilferding to Böhm-Bawerk.

> It is pure gibberish for Böhm-Bawerk to say as he does, that the aggregate of commodities is identical with the aggregate of the prices paid for them. Aggregate of commodities and aggregate of prices are incommensurable magnitudes. Marx says that the sum total of the values (not of the commodities) is equal to the sum total of the prices of production. In this case we have commensurability, inasmuch as prices and values are both expressions for different quantities of labor. For the total price of production can be compared with the total value only if, though quantitatively different, they are qualitatively homogeneous, both being the expression of materialized labor. (Hilferding, quoted in Sweezy 1949, 159)

In Marx, value, unlike price, is not any "expression of materialized labor," but "materialized labor" itself. In Marx, value and price are not "qualitatively homogeneous" but fundamentally heterogeneous because money price is the "expression" or objectification of value, which means that (competitive) money prices are limited forms of existence of the universal "value" in the capitalist stage of its development. From this it follows, too, that value and price cannot be compared in relation to quantity because value, as an abstract reality, does not have quantitative determination. In Marx, commodities do not have price two times, once in labor and then in money. Rather, the dialectical development of labor requires the "materialization" of value as money price in the capitalist stage.

Let us start by the originator of the problem, Ricardo.

Ricardo's Refutation of the Labor Theory of Value on the Basis of the Competitive Uniform Profit Rate

The clearest presentation of Ricardo's refutation of the labor theory of value can be found in his *Principles*, chapter 1, section 4, on which Marx comments in detail in *Theories of Surplus Value*, part 2. Though the reader surely knows the story, it is convenient to summarize it briefly. Given a yearly profit rate of 10 percent, a farmer and a manufacturer invest 5,000 pounds each in production processes that take one year and employ labor alone: namely, 100 men each. The farmer produces his final product (wheat) and sells it for 5,500 pounds, so that he amortizes his investment of 5,000 and makes a profit of 10 percent per annum on it: 500. By contrast, the manufacturer produces an intermediate good: a machine (which Ricardo tacitly assumes to undergo no depreciation). The book value of this machine at the end of year one will be 5,500: 5,000 for the amortization of the capital invested plus 500 of interest. In the second year, the farmer repeats what he did in the first: he produces wheat with an investment of 5,000 pounds, the cost of the labor of his 100 men. To make a 10 percent per annum on his capital, he must sell his wheat for 5,500 pounds. So far, so good, but here comes the manufacturer and kills the labor theory of value.

The manufacturer employs again his 100 men in the second year, which costs him 5,000 in wages. This time, his men produce the final good (say, cotton goods) working with the machine. If the manufacturer is to make a 10 percent per annum on his capital, at what price shall he sell his goods? asks Ricardo. He answers: he must amortize his investment in labor during the second year—namely, 5,000 pounds. He also has to make a 10 percent yearly interest on it; therefore he should add 500 pounds to the price of his wares. But he should also add 550 for interest on the capital invested on the machine, which was 5,500. Therefore, the manufacturer must sell his goods for $5{,}000 + 500 + 550 = 6{,}050$ pounds. This shows that something else than labor is causing value. Why? Because the wheat and the cotton goods embody the same amount of labor—namely, that of 100 men—but while the wheat sells for 5,500, the cotton goods sell for 6,050.

As Ricardo puts it, the labor theory of value predicts that the money price of the cotton goods will be $5{,}000 + 500 + 500 = 6{,}000$: that is, two times a yearly profit of 10 percent on a capital of 5,000. This prediction is incompatible with competitive pricing, which requires that the profit rate per annum for any investment be uniform and, therefore, that the cotton goods sell for 6,050. Ricardo explains the divergence of 50 between the price predicted by the labor theory of value and the price predicted by competitive pricing by saying that something else than labor is causing value—concretely, the 50 extra pounds that equalize the profit rate of cotton goods with that of wheat. The 50 excess in the money price of cotton goods over that of wheat cannot be caused by labor because, by hypothesis, the quantity of labor embodied in the two commodities is the same—namely, that of 100 men in one year. Therefore, labor is not the only cause of value, concludes Ricardo.

Ricardo rejects the labor theory of value on the ground that capitals with a nonuniform composition cannot yield profit at a uniform rate unless something else than labor creates the extra amounts of value required to equalize the profit rates of

all the investments of capital. If the composition of capital were uniform, the causes of value other than labor would not act, says Ricardo. 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 be determined by labor only.

Marx replies that Ricardo's numerical example conceals a defective logic and does not refute the determination of value by labor. The reason is that it does not show that the equalization of the profit rate involves any creation of value. According to Marx, the excess 50 pounds in the price of cotton goods over the price of wheat do not represent any new value created apart from labor, but an allocation of surplus social labor among the farmer and the manufacturer such that both make a profit at the same rate despite the unequal productivity of their capitals. Ricardo makes the capital mistake of identifying *value and competitive price*. On this erroneous identification, he concludes that something else than labor is causing value so as to make the profit rate uniform.

> The equalisation of the surplus-values in different spheres of production does not affect the absolute size of this total surplus-value; but merely alters its *distribution* among the different spheres of production. The *determination of this surplus-value* itself, however, only arises out of the determination of value by labour-time. Without this, the average profit is the average *of nothing,* pure fancy. And it could then equally well be 1,000 per cent or 10 per cent. All Ricardo's illustrations only serve him as a means to smuggle in the *presupposition of a general rate of profit*. (Marx 1978, 190)

Which cannot be presupposed or smuggled in; it must be explained, because the concept of value as such does not imply that of price with a uniform profit rate—that is, does not imply the concept of competitive price. A further determination of value is required, a "transformation" of value into competitive price.

> The *general rate of profit is* formed through the total surplus-value produced being calculated on the total capital of society (of the class of capitalists). Each capital, therefore, in each particular branch, represents a *portion of* a total capital of the same *organic composition,* both as regards constant and variable capital, and circulating and fixed capital. As such a portion, it draws its dividends from the surplus-value created by the aggregate capital, in accordance with its size . . . It is evident, that the emergence, realisation, creation of the *general rate of profit* necessitates the *transformation of values* into *cost-prices* that are *different* from these values. Ricardo on the contrary assumes the identity of values and cost-prices, because he confuses the rate of profit with the rate of surplus-value. Hence he has not the faintest notion of the general change which takes place in the *prices* of commodities, in the course of the establishment of a general rate of profit, before there can be any talk of a general rate of profit. He accepts this rate of profit as something pre-existent which, therefore, even plays a part in his determination of *value*. (Marx 1978, 433–4)

Ricardo starts the house by the roof and says that the uniform profit rate has a role in the determination of *value*. He should have said, rather, that the uniform profit

rate plays a role in the determination of *competitive price,* which is the adequate objectification of value under capitalism. The relation between *value* and the uniform profit rate goes in exactly the contrary way to what Ricardo says: the formation of a uniform profit rate has to be explained on the basis of value—that is, of social labor. Ricardo is deceived by empirical appearance, fails to distinguish value from price and, in consequence, is led to conclude that the requirement of a uniform profit rate somehow creates *value*. We can restate Ricardo's thesis in paradoxical language saying that he has discovered a contradiction between the determination of *value* by *labor* and the determination of *value by competitive pricing*.

Marx regards this latter expression as nonsense. The requirement of a uniform profit rate regulates the objective expression of value as competitive money price, but not value itself, which is determined independently of whether the profit rate is or is not uniform and even of whether profit exists at all. Competitive money pricing, like noncompetitive pricing, like pricing under slavery or under feudalism, is all about different objectifications of social labor. The formation of a uniform profit rate must be explained from value—that is, from the properties of social labor in a determinate stage of its dialectical development; otherwise, it would be "pure fancy," says Marx.

The capital of the farmer and that of the manufacturer are but two particular moments of capital as such. Capital and salaried labor confront each other as such, and we empirically observe the particular effects of this dialectics. Capital implies competition and competition implies a uniform profit rate (I shall later try to briefly clarify the logic of this sequence). Thus, the "capitalist value" or the "capitalist worth" of wheat and cotton goods must be such that the two investments yield profit at the same rate, independently of their relative productivity. This implies that they have to exchange against money in such a way that they make profit at the same rate.

The difficulty, then, is one of *equilibration*, not one of *creation* of value. The obviously true calculations of Ricardo do not show any creation of value. As he himself correctly notes, the problem is how to put "*on a par*" the farmer and the manufacturer—that is, how to make them earn the same proportional profit even though the capital of the manufacturer is nearly half as productive as the capital of the farmer (see Ricardo 1965, 21). Ricardo forgets this correct observation for the most part and discusses the significance of his numerical example on the erroneous premise that the process at work is one of creation of new value.

It is revealing to compare Marx's numerical example of volume 3, chapter 9 to Ricardo's numerical example in chapter 1, section 4 of the *Principles*. First look at Marx's own example. To get rid of unnecessary complications, I have taken the yearly depreciation rate to be equal to 1 (table 1). We can reconstruct Ricardo's example on exactly the same logic as Marx's (table 2).

The two commodities in the example of Ricardo 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 production of wheat and cotton sets in motion the same amount of labor-power every year, but, because of the constant capital of the cotton manufacturer, the rate at which his whole capital makes profit would have to be about half the rate at which the farmer's

Table 1 Marx's *Capital*, Volume 3, 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	390c	+ 110v	110	610	500	110	610

capital makes profit. As Ricardo correctly notes, under competitive conditions this cannot be so, and the two capitals must make profit at the same rate *per annum*.

This means that we need a *transfer* of value. In his example of volume 3, chapter 9, Marx shows that Ricardo, on his own logic, might have said just as well that the 50 problematic pounds arise from a compensation from the farmer to the manufacturer. The numerical example with which Ricardo destroys the labor theory of value with the uniform profit rate and the numerical example with which Marx explains that the formation of a uniform profit rate does not destroy the labor theory of value can be reconstructed with exactly the same logic. To see how, go to Ricardo's example and compute the uniform profit rate as the ratio of total surplus value to the total capital invested. This is 1,550 to 15,500, which implies a uniform profit rate of 10 percent. The implied rate of surplus labor is 15.50 percent (table 3).

Even on the narrow basis of his numerical example, Ricardo should have realized that the formation of a uniform profit rate is a problem of *distribution,* not of *determination* of *value*. Ricardo himself notes that what the "deviations" of "price" from "value" are doing is to set all the particular capitals of the economy "*on a par*"—that is, to *equilibrate* the profit rates of all the particular capitals by *allocating* to one branch value produced in another. Such a process of equilibration of value logically excludes any creation of value. Marx is disappointed by Ricardo's "quantitative approach" to value theory.

> How from the mere determination of the *"value"* of the commodities their surplus-value, the profit and even a *general rate of profit* are derived remains obscure with Ricardo. In fact the only thing which he proves in the above illustrations is that the prices of the commodities, in so far as they are determined by the general rate of profit, are entirely different from their *values.* And he arrives at this difference by postulating the *rate of profit to*

Table 2 Ricardo's *Principles,* Chapter 1, Section 4: "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

(Note: Constant capital is infinitely lived.)

Table 3 Ricardo's *Principles,* Chapter 1, Section 4: "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

(Note: Constant capital is infinitely lived.)

> *be* law. One can see that though Ricardo is accused of being too abstract, one would be justified in accusing him of the opposite: lack of the power of abstraction, inability, when dealing with the values of commodities, to forget profits, a factor which confronts him as a result of competition. (1978, 190–1)

Furthermore,

> Section VI '*On an Invariable Measure of Value*' deals with the '*measure of value*,' but contains nothing important. The connection between value, its immanent measure—i.e.: labor-time—and the necessity for an *external* measure of the values of commodities is not understood or even raised as a problem. (Marx 1978, 202)

In *Capital,* volume 3, chapter 9, in order to argue against Ricardo and his followers, Marx produces a more detailed version of Ricardo's example of *Principles*, chapter 1, section 4, the goal of which is to show how the quantitative determinations required by competitive pricing are logically independent of the determination of value. The point that he wants to make is that the formation of a uniform profit rate has nothing to do with value as such, but with the objectification of value as competitive price. Marx uses the numerical example of his adversary to destruct his objection, but not to construct his theory. This he does not do on the basis of quantitative analysis. Quantitative determinations are accidental determinations of the capitalist system that do not hold the key to understanding its "inner logic." The numerical example of volume 3, chapter 9 is not any empirical test of the labor theory of value, nor is it a rude approximation to some algorithm which involves more or less smart Maths: it is a negative argument against a capital but widespread error of Ricardo.

> As we shall see from what follows, and also from volume 4 [referring to *Theories of Surplus Value*] all economics up till now has either violently made abstraction from the distinctions between surplus-value and profit, between rate of surplus-value and rate of profit, so that it could retain the determination of value as its basis, or else it has abandoned, along with this determination of value, any kind of solid foundation for a scientific approach, so as to be able to retain those distinctions which obtrude themselves on the phenomenal level. This confusion on the part of the theorists shows better than anything else how the practical capitalist, imprisoned in the competitive struggle and in no way penetrating the phenomena it exhibits, cannot but be completely incapable of recognizing, behind the semblance, the inner essence and the inner form of this process. (Marx 1981, 268–9)

Marx on Ricardo and Bailey

In his critical commentary on the polemic between Ricardo and Bailey on value, in *Theories of Surplus Value*, volume 2, Marx detaches himself from the methodology of Ricardo and makes a deeper criticism of his conception of value. According to Marx, the polemic makes it clear that neither side has understood value. The central notion at issue is Ricardo's "absolute value." First Marx quotes Bailey's objection to this notion:

> 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; quoted in Marx 1978, 172)

By "absolute value" Ricardo refers to the labor objectified in commodities. His meaning is that the *relative* value of commodities is determined by the labor objectified in them, 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. Then Bailey attacks him saying that the very notion of "absolute value" contradicts that of value as such, because the concept of value involves the concept of a relation, so the notion of "absolute value" is a contradiction in terms: value is, by its own nature, "relative value." Marx acknowledges 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 as well as Ricardo.

> The latter reproach [by Bailey] 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)

Marx stresses against Ricardo and Bailey 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 "man" really exists. Each man is a particular instance of "man," which is the universal—that is, the *unum in diversis*. Likewise, all the goods that have exchange

value have it insofar as they all are particular objectifications of the universal "*labor*," so the commodities that we empirically observe are particular objective expressions or limited forms of existence of social labor.

Exchange is the movement though which the separation of the particular objective expressions of social labor is superated, the movement of *negation* of the unconnectedness of the particular objective expressions of social labor (commodities), which is at the same time the movement of *affirmation* of their identity as objectifications of labor. Labor, that is, labor in general, is a real entity but not in the sense that it is itself another particular labor, but as a universal, as the identity of the particular labors. It is the "substance" of value, to use a typical expression of Marx, that is, the "nature" of value, the identity of value.

The particular exchange relations between particular commodities are what Ricardo calls "relative value." The relation between commodities and social labor, what Ricardo calls "absolute value," is not the relation among the particular moments of the universal, but the relation of them to the universal, the identity of the *particulars* and the universal in relation to which the particulars are particulars and the universal is universal; the relation of social labor with its manifold products or objectifications, that is, the relation of objectification (*Vergegenständlichung*) of the universal and its particular manifestations. The relation between the universal and its objective expressions is mistakenly called by Ricardo "absolute value," and placed at the same level as the relation between the particular objectifications of the universal, which he calls "relative value." Marx complains that, despite his use of the phrase "absolute value," Ricardo restricts his analysis of the form of value to "relative value" and, moreover, to the quantitative determinations of relative value. From this myopic standpoint, Ricardo opens the door to Bailey's misleading attacks.

Uniform Profit Rate, Competition, and Salaried Labor

According to Marx, the concept of capital necessarily implies that of competition, which, in turn, implies the uniform profit rate.

> Conceptually, *competition* is nothing other than the inner *nature of capital,* its essential character, appearing in and realized as the reciprocal interaction of many capitals with one another, the inner tendency as external necessity. (Capital exists and can only exist as many capitals, and its self-determination therefore appears as their reciprocal interaction with one another.) Capital is just as much the constant positing as the suspension of *proportionate production*. The existing proportion always has to be suspended by the creation of surplus value and the increase of productive forces. (Marx 1973, 414)

The concept of capital presupposes the development of exchange value into money and, thus, the abolition of the material determinations of wealth in money. The reduction of all the products of labor to money implies the reduction of all labors to money—that is, the transformation of labor into wage-labor. Capitalism is, thus, the

system that produces wealth in the form of abstract wealth—that is, of money. This abolition (or abstraction) of the material determinations of wealth implies that capitals of the same magnitude are equally good as capitals and, therefore, that they have the same "right" to profit or to surplus labor, no matter what their composition or ability to produce surplus labor may be. It follows that the accumulation of capital implies that every capital must receive profit according to its *magnitude*, and therefore, regardless of its composition. In other words, as capitalism develops and tends to dominate economic relations, the profit rate tends to be *uniform*. This is the reason the proper objectification of "commodity-value" is, under capitalism (which implies the competition among the particular capitals for profit), the objectification of "commodity-value" as *production-price*.

The "Transformation of Commodity-Value into Production-Price"

With the remarks of the previous sections in mind, we can go back to volume 3, chapter 9, with its numerical example on which the quantitative approach focuses the analysis of Marx's theory of value. What sense does it make to say that commodities are exchanged *for money* according to their *values?* None that I can see, for, as we just saw, value is the identity of commodities *qua* commodities, and an identity does not have parts and quantity. Precisely, the objective manifestation of value is price, which has a logic regulated by value, the logic of which, in turn, is regulated by the stage of development of the dialectics of human labor. It would be a too obvious contradiction of Marx to say that commodities have competitive price in money at the same time that they also have a noncompetitive price in labor. "Price in labor"? "Measure of value (or of price) in labor units"? If labor is the *substance* of value, all these expressions are meaningless, and, in fact, mistake some particular kind of labor for labor as such—that is, for labor in the abstract. The view that exchange value can be measured directly by labor-time amounts to conceiving labor-time as a particular commodity, as yet another *external* measure of value.

The numerical example of volume 3, chapter 9 serves Marx as a convenient way to destroy the most powerful objection against the determination of value by labor—namely, that of Ricardo on the basis of the uniform profit rate. As in other places where he deals with Ricardo, Marx discusses Ricardo's numerical examples not because they are good methodology, but rather to clarify the problems at issue and get rid of Ricardo's confusing errors. Marx's own inquiry into the logic of economic concepts abandons Ricardo's myopic methodology and has its own characteristic personality.

Marx does not try to correct Ricardo's numerical example from its conceptual errors because the problem at stake is not mathematical: Ricardo's errors are not quantitative, but conceptual. The best strategy is to show that his numerical refutation of the labor theory of value does not involve any creation of value and, then, abandon it—that is, abandon Ricardo's methodology for good.

Indeed, in Marx's own value theory, the most difficult and interesting categories are, mainly, those of "objectification" (*Vergegenständlichung*) and "labor," the fundamental mediation between man and nature from which man's self-conscious-

ness develops. Surprisingly (at least for me), the quantitative approach to the Marxian theory of value has been very successful and has diverted substantial intellectual resources from the study of the intricate Marxian dialectics, which is where the "substance" of Marx's thought is and, in particular, where the key to understanding the transformation of value into competitive price is.

Marx is not looking for some algorithm to relate quantities of something to quantities of something else, or some measure unit to some other measure unit of quantities; otherwise, he would be contradicting his whole theory of value in a too obvious way. He may have warned the reader that the terms of Ricardo's comparison are not values and prices, but prices and prices (competitive and noncompetitive). However, let us remember that in volume 3, chapter 9, his problem is whether the formation of a uniform profit rate creates value, not the relations between the immanent and the external measures of value.

Certainly, Marx sees a quantitative problem in his numerical example, but its nature is very different from the "quantitative" approach.

> 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. But if we place the sum of the cost-prices of the commodities of an entire country on one side, and the sum of its surplus-values, or profits, on the other, the calculation must evidently be right. For instance, take a certain commodity A. Its cost-price may contain the profits of B, C, D, etc., just as the cost-prices of B, C, D, etc., may contain the profits of A. Now, as we make our calculation the profit of A will not be included in its cost-price, nor will the profits of B, C, D, etc., be included in theirs. Nobody ever includes his own profit in his cost-price. If there are, therefore, n spheres of production, and if each makes a profit amounting to p, (and the symbol for the cost price of a single commodity is k), then their aggregate cost-price $= k\text{-}np$. Considering the calculation as a whole we see that since the profits of one sphere of production pass into the cost-price of another, they are therefore included in the calculation as constituents of the total price of the end-product, and so cannot appear a second time on the profit side. If any do appear on this side, however, then only because the commodity in question is itself an ultimate product, whose price of production does not pass into the cost-price of some other commodity. (Marx 1981, 259–60)

What we buy and sell in the market is particular commodities, says Marx, not capital or surplus value as such. Capital and surplus value are not empirical, but abstract realities of which we observe the "phenomenal manifestations"—that is, the particulars in which these abstractions are "realized." But the example is set in terms of capitals that produce surplus value which is allocated by money prices so as to equalize the profit rate. It thus presupposes that all the accounts of the particular firms of the economy (of the five firms of the example) have been consolidated, so that we can tell what part of the total circulation of money (assuming that all transactions are mediated by money) represents circulation of capital, and what

surplus value. Marx's explanation of how a uniform profit rate is formed without creating new value, explanation which the example is intended to illustrate, does not involve any relationship between quantities of labor and of money or any "transformation" rule for different unit measures.

The only quantitative problem that Marx sees in his numerical example (which, by the way, is accidental) is caused by the many interrelations among commodities. This makes it difficult not to count the same value many times and, therefore, to distinguish in the aggregate, as well as in the many particular cases, capital from surplus-value.

But Does Not Marx Himself Speak of "Quantities of Value"?

My thesis that value as such does not have quantitative determination seems to be at odds with some well-known texts of Marx. For instance:

> A use value, or useful article, therefore, has value only because human labour in the abstract has been embodied or materialised in it. How, then, is the magnitude of this value to be measured. Plainly, by the quantity of the value-creating substance, the labour, contained in the article. The quantity of labour, however, is measured by its duration, and labour-time in its turn finds its standard in weeks, days, and hours. (Marx 1971, 5)

Or this one, also taken from the opening pages of volume 1:

> We see then that that which determines the magnitude of the value of any article is the amount of labour socially necessary, or the labour-time socially necessary for its production. Each individual commodity, in this connexion, is to be considered as an average sample of its class. Commodities, therefore, in which equal quantities of labour are embodied, or which can be produced in the same time, have the same value. The value of one commodity is to the value of any other, as the labour-time necessary for the production of the one is to that necessary for the production of the other. "As values, all commodities are only definite masses of congealed labour-time. (Marx 1971, 6)

And there are others, of course. The reason I undertook the investigation that has given rise to this paper is that I saw a contradiction between these passages and the ones in which Marx stresses that social labor cannot directly be money, that the substance of value is labor in the abstract, that value must become objectified as price so that price expressed in something else than labor is the only objective expression of value. There seems to be a too obvious contradiction. To decide whether this is the case, I first started by the standard references on the transformation problem, which led me to other references and so on. All along this travel, I was surprised by the absence of dialectical analysis and by the frequent employment of quantitative methods on the premise that value (social labor) can be measured in units of labor-time, which, precisely, was the question at issue.

The conclusion at which I have arrived is that Marx does not make contradictory statements on value and that the only way to understand his theory is to look at the concepts from a dialectical standpoint. The following passage from volume 3 provides

a good hint at the solution: "In Volumes I and II we were only concerned with the *values* of commodities. Now, a part of this value has split away as the cost-price, on the one hand, while on the other, the *production price* of the commodity has also developed as a transformed ("*verwandelte*") form of value" (Marx 1981, 263).

Thus, the analysis of value of volume 1 is an analysis of value *in general*, whereas that of volume 3 is concerned with value *in its capitalist stage of development*. Thus, the statements just quoted from volume 1 are not intended to mean that we can count the labor contained in commodities apart from money. Indeed, the object of study is not the particular commodity, as Marx notes when he says that the individual commodity is to be regarded as an "average sample of its class." The object of study is social production as a whole, of which individual commodities are but particular moments. It is crucial to bear this point in mind: namely, that general economic laws do not result from the aggregation of particular cases, but that what is primarily determined is the whole, and the individual is a particular moment of the whole. Marx makes this point in a very clear way, opposing multiplication to division, when he deals with the Law of the Falling Profit Rate.

> Since all things appear distorted, namely, reversed in competition, the individual capitalist may imagine: 1) that he is reducing his profit on the individual commodity by cutting its price, but still making a greater profit by selling a larger quantity of commodities; 2) that he fixes the price of the individual commodities and that he determines the price of the total product by multiplication, while the original process is really one of division (see Book I, chapter 12) and multiplication is only correct secondarily, since it is based on that division. The vulgar economist does practically no more than translate the singular concepts of the capitalists, who are in the thrall of competition, into a seemingly more theoretical and generalised language, and attempt to substantiate the justice of those conceptions. (Marx 1981, 338)

The above-mentioned passage from volume 1, chapter 12, reads:

> The general and necessary tendencies of capital must be distinguished from their forms of manifestation. It is not our intention to consider, here, the way in which the laws, immanent in capitalist production, manifest themselves in the movements of individual masses of capital, where they assert themselves as coercive laws of competition, and are brought home to the mind and consciousness of the individual capitalist as the directing motives of his operations. But this much is clear; a scientific analysis of competition is not possible, before we have a conception of the inner nature of capital, just as the apparent motions of the heavenly bodies are not intelligible to any but him, who is acquainted with their real motions, motions which are not directly perceptible by the senses. (Marx 1971, 305)

Thus, we get in Marx a necessary sequence labor-commodity-money-capital-competition-uniform profit rate of which we observe empirical manifestations in the different economic stages of history. It is not that competitive price is determined in two stages: first, determination of the labor prices of commodities and, second, distortion of these labor prices so as to get the money prices required by a uniform

profit rate. According to Marx, there is no such "distortion" because the value of commodities cannot be directly expressed in labor: competitive price is not a "distorted" form of value. What I read in Marx is that competitive price is the objective manifestation of value (labor) in capitalism, so value is not a disguised form of price and competitive pricing does not result from the negation of some "value pricing" (which Marx explicitly rejects when he criticizes the Utopian socialists). In the quantitative approach, as a matter of fact, commodities have two prices (one of them, supposedly, expressed in labor) and the basic problem is to relate these two systems of prices. Marx's numerical example of volume 3, chapter 9 is not a low-profile formulation of a problem of this kind, which does not even arise in Marx's value theory.

When Marx says that the magnitude of value is measured by the quantity of labor, which in turn is measured in weeks, days, and hours, he does not mean to say that *social labor* has quantity and is measured in time units. What has time-units is the particular working days of the particular laborers which are the particular moments of social labor: hours of a shoemaker or of a carpenter, but not of labor. His point is that the hours of the shoemaker or of the carpenter are the particulars in which social labor exists, not that social labor has quantity: this would amount to conceiving social labor as yet another particular labor. Likewise, the shoemaker or the carpenter have tallness or weight whereas mankind, which is the universal of which the shoemaker and the carpenter are particular objectifications, does not.

Commodities exchange according to the labor objectified in them—also in capitalism at competitive prices! As Marx said, competitive pricing appears to contradict the determination of value by labor, but this appearance is deceptive. As he carefully explains, the uniformization of the profit rate is not based on the negation of the "law of exchange," of the idea that exchange implies equivalence. As Marx sees it, competitive pricing does not require any violation of equivalence. What Marx says in volume 3, in addition to volume 1, is that the labor objectified in commodities is not only labor, but, in particular, *salaried labor*. In capitalism human labor must take on the form of *wage-labor,* which is but another side of the same reality: namely, accumulation of abstract wealth, social labor that produces money and, therefore, commodities which are exchanged for money according to competitive prices so as to yield a uniform profit rate. The uniform profit rate is but the other side of the coin of salaried labor.

To see that the uniform profit rate does not contradict the concept of exchange or equivalence, we may go back to Ricardo's example and reinterpret it on the basis of what we have seen. We can say that the commodity of the farmer and that of the manufacturer, one sold for 5,500 pounds and the other for 6,050, are nonetheless *equivalents* in the sense that they contain the same quantity of *surplus labor in the same span of time*. Under capitalism, where the end of production and exchange is surplus value—that is, surplus labor time—6,050 pounds in two years as a result of the investment of 5,000 pounds is the *same* as 5,500 pounds in one year as a result of the investment of 5,000 pounds.

I am not saying, of course, that 6,050 pounds is the same exchange value as 5,500 pounds; what I am saying is that 1,050 and 500 pounds represent the same yearly profit on the same capital (5,000 pounds), the same *proportional surplus exchange*

value per unit time. The excess of 50 pounds of the price of the manufactured goods over wheat represents the redistribution of surplus value from the farmer to the manufacturer that makes the two equal investments to get the same proportional amount of surplus labor within the same time span. This redistribution does not take place *after* value is objectified as money price, but it is itself a defining feature of the particular objectification of value as "competitive price."

We may make the same point in common financial parlance, saying that the *present value* of 5,500 pounds invested for one year at an interest of 10 percent per annum and that the *present value* of 6,050 pounds invested for two years at an interest rate of 10 percent is the *same*—that is, *the same value*. Since the whole *raison d'être* of capital is the increment of abstract wealth, the production of surplus value, financial economists have a good basis to say that *the value of capital is the profit that it yields*. It is in this sense that we can say that 5,500 is the same as 6,050 pounds: that is, that *the two figures represent the same proportional surplus value, the same surplus labor, the same proportional profit in the same time span*. As to present value, 5,500 pounds in one year and 6,050 pounds in two years are the *same value*, namely, 5,000 pounds. This would be a modern reformulation of Marx's view as to why competition does not mean anything about the nature of value, but is the logic according to which social labor is *allocated* to the particular capitals that set it in motion. Ricardo fails to see that the addition of compound interest to the money price of manufactures equalizes the value of wheat and of manufactures only in the particular sense of "capitalist value" or "competitive price," not value as such.

That the value of 5,000 pounds be 5,500 or 6,050 pounds appears to be paradoxical for the same reason that the circulation M-C-M does so in relation to C-M-C: since the nature of exchange value is to be a mediation, the cycle M-C-M, in which a given amount of money is exchanged for a greater amount, seems to be irrational and turn the mediation into the end. Against those who see in capitalism just a different form of barter, Marx claims that the cycle M-C-M is not reducible to C-M-C and that it is not irrational, despite appearances, but very rational; indeed, a necessary step in the development of rational labor. Marx's "law of exchange" of volume 1, which is but an analysis of the concept of exchange, is to be understood in the concrete logic of capitalist relations. The name of the game in capitalism is *surplus value* and not simply *value*; in capitalism, the exchange of commodities for money is not regulated by the logic of barter! In capitalism, the primary determinant of exchange is not utility but profit: needs are satisfied to the extent and in the way that profit maximization requires. The form that the "law of exchange" assumes in capitalism is the "law" of the uniform profit rate, the exchange of commodities for money according to competitive price.

> 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)

Production price is a "completely externalized" form of value: that is, an objective expression of value in which the "subjective" aspect of value, labor, has disappeared. The transformation of social labor into salaried labor involves, thus, the complete

"externalization" or "abstraction" of social labor, the total separation of labor from consciousness, the total separation of the products of labor from labor itself. It seems that production price and the associated uniform profit rate are self-consistent entities the origin of which is not labor: it is in this sense that Marx says that production price is a "completely externalized form of value." Production price appears to be 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 uneven. There is a long journey from production price to exchange value in general, which Marx claims to have completed with his dialectics of human labor.

That the substance of exchange value is social labor cannot be empirically known because it is not any empirical or particular object. Marx never tries to empirically test the thesis that social labor is the immanent measure of value because, from his conception of the universals, it is a senseless task. Marx is not a Platonist who thinks that universals are self-existent entities, nor a nominalist in the Occam tradition who thinks that universals do not have any reality, that universal is a *flatus vocis*. He is, rather, a dialectical thinker in the tradition of Hegel, "that mighty thinker" whose "pupil I openly avow myself," as Marx wrote in the preface to the second edition of *Capital*. In Hegelian dialectics, the universal (the *unum in diversis*) is the identity of the particulars that fall under it: the universal is such in its relation to its particulars and the particulars are such in their relation to the universal which is the *separate* or *abstract* position of their identity. The process of reconciliation of particularity and universality is dialectics, which starts from the absolute indetermination (or absolute disconnection of particulars) to culminate in absolute knowledge—that is, in the total unification of the particulars.

In stages of history other than the capitalist, the logically adequate objective manifestation of value was not competitive price. Indeed, in the classless society, competitive money price will cease to be the adequate form of value, the proper objective form of the labor of the members of society. For Marx, the thesis that labor is the "substance" of value means that it is logically impossible that something else than labor may cause value, as labor is the "substance" or identity of value. His thesis that labor determines value is not an empirical and, therefore, contingent fact. An empirical fact is, for Marx (and for any dialectical thinker), baseless, unjustified. To be empirically true is to be separated from the concept and, in this sense, to be abstract, isolated, senseless, lost, unrelated, brute. Indeed, it is a pity that Marx did not elaborate more on the basic metaphysical categories of his system as this would have made clearer, among many other things, the nature of the connection between labor and value.

Conclusion

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

(1) The Marxian thesis that labor is the substance or the immanent measure of value has been forgotten or misunderstood in the "quantitative approach," which rests on the thesis that value has quantitative determination by itself, apart of money. For

Marx, abstract labor, the "substance" of exchange value, cannot measure value, because it is value itself. Social labor cannot be money, which means that value, contrary to price, does not have objective existence and, therefore, no parts and no quantity. The objective existence of value is price, which is value expressed in some objectification of labor as such—that is, in the particular products of labor.

(2) The "quantitative approach" to the Marxian conception of value fails to understand the nature of the transformation of value into competitive price that is at issue in volume 3, chapter 9, of *Capital.* As a matter of fact, it thinks of social labor as an *external* measure of value; as a particular commodity. This produces the misleading impression that Marx was dealing with a quantitative problem that he failed to correctly solve. Actually, the quantitative determinations of the transformation of value into competitive price are accidental and reveal nothing substantial to understand the logic of which the economic phenomena are manifestations.

(3) The labor theory of value is not a theory about the *quantity* of exchange value, but about its *nature,* which is the key to understanding the "laws of motion of capitalism." It is totally independent of the different possible quantitative determinations of value and, therefore, is compatible with any determination of exchange value as price. The analysis of the quantitative determinations of competitive pricing can provide no evidence in favor of or against the determination of value by labor, because value and price are at different conceptual levels.

(4) The numerical example of *Capital,* volume 3, chapter 9, is a reworked version of the numerical example of *Principles*, chapter 1, section 4, on the basis of which Ricardo claims that the determination of value by labor is ruled out by the formation of a uniform profit rate. Marx is arguing, in a negative way against Ricardo and his followers, that Ricardo's numerical example does not show any creation of value and can be perfectly understood as showing a reallocation of surplus value among the capitals that make up the economy.

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