ELSEVIER

Review of Radical Political Economics
Vol. 32, 2 (2000) 282-316

Review of
RADICAL
POLITICAL
ECONOMICS

The "New Solution" to the Transformation Problem: A Sympathetic Critique

Fred Moseley*

Department of Economics, Mount Holyoke College, S. Hadley MA 01075

Received 6 June 1998; accepted 26 February 1999

ABSTRACT

This paper critically evaluates the "new solution" to the transformation as presented by Foley and Duménil and others, from the perspective of the author's "macro-monetary" interpretation of Marx's theory. The main issue emphasized is the method of determination of the inputs of constant capital and variable capital in Marx's theory—whether these inputs are taken as given as quantities of money capital or derived from given quantities of physical goods.

JEL classification: E11; D46

Keywords: Marx; Sraffa; Transformation problem

* E-mail: fmoseley@mtholyoke.edu

0486-6134/00/$ - see front matter © 2000 URPE. All rights reserved.

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

from the SAGE Social Science Collections. All Rights Reserved.

In the 1970s, the Sraffian interpretation of Marx's theory, as represented by the works of Meek, Dobb, Morishima, Steedman, etc. came to be the dominant, most widely accepted interpretation. By the Sraffian interpretation, I mean primarily that: (1) the fundamental givens in Marx's theory are assumed to be the physical quantities of the technical coefficients of production and the real wage, and (2) the rate of profit is determined simultaneously with prices of production, and both are derived from the above physical quantities. In other words, Marx's theory is interpreted as essentially the same as Sraffa's linear production theory.

It is well-known that this interpretation leads to the following damaging criticisms of Marx's theory of prices of production: (1) Marx's determination of prices of production is logically inconsistent because Marx failed to transform the inputs of constant capital and variable capital. (2) Marx's error can be corrected, using a method first suggested by Bortkiewitz, but this correction implies that Marx's two aggregate equalities (aggregate price = aggregate value, and aggregate profit = aggregate surplus-value) cannot both be true simultaneously. (3) This correction also implies that the rate of profit changes in the determination of prices of production, so that the price rate of profit is in general not equal to the value rate of profit. (4) Finally, the entire Volume 1 value analysis is "redundant" because the same prices of production and rate of profit that are derived by transforming values into prices of production could also be derived directly from the given physical quantities.

Since the early 1980s, there have been a growing number of challenges to this dominant Sraffian interpretation of Marx's theory. The first and still the best known and most important of these challenges to the Sraffian interpretation has been the so-called "new interpretation" or the "new solution" to the transformation problem, which was first introduced independently by Foley (1982 and 1986) and Duménil (1980 and 1983–84), and has since been followed by Lipietz (1982), Glick and Ehrbar (1989), Devine (1990), Mohun (1993), Campbell (1997), and others.[1] The main novelty of the new solution is that it assumes that *variable capital* is not derived from a given real wage, but is instead taken as given directly, as the money-wage paid by capitalists to workers. The

[1] Other recent challenges to the Sraffian interpretation include: Mattick 1981; Carchedi 1984; Wolff, Roberts, and Callari 1984; Kliman and McGlone 1988; Giussani 1991; Freeman 1995; and Ramos-Martinez and Rodriguez-Herrera 1996, as well as my own prior work (Moseley 1993, 1997, and forthcoming). A consideration of these other challenges to the neo-Ricardian interpretation (besides my own) is beyond the scope of this paper, but hopefully will be the subject of future papers.

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

new solution also reinterprets Marx's aggregate price-value equality in *net* terms, rather than gross terms. From these assumptions and definitions, it follows that the redefined aggregate net price-value equality is satisfied simultaneously with the aggregate profit-surplus value equality. However, in the new solution constant capital is still derived from the given technical conditions, first as the value of the means of production and then as the price of production of the means of production, as in the Sraffian interpretation. As a consequence, constant capital and hence the rate of profit change from Volume 1 to Volume 3, and the gross price-value equality is in general not satisfied, again as in the Sraffian interpretation.

This paper presents a "sympathetic critique" of the new solution, from the perspective of my own "macro-monetary" interpretation of Marx's theory. The paper is "sympathetic" in the sense that I think that the new solution is an important first attempt to break away from the dominant Sraffian interpretation, but it remains a critique in the sense that I think that the new solution has been only partially successful in making this break—it has not gone far enough. I argue that, not only is variable capital taken as given directly as quantities of money-capital, and not derived from given quantities of physical goods, but the same method of determination also applies to *constant capital.* Constant capital and variable capital are the two components of the initial money-capital (M) that begins the circulation of capital ($M - C - M'$); i.e., $M = C + V$. To be logically consistent, these two components of the initial money-capital should be determined in the same way. I argue that both these components of the initial money-capital are taken as given directly, as the quantities of money-capital invested to purchase means of production and labor-power in the first phase of the circulation of capital.

If this consistent determination of constant capital and variable capital is assumed, i.e., if both are taken as given as initial quantities of money-capital, then it follows that Marx did not fail to transform the inputs of constant capital and variable capital in his determination of prices of production. It also follows from this interpretation that both of Marx's aggregate equalities are satisfied simultaneously, and that the rate of profit does not change in the determination of prices of production. Instead there is only one rate of profit—the price rate of profit—that is determined by the prior analysis of capital in general in Volume 1 of *Capital*, and then taken as a predetermined magnitude in the determination of prices of production in Volume 3. Finally, it also follows from this interpretation that Marx's value theory in Volume 1 is not "redundant," but is instead a

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

necessary stage of the theory, in which the rate of profit is determined prior to the determination of prices of production.[2]

The paper will concentrate on the interpretation of Foley, whose original article on the new solution appeared in the *RRPE* in 1982.[3] The first section presents a brief summary of my own "macro-monetary" interpretation of Marx's theory, as the perspective from which the "new solution" is considered. Special emphasis will be given to the determination of the inputs of constant capital and variable capital, since this is the key issue in the debate over Marx's "transformation problem."

---

[2] Referee Gary Mongiovi asked: Why does it matter whether Marx's theory of prices of production in part 2 of Volume 3 is correct or not? What essential aspects of Marx's theory of capitalism is lost if the labor theory of value is "ditched" because Marx was not able to provide a satisfactory explanation of equal rates of profit and prices of production?

My short answer to this important question is that the following essential aspects of Marx's theory are lost if the Sraffian critique and correction of Marx's theory are accepted: (1) the necessity of money in commodity-producing societies can no longer be derived from the resulting theory of value; (2) profit is no longer explained as the result of surplus labor, which in turn means that the central self-illusion of capitalist society, that the relation between capitalists and workers is essentially an exchange of equivalents, remains unchallenged; (3) the resulting theory of the rate of profit would also be different, as evidenced by different methods of determination, different treatments of fixed capital, and different conclusions regarding the effect of luxury goods industries on the rate of profit. There might even be implications (not yet developed) for Marx's theory of the effect of technological change on the rate of profit. Okishio's theorem is based on the Sraffian interpretation of Marx's theory (i.e., that the rate of profit is derived from given physical quantities without the labor theory of value); it might not apply to Marx's theory of the rate of profit properly understood. (Cullenberg 1994 makes a similar point.)

Finally, as a historian of economic thought, it is of great interest to me, and I hope to others, that Marx's theory, about which so much has been written for so long and most of it so superficially, be properly understood, and its internal logical coherence properly evaluated. At least Marx should be given the benefit of his own logical method. It is, of course, widely accepted that Marx's theory contains an internal logical contradiction (between the labor theory of value and equal rates of profit). This is perhaps the main reason given by economists and others for rejecting Marx's theory. I argue that there is no such logical contradiction in Marx's theory, and therefore that this is not a valid reason for rejecting Marx's theory. Even if there is not much lost in abandoning Marx's labor theory of value and adopting Sraffian linear production theory instead, the "transformation problem" is still not a valid reason for rejecting Marx's labor theory of value. There might be other valid reasons for rejecting Marx's theory, but "failure to solve the transformation problem" is not one of them.

[3] The original version of this paper also dealt with Duménil's interpretation and with Mohun's interpretation. For reasons of space, these other interpretations of the new solution will have to be dealt with in a separate paper. The original paper is available from my home page (www.mtholyoke.edu/~moseley) or by request by email (fmoseley@mhc.mtholyoke.edu).

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

1. "Macro-Monetary" Interpretation of Marx's Theory[4]

1.1 Prior Determination of Aggregate Magnitudes[5]

The first aspect of Marx's logical method to be discussed is the presupposition that aggregate magnitudes are determined prior to and independent of individual magnitudes. Individual magnitudes are then determined at a later stage of the analysis, with the predetermined aggregate magnitudes taken as given. Marx expressed this assumed order of determination between aggregate magnitudes and individual magnitudes as the distinction between "capital in general" (or "total social capital") and "many capitals" (or "competition").

According to this method, Volumes 1 and 2 of *Capital* are about "capital in general," i.e., the determination of aggregate magnitudes for the capitalist economy as a whole. The most important aggregate magnitude determined at this macro level of analysis is the total amount of surplus-value produced in the capitalist economy as a whole. The total surplus-value includes all forms of capital income: not only the profit in all branches of production, but also merchant profit, interest, and rent.[6]

Volume 3 is then primarily about "many capitals," i.e., the determination of individual magnitudes, and especially the individual parts into

---

[4] See Moseley (1993) for a more complete discussion of my interpretation of Marx's theory.

[5] This section draws heavily from the work of Mattick sr. (1959, 1969) and Roskolsky (1977).

[6] In Volume 1, Marx often illustrated the analysis of capital in general with an individual commodity, but this individual commodity is not the real subject of Marx's analysis. An individual commodity is considered in Volume 1 only as a typical representative of the total commodity product for the purpose of illustration (Roskolsky 1977: 48; Foley 1986: 6). To take a key example, Marx's theory of surplus-value in chapter 7 of Volume 1 is illustrated by the example of 20 pounds of yarn produced by one worker in a working day. But the purpose of this analysis is to explain the total amount of surplus-value produced in the capitalist economy as a whole. The 20 pounds of yarn stands for the total commodity product. The one worker stands for the total working class. The 3 shillings of surplus-value stands for the total surplus-value produced in the economy as a whole.

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

which the total surplus-value is divided.[7] In Volume 3, Marx first analyzed the distribution of surplus-value among the individual branches of production (in such a way that rates of profit are equalized) (part 2), and then the further division of the total surplus-value into industrial profit and merchant profit (part 4), interest (part 5), and rent (part 6). The assumption throughout Volume 3, which is repeated many times, is that the total amount of surplus-value is determined prior to its division into individual parts.[8]

This paper is concerned of course with part 2, the distribution of surplus-value among branches of production. Since the distribution of surplus-value across industries is accomplished by means of the prices of production of commodities, the analysis of the distribution of surplus-value necessarily involves the determination of these prices of production. In this analysis, the total surplus-value for the economy as a whole is *taken as given*, as determined by the prior analysis of capital in general in Volume 1. The ratio of the total surplus-value determined in Volume 1 to the total capital invested is the general rate of profit, which is also taken as given in the Volume 3 determination of prices of production.

One of the main purposes of Volume 3 is to demonstrate that all these different kinds of capital income are particular forms of surplus-value which are derived ultimately from the surplus labor of workers in capitalist production. These different forms of surplus-value *appear* to the agents of capitalist production, the capitalists (and also in general to economists), as separate and independent sources of value and income, with no relation to the surplus labor of workers. However, Marx demonstrates in Volume 3 that this appearance is an illusion. In Hegelian terms, Marx's theory demonstrates the "inner connection" (surplus labor) of the different forms of appearance of surplus-value. Furthermore, Marx argues that the pervasive illusion (that these individual parts of surplus-value are independent sources of value and income) is a necessary illusion, i.e., an illusion which, although false, necessarily arises on the basis of capitalist production. Therefore, the purpose of Volume 3 is not only to explain prices of production and equal rates of profit, and these important phenomena related to the distribution of surplus-value; it is also able to explain why these phenomena necessarily appear differently to the agents of capitalist production (and to economists). This demonstration is

[7] Parts 1 and 3 of Volume 3 remain at the level of abstraction of capital in general.

[8] I have documented the extensive textual evidence on this key point in two papers (Moseley 1997 and forthcoming). These papers are also available on my home page.

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

based on the assumption that the total amount of surplus-value is determined prior to its division into individual particular forms.

Marx wrote to Engels in 1868 (i.e., after the publication of Volume 1 in 1867 and after writing the draft of Volume 3 in 1864–65), that he considered his analysis of the total amount of surplus-value prior to its division into individual parts one of the three "fundamentally new" aspects of *Capital*:

> In contrast to all former political economy, which from the very outset treats the different fragments of surplus-value with their fixed forms of rent, profit, and interest as already given, *I first deal with the general form of surplus-value* in which all these fragments are still undifferentiated—in solution as it were. (Marx and Engels 1975: 186, emphasis added; see also 180 and Marx 1963: 40 and 92)

In striking contrast, the Sraffian interpretation of Marx's theory assumes essentially the opposite order of determination between aggregate magnitudes and individual magnitudes. Instead of the prior determination of aggregate magnitudes, the Sraffian interpretation assumes the prior determination of individual magnitudes. In the Sraffian interpretation, as in linear production theory in general, aggregate magnitudes in general play no essential role. The variables that are determined in the theory are the prices of individual commodities and the rate of profit. The rate of profit is not determined by the ratio of total surplus-value to total capital invested, but is instead determined simultaneously with prices by the solution to a system of simultaneous equations. If one wanted to define and determine aggregate variables, such as total price and total surplus-value (or profit), on the basis of this theory, then one could do so by first multiplying the price times the quantity produced in each industry and then adding together these industry totals. In other words, the aggregate totals would be determined by adding up the individual parts, which is the opposite of Marx's method of the prior determination of aggregate magnitudes.

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

1.2 *Money Capital as Initial Givens*[9]

The central concept of Marx's theory is the concept of capital, as the title of the book suggests. The concept of capital is defined by Marx in chapter 4 of Volume 1 of *Capital* as *money that makes more money*, i.e., as $M - C(M + \Delta M)$. The main point to emphasize here is that Marx's key concept of capital is defined in terms of *money*, not in terms of labor-time. Capital is clearly and emphatically defined in terms of money in all the various drafts of *Capital*, including the *Grundrisse* (250–71) and the "1861–63 Manuscript" (Marx and Engels 1988: 9–20), as well as the final published versions of Volume 1. The title of part 2 of Volume 1 is "The Transformation of *Money* into Capital." The two chapters of the *Grundrisse* are entitled "Chapter on Money" and "Chapter on Money as Capital." Of course, according to Marx's theory, all money represents abstract labor-time, and so do these quantities of money capital. However, the specific phenomena to which Marx's concept of capital refers are flows of money capital. In discussing the circulation of capital, Marx continually refers to the capital "thrown into circulation" and the capital "withdrawn from circulation." Clearly Marx is talking here about quantities of money capital advanced into and withdrawn from circulation. Money is not here merely an "illustration" of quantities of labor-time. Marx is not talking about the labor-time embodied in the means of production, or the means of subsistence thrown into and withdrawn from circulation.

Similarly, the concept of surplus-value is also defined by Marx in chapter 4 (and the various drafts of this chapter) in terms of money, as the increment of money, ΔM, that emerges in the final phase of the circulation of capital. The main question addressed by Marx's theory of surplus-value in Volume 1 is the origin and magnitude of this increment of money that is characteristic of capital. In chapter 7 of Volume 1, Marx succinctly stated the conclusion of his theory of surplus-value as follows: "The trick has at last worked: *money* has been transformed into capital" (301, emphasis added).

[9] Other authors who have presented similar interpretations of the monetary nature of the initial givens in Marx's theory include Carchedi (1991, ch. 3), Mattick, jr. (1981), and Mage (1963, app. A).

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

Constant capital and variable capital are then defined in chapter 8 of Volume 1 as the two components of the money capital (M) that initiate the circulation of capital. In other words, $M = C + V$. The key point to be emphasized again is that constant capital and variable capital, like the general concept of capital of which they are component parts, are also defined in terms of *money*. Constant capital is the money capital used to purchase means of production and variable capital is the money capital used to purchase labor-power. Constant capital is not defined as the labor-time embodied in the means of production, and variable capital is not defined as the labor-time embodied in the means of subsistence. Although these latter definitions are probably the most commonly accepted definitions of constant capital and variable capital, they ignore Marx's own definitions of the general concept of capital and its two component parts—all of which are clearly defined in terms of flows of money capital.

Therefore, it seems clear that Marx's key concepts of capital, constant capital, variable capital, and surplus-value are defined in terms of money, not in terms of labor-time. The further question to be addressed now is: how are the quantities of money constant capital and money variable capital, the two components of the initial money capital M, *determined*, first in Marx's theory of surplus-value in Volume 1 and then in his theory of prices of production in Volume 3. I argue that these quantities of constant capital and variable capital are *taken as given* in both of these stages of Marx's theory. The *same quantities of constant capital and variable capital are taken as given* in both of these stages. The only difference is that in Volume 1 the aggregate amounts of constant capital and variable capital for the economy as a whole are taken as given, and in Volume 3 the disaggregated amounts for each industry are also taken as given. The sums of the individual amounts taken as given in Volume 3 are equal to the aggregate amounts in Volume 1. Therefore, these amounts of constant capital and variable capital remain "invariant" in the transition from Volume 1 to Volume 3—because the same amounts of constant capital and variable capital are taken as given at both stages of this analysis. We will now review in greater detail each of these two stages of Marx's analysis.

1.2.1. *Theory of surplus-value*

In Marx's macro theory of surplus-value in Volume 1, I argue that the aggregate quantities of money constant capital and money variable capital

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

are *taken as given*, as the initial quantities of money capital used to purchase means of production and labor-power in the first phase of the circulation of capital. Marx's theory of surplus-value explains how this initial quantity of money (M) is transformed into a greater quantity of money, and is thereby transformed into capital. Contrary to the prevailing Sraffian interpretation, the initial givens in Marx's theory of surplus-value are not the physical quantities of the technical conditions of production and the real wage. Marx did not take these physical quantities as his initial givens and then derive constant capital and variable capital from them. Marx's question is not: how do given means of production and means of subsistence produce commodities that have a price greater than their cost? Marx's question is rather: how is the given quantity of money transformed into capital by increasing its magnitude? The Sraffian interpretation attributes to Marx's theory the logical method of Sraffa's theory, i.e., the method of linear production theory. But Marx was writing 100 years before Sraffa, and employed an entirely different logical method from Sraffa's linear production theory.

I offer the following arguments and textual evidence to support this monetary interpretation of the initial givens in Marx's theory of surplus-value.

To begin with, the general analytical framework for Marx's theory of surplus-value is the circulation of capital, which as we have seen is expressed symbolically by the general formula for capital, $M-C-M'$. This general formula itself suggests that the *starting point* of Marx's theory is M, the initial sum of money invested as capital to purchase means of production (constant capital) and labor-power (variable capital). The purpose of Marx's theory of surplus-value is to explain how this given initial sum of money is increased in magnitude through the purchase, production, and sale of commodities.

Second, my interpretation is further supported by the logical relation between parts 1, 2, and 3 of Volume 1 of *Capital*. In part 1, *money* is derived as the necessary form of appearance of the value of commodities. In part 2, as we have seen, capital is defined in terms of this previously derived concept of money: as money that becomes more money, i.e., as $M-C-M'$. Part 3 then analyzes the origin of the increment of money that is characteristic of capital, with the initial money-capital taken as given. Marx did not suddenly in part 3 ignore the prior logical development of money and capital in parts 1 and 2, and introduce out of nowhere the technical conditions of production and the real wage as the initial givens in his theory. Instead, parts 1 and 2 provide the logical

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

presuppositions (the "givens") for Marx's theory of surplus-value in part 3 and beyond. The Sraffian interpretation, on the other hand, has no explanation for Marx's analysis in parts 1 and 2, or for the logical relation between these two parts and the theory of surplus-value in part 3. These key parts of Volume 1 are simply ignored by this interpretation, and Marx's theory is turned into Sraffa's theory, starting with the technical conditions of production and the real wage.

As part of the analysis of the transformation of money into capital, Marx referred repeatedly to money as "the *first form of appearance*" of capital. In other words, Marx's analysis of the circulation of capital *begins with money*, the "first form of appearance" of capital, and with a specific quantity of money that is invested to purchase means of production and labor-power. Marx never said anything like "the first form of appearance of capital is the means of production or the means of subsistence."

Another related aspect of the logical structure of the first three parts of Volume 1 is that parts 1 and 2 are about the "sphere of circulation," and part 3 begins Marx's analysis of the "sphere of production" (with the famous passage at the end of part 2 about moving from the "noisy sphere of circulation" to the "hidden abode of production" marking the transition between these two stages of the analysis). Marx argued that, in his theory of capital, the analysis of circulation is a necessary prelude to the analysis of production because *capital appears first in the sphere of circulation*. Capitalist production is preceded by the investment of a given amount of money capital in the sphere of circulation proper. Marx's analysis of the sphere of circulation provides the logical presuppositions (the "givens") for his analysis of the second phase of the circulation of capital in the sphere of production. Again, the Sraffian interpretation of Marx's theory completely ignores this initial phase of the circulation of capital in the sphere of circulation, and implicitly assumes that capital first appears, not in circulation, but in production, as the physical inputs to production. This is clearly not Marx's logical method in the first three parts of Volume 1. The initial quantities of money capital that provide the givens in Marx's theory of surplus-value come from circulation, not from production.

Third, my interpretation is also supported by Marx's general methodological principle of "historical specificity," according to which the explanatory concepts of a theory of capitalism should refer to those features which are historically specific to capitalism, and should *not* refer to the general features which capitalist production shares with all forms of social production (Korsch 1938, ch. 2; Rosdolsky: 77–80). Marx argued that these historically specific features are the determining factors in the

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

development of capitalism, and therefore a theory of capitalism should focus on them (Marx 1973: 83–108). The technical conditions of production and the real wage are general features of social production, and thus cannot be the fundamental explanatory concepts of Marx's theory. On the other hand, the concept of money capital refers to specific features of capitalism, and is therefore a fundamental explanatory concept in Marx's theory.

Finally, my interpretation is also textually supported by the numerous passages throughout the various drafts of *Capital* in which Marx referred to the money capital which initiates the circulation of capital as the "*presupposed* capital" or the "*postulated* capital" or the "*starting point*" or the "*point of departure*" for his analysis of the circulation of capital. These references are especially prominent in chapter 4 of Volume 1 of *Capital*, and the earlier drafts of this chapter in the *Grundrisse* (Marx 1973: 250–64) and in the "Manuscript of 1861–63" (Marx and Engels 1987: 501–7; Marx and Engels 1988: 9–20). (This "second draft" of *Capital* has only recently been published in English and is very interesting; see footnote 10.) There are also numerous similar passages in the "Results of the Capitalist Production Process" manuscript, published in the Penguin edition of Volume 1. One especially clear passage is the following:

> Here, where we are concerned with money only as the *point of departure* for the *immediate process of production*, we can confine ourselves to the observation: capital exists here as yet only as a *given quantum of value* = M (money), in which all use-value is extinguished, so that nothing but the monetary form remains....If the original capital is a quantum of value $=x$, it becomes capital and fulfills its purpose by changing into $x+\Delta x$, into a quantum of money or value = the original sum + a balance over the original sum. In other words, it is transformed into the given amount of money + additional money, into *the given value + surplus-value*....As a *given sum of money*, x is a constant from the outset and hence its increment = 0. In the course of the process, therefore, it must be changed into another amount which contains a variable element. Our task is to discover this component and at the same time to identify the mediations by means of which a constant magnitude becomes a variable one. (Marx 1977: 976–77, emphases in the original)

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

Nowhere did Marx refer to the "presupposed means of production" or the "postulated means of subsistence." Either Marx, who it should be remembered had a doctorate degree in philosophy and paid a great deal of attention throughout the various drafts of *Capital* to questions of logical method, was extremely sloppy in these many passages, or Marx intended the usual methodological meanings to the terms "given," "postulated," "presupposed," etc., i.e., that they are the initial data with which his theory begins.

Therefore, I conclude that the logical arguments and the textual evidence to support my "monetary" interpretation of the initial givens in Marx's theory of surplus-value are much stronger than the arguments and the textual evidence to support the prevailing Sraffian interpretation. Indeed, arguments and textual evidence are almost never presented to support the Sraffian interpretation. This interpretation is simply asserted, and unfortunately accepted uncritically by most Marxists.

The initial money capital that Marx took as given in his theory was assumed to be the objective "form of appearance" of abstract social labor. This function of money is the main conclusion of Marx's analysis of commodities and money in part 1 of Volume 1. This important conclusion is then presupposed in the remainder of *Capital*, and in his theory of surplus-value in particular. Thus the aggregate money capital taken as given in his theory of surplus-value, like any other quantity of money, is assumed to represent a definite quantity of abstract social labor. The precise quantity of abstract social labor represented by a given quantity of money depends on the value of money, which Marx also took as given (Marx 1977: 214, 683). The precise quantity of abstract labor represented by the given money constant capital is equal to $(C * v_m)$, where v_m is the given value of money. Similarly, the precise quantity of abstract labor represented by the given money variable capital, or the "necessary labor-time" required to produce the money equivalent of variable capital, is equal to $(V * v_m)$. These quantities of abstract labor represented by the constant capital and the variable capital will be equal to the labor-times embodied in the means of production and the means of subsistence *only if* prices of the means of production and means of subsistence are proportional to their respective labor-values, i.e., in general they will *not* be equal (more on this point below).

In the aggregate theory of surplus-value in Volume 1, the two initial givens constant capital and money capital play entirely different roles in the determination of the aggregate price of commodities and thus in the

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

determination of the aggregate amount of surplus-value. The quantity of constant capital becomes one component of the aggregate price of the output. In other words, the constant capital is "transferred" to the price of the output. The amount of value transferred from the constant capital to the price of the output cannot be greater than the value of the constant capital. Hence the constant capital component of the price of commodities cannot be a source of surplus-value. On the other hand, the variable capital does not become a component of the price of the output. Instead, the variable capital is replaced by current labor, and this current labor produces new value, which becomes the second component of the price of the output. This new value component of the price of commodities both replaces the variable capital invested in labor-power and provides the surplus-value of capitalists.

Therefore, Marx's theory of the determination of the aggregate price of commodities can be summarized algebraically by the following equations:

$$P = C + MVA \tag{1}$$

$$MVA = mL \tag{2}$$

where P represents the aggregate price of commodities, C the constant capital, MVA the money value added produced by current labor, L the quantity of current abstract labor, and m is the "monetary expression of value," or the rate at which current abstract labor produces new value per hour (which is equal to the inverse of the value of money and was taken as given by Marx; e.g., 0.5 shillings per hour). The givens in this theory of aggregate price are: C, m, and L. Note that the first component of the price of commodities, the "value transferred" from the means of production to the price of the product, is equal to the given money constant capital consumed in the production of the commodities, whether or not this money constant capital is proportional to the labor-time embodied in the means of production (more on this point below).

From this theory of aggregate price, Marx derived the aggregate amount of surplus-value (S) produced within a given period of time. This derivation may be briefly summarized algebraically as follows:

$$\begin{aligned} S &= P - K \\ &= (C + MVA) - (C + V) \\ &= MVA - V \\ &= mL - mL_n \\ &= m(L - L_n) \end{aligned} \tag{3}$$

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

$$S \quad = mL_s \tag{4}$$

where K represents the cost price of commodities ($= C + V$), L_n the necessary labor-time or the time required for current labor to reproduce the equivalent of variable capital ($= V / m$), and L_s the surplus-labor time.

The main points about this derivation for our purposes are the following: (1) the givens in this theory are C, V, L, and m, as discussed above; (2) the aggregate amount of surplus-value is derived as a function of the aggregate amount of surplus-labor; and (3) this aggregate amount of surplus-value is then taken as given in Marx's subsequent analysis of the distribution of surplus-value and prices of production in Volume 3 of *Capital*, to be discussed below.

In the above theory, constant capital (C), the first component of the total price of commodities, is the money capital invested to purchase means of production, whether or not this quantity of money capital is proportional to the labor-time embodied in the means of production. Similarly, variable capital (V), which is subtracted from the money value added (MVA) to determine the surplus-value (S), is the money capital invested to purchase labor-power, whether or not this quantity of money capital is proportional to the labor-time embodied in the wage goods that workers consume. As stressed above, these two quantities of money capital are taken as given; they are not derived from given quantities of means of production and wage goods.

In Volume 1, Marx provisionally assumed that the price of the means of production is proportional to the labor-time embodied in the means of production, and that the price of wage goods is proportional to the labor-time embodied in wage goods. Marx made this provisional assumption because the price of individual commodities, and hence of groups of individual commodities, like the means of production and wage goods, had not yet been determined in the macro theory of Volume 1. The micro assumption of proportionality between price and labor-time is the only one consistent with the macro labor theory of value developed in Volume 1.

However, it is important to emphasize that this provisional assumption plays no role in the *determination* of constant capital and variable capital, and hence plays no role in the determination of the total surplus-value, which is the main conclusion of Volume 1. The magnitudes of constant capital and variable capital are not determined as proportional to the labor-times embodied in the means of production and wage goods, respectively. The physical quantities of means of production and wage goods play no

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

role in Marx's theory of total price and total surplus-value. Instead the magnitudes of constant capital and variable capital are taken as given, as quantities of money capital invested to purchase means of production and labor-power, whether or not these quantities of money capital are proportional to the labor-times embodied in the means of production and wage goods.

1.2.2 Theory of prices of production

We have seen above that in the Volume 1 macro theory of the total amount of surplus-value, the total amounts of constant capital and variable capital are taken as given, as quantities of money capital invested to purchase means of production and labor-power in the capitalist economy as a whole. In part 2 of Volume 3, the question addressed is the distribution of surplus-value across branches of production in such a way that rates of profit are equalized with the resulting determination of prices of production. We shall see below that, in the Volume 3 micro theory of prices of production, the same quantities of money constant capital and money variable capital are taken as given as in the Volume 1 macro theory of the total surplus-value. The only difference is that, in Volume 3, not only are the aggregate quantities of constant capital and variable capital taken as given, but also the disaggregated quantities of these two components of money capital for each industry (the sum of the latter is obviously equal to the former). This is the key reason why constant capital and variable capital do not change, or do not have to be transformed, in the transition from the macro analysis of the total surplus-value in Volume 1 to the micro analysis of prices of production in Volume 3: because *the same quantities of constant capital and variable capital are taken as given in both of these stages of the analysis*. The magnitudes of constant capital and variable capital are not first determined as the values of the means of production and wage goods, and then later transformed into the prices of these same means of production and wage goods, as in the Sraffian interpretation. In Marx's theory of prices of production, he did not suddenly adopt a different logical method, and take the physical quantities of means of production and wage goods as his initial givens. Instead, he continued to take as given the same quantities of money capital used to purchase the means of production and labor-power that he took as given in Volume 1, except in disaggregated quantities. In other words, these given quantities of money constant capital and variable capital "remain invariant" in the transition from the macro theory of the total surplus-

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

value to the micro theory of prices of production. This subsection will present considerable textual evidence to support this key point.

In part 1 of Volume 3, the "cost price" of commodities (k) is defined as the sum of constant capital and variable capital consumed in the production of commodities, i.e., $k = c + v$. "Cost price" is a key concept in Marx's theory of prices of production, and is introduced in part 1 in order to lay the necessary groundwork for the theory of prices of production presented in part 2. Since, as we have seen above, constant capital and variable capital are defined in terms of money, their sum, the cost price of commodities, is also defined in terms of money, not in terms of labor-time. All of Marx's numerical examples of the cost-price of commodities presented in part 1 and elsewhere in Volume 3 are expressed in terms of money. This cost price is referred to in part 1 (and in earlier drafts of this part) as the money capital "presupposed" or "postulated" in the first phase of the circulation of capital.

"Profit" is also defined by Marx in part 1 of Volume 3 as the excess of the money recovered at the end of the circulation of capital over and above the cost price that is "presupposed." In the more Hegelian language of the *Grundrisse*, Marx defined profit as "the *presupposed* capital, relating to itself" (Marx 1973: 762, emphasis added).

In an earlier draft of chapter 1 of Volume 3 in the "1861–63 Manuscript,"[10] Marx explicitly made the connection between the initial money capital M, that is taken as given in his theory of surplus-value, and the cost price k, that is taken as given in this theory of prices of production, both of which are equal to the sum of constant capital and variable capital, M for the total economy and k for each industry. Marx commented:

[10] This earlier draft of chapter 1 is included in Marx's first draft of Volume 3 of *Capital*, which has recently been published in English for the first time (Marx and Engels 1991). It was published in German for the first time in the early 1980s in the authoritative Marx Engels Gesamtausgabe (MEGA). This first draft of Volume 3 is part of Marx's "1861–63 Manuscript." About half of the "Manuscript of 1861–63" is what we know as *Theories of Surplus-value*. But the remainder of the manuscript was previously unpublished and includes a very interesting, next-to-final draft of parts 2–4 of Volume 1, as well as the first draft of Volume 3. These previously unpublished manuscripts are very rich and interesting, and provide an important link that shows the further development of Marx's thinking between *The Grundrisse* and the final published versions of *Capital*. the full manuscript is published in Volumes 30–34 of the International Publishers' 50-volume *Marx-Engels Collected Works*.

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

> We have seen that the general form of capital is $M - C - M'$. In other words, money, an amount of value, is thrown into circulation in order to extract from it a larger amount....
>
> We now return, therefore, to the point of departure from which we proceeded in considering the general form of capital....
>
> Profit therefore = the excess of value of the product or rather the amount of money realized in circulation for the product...above the value of the capital which entered the formation of the product (Marx and Engels 1991: 78–81).

Marx then defined the "value of the capital which entered the formation of the product" as the "cost of production" of the commodity, which is the term Marx was using at this time for what he later called the "cost price," i.e., the sum of constant capital and variable capital.

In part 2 of Volume 3, Marx stated explicitly several times (including algebraically and with numerical examples) that the *cost price that is taken as given in the determination of the price of production of commodities is the same as the sum of constant capital and variable capital that is taken as given in the determination of the value of commodities*. The first such discussion is on pp. 263–65 of the Penguin edition. The first paragraph of this discussion (263) states:

> If we take it that the composition of the average social capital is $80c + 20v$, and the annual rate of surplus-value $s' = 100$ percent, the average annual profit for a capital of 100 is 20 and the average annual rate of profit is 20 percent. For any cost price k of the commodities annually produced by a capital of 100, their price of production will be $k + 20$. In those spheres of production where the composition of capital is $(80 - x)c + (20 + x)v$, the surplus-value actually created within this sphere, or the annual profit produced, is $20 + x$, i.e. more than 20, and the commodity *value* produced is $k + 20 + x$, more than $k + 20$, or more than the price of production. In those spheres of production where the composition of capital is $(80 + x)c + (20 - x)v$, the surplus-value or profit annually created is $20 - x$, i.e., less than 20, and the commodity *value* therefore is $k + 20 - x$, i.e., less than the price of

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

> production, which is $k+20$. Leaving aside any variation in turnover times, *the production prices of commodities would be equal to their values only in cases where the composition of capital was by chance precisely* $80c+20v$. (emphasis added)

Here Marx is clearly saying that the *cost price* (k) *is the same* for both the value and the price of production of commodities. The only difference between the value and the price of production of commodities is the difference between the surplus-value and the profit that is added to the cost price for any given commodity. In the case of a commodity produced by a capital of average composition, the surplus-value added to the cost price is equal to the profit added to this same cost price, and hence the price of production of such an "average" commodity will be equal to its value. Marx repeated the same points in the next paragraph (263–64) and gave a simple numerical example.

The next paragraph (264–65) is a well-known paragraph in which many critics claim that Marx "admitted his error" of failing to transform the inputs of constant capital and variable capital from values into prices of production. Let us look again at this famous paragraph, within the context to the paragraphs just discussed:

> The development given above also involves a *modification in the determination of a commodity's cost price.* It was originally assumed that the cost price of a commodity equaled the value of the commodities consumed in production. But for the buyer of a commodity, it is the price of production that constitutes its cost price and can thus enter into forming the price of another commodity. As the price of production of a commodity can diverge from its value, so the cost price of a commodity, in which the price of production of other commodities is involved, can also stand above or below the portion of its total value that is formed by the value of the means of production going into it. It is necessary therefore to bear in mind this modified significance of the cost price, and therefore to bear in mind too that if the cost price of a commodity is equated with the value of the means of production used up in producing it, it is always possible to go wrong. Our present investigation does not require us

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

> to go into further detail on this point. It still remains correct that the cost price of commodities is always smaller than their value. For even if a commodity's cost price may diverge from the value of the means of production consumed in it, this error in the past is a matter of indifference to the capitalist. *The cost price is a given precondition, independent of his, the capitalist's, produc-tion, while the result of his production is a commodity that contains surplus-value, and therefore an excess value over and above its cost price.* (Marx, 1981: 265, emphasis added)

It seems to me that this passage says: (1) In Volumes 1 and 2, it was originally assumed that the prices of the means or production and the means of subsistence are equal to their respective values. (2) However, once the prices of individual commodities have been determined, we see that the prices of production of the means of production are in general not equal to their values. (3) Therefore, if the price of the means of production is equated with their value, this would be a mistake. (4) Most importantly for our purposes, *even if the cost price of the means of production is not equal to the value of the means of production, it is this cost price that is taken as given (a "given precondition") in the determination of value and surplus-value* (i.e., in Volume 1). Surplus-value is the difference between the value of commodities and this cost price, or value is the sum of this cost price and the surplus-value produced. Therefore, I argue that this passage, instead of being an "admission of error," actually supports my interpretation that constant capital and variable capital are taken as given as sums of money capital that initiate the circulation of capital.

Marx noted just prior to these paragraphs on pp. 263–65 and again just after these paragraphs that one component of the cost price is the *price of production* of the means of production, which in general is not equal to the value of the means of production. But in these paragraphs Marx emphasized nonetheless that the *same cost price* is an element of both the value and the price of production of commodities. In other words, Marx was saying that the fact that the prices of production of the means of production are not equal to their values does not affect the cost price of these commodities, because this cost price is taken as given, both in the determination of the value and in the determination of the price of production.

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

In chapter 12 of Volume 3, Marx returned briefly to the point that the price of production of an "average" commodity is equal to its value:

> It is quite possible, accordingly, for the cost price to diverge from the value sum of the elements of which this component of the price of production is composed, even in the case of commodities that are produced by capitals of average composition....
>
> Yet this possibility in no way affects the correctness of the principles put forward for commodities of average composition. The quantity of profit that falls to the share of these commodities is equal to the quantity of surplus-value contained in them. For the above capital, with its composition of $80c+20v$, for example, the important thing as far as the determination of surplus-value is concerned is not whether these figures are the expression of actual values, but rather what their mutual relationship is; i.e., that v is one-fifth of the total capital and c is four-fifths. As soon as this is the case, as assumed above, the surplus-value v produced is equal to the average profit. On the other hand, because it [the surplus-value; FM] is equal to the average profit, the *prices of production = cost price + profit =* $k+p$ *=* $k+s$ *which is equal in practice to the commodity's value.* (Marx 1981: 309, emphasis added)

It seems to me that this passage says: (1) Cost price diverges from value even in the case of commodities produced with capitals of average composition. (2) However, the profit included in the price of these commodities is equal to the surplus-value contained in these commodities. (3) Most importantly for our purposes, the cost price of these commodities (which is *not* equal to the values of the means of production and means of subsistence) is one component *both* of the price of production of these commodities and of the value of these commodities. Again, this key point is indicated algebraically by the fact that, in Marx's equations, *the same* k (the cost price of commodities) is added *both* to the surplus-value to obtain the value of these commodities and is added to the profit to obtain the price of production of these commodities. (4) Since the cost price is the same in the determination of both the value and the price of production of these commodities, and since profit is equal to surplus-value for these

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

commodities, the price of production of these commodities is equal to their value.

Therefore, I conclude from the above textual evidence that Marx did *not* "fail to transform the inputs of constant capital and variable capital from values into prices of production," as his critics claim. Instead, Marx's theory takes as given *the same quantities* of constant capital and variable capital as sums of money capital, in both the theory of value and the theory of price of production. Constant capital and variable capital do not have to be transformed from value magnitudes to price magnitudes, because constant capital and variable capital are *not determined first as the value of the means of production and wage-goods* and then later determined as the price of these given bundles of goods. Instead, the same quantities constant capital and variable capital are taken as given sums of money, in both the Volume 1 macro analysis of surplus-value and the Volume 3 micro analysis of prices of production, regardless of whether or not the prices of the means of production and wage-goods are proportional to their values.[11]

In addition to the quantities of constant capital and variable capital in each industry, the general rate of profit is also taken as given, as already determined by the prior analysis of capital in general. The general rate of profit is equal to the ratio of the total surplus-value for the economy as a whole (determined in the Volume 1 macro theory) to the total capital invested (constant capital plus variable capital, which as we have seen is also taken as given).

---

[11] Further textual evidence for this interpretation has been discovered recently by Alejandro Ramos (see Ramos 1998). Marx's original manuscript of Volume 3 (written in 1864–65) has recently been published in German for the first time (Marx Engels 1992) (this particular volume has not yet been translated into English or any other language, and unfortunately will not be included in International Publishers's *Marx-Engels Collected Works*). Ramos examined Marx's original manuscript, and discovered that, for some inexplicable reason, Engel's version of Volume 3 *left out a crucial paragraph* which comes immediately prior to the paragraphs quoted above on pp. 263–65 of the Penguin edition. In this omitted paragraph, it is clearly stated again both in words and algebraically that the *cost price of commodities is the same* for both the value and the price of production of commodities:

value = cost price + surplus-value $V = K + s$

price of production = cost price + average profit $P = K + p'$

We can see that *the same* K is added to the surplus-value on the one hand and to the average profit on the other hand to obtain respectively the value $(V = K + s)$ and the price of production $(P = K + p')$ of commodities. The only difference between the value and the price of production of a given commodity is the difference between the surplus-value contained in it and the average profit allotted to it.

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

> 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). (Marx 1968: 427)

> The average rate of profit is nothing other than the total surplus-value related to and calculated on this total capital. (Marx and Engels 1991: 104)

The predetermined general rate of profit is then multiplied by the capital invested in each industry to determine the profit component that is added to the cost price to determine the price of production of each commodity.

> The prerequisite [of prices of production] is the existence of a general rate of profit....(Marx 1981: 257)

Therefore, Marx's theory of prices of production of commodities can be summarized algebraically by the following simple equation (see Marx 1981: 265):

$$p_i = k_i + rk_i \tag{5}$$

where p_i stands for the price of production of each commodity, k_i for the cost price of commodities in each industry (equal to the sum of constant capital and variable capital), and r for the general rate of profit (ignoring here the distinction between the stock and flow of capital). In this equation, k_i is taken as given sums of money capital, as the initial givens of Marx's theory, and r is taken as given as determined by the prior macro theory in Volume 1.

It can easily be shown that, if this interpretation is accepted, then Marx's two aggregate equalities (total gross price = total gross value and total profit = total surplus-value) are both true simultaneously, as Marx himself concluded (see Moseley 1993 for a simple demonstration of these two aggregate equalities). We can also see that in this interpretation the rate of profit does not change in the determination of prices of production. Instead there is only one rate of profit—the price rate of profit—that is determined by the prior analysis of capital in general in Volume 1 of *Capital*, and then taken as a predetermined magnitude in the determination of prices of production in Volume 3.

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

Finally, if this "macro-monetary" interpretation is accepted, then Marx's value theory in Volume 1 is not "redundant," but is instead a necessary stage of the theory, in which the aggregate magnitudes and the general rate of profit are determined. The general rate of profit is then taken as given in the determination of prices of production in Volume 3; it is not determined simultaneously with prices of production. This different method of determination leads to different quantitative results. Marx's rate of profit and prices of production cannot be derived directly from the physical quantities of the technical conditions of production and the real wage. Further indications that Marx's rate of profit is different from rate of profit in the Sraffian rate of profit include: (1) the composition of capital in "luxury goods" industries affects Marx's rate of profit, but does not affect the Sraffian rate of profit; (2) the treatment of fixed capital in Marx's theory is entirely different from the treatment of fixed capital in the Sraffian interpretation (as "joint products"), which results in different depreciation patterns and hence different prices and a different rate of profit; and (3) Marx's prices of production are absolute prices (expressed in terms of money) and prices of production in the Sraffian interpretation are relative prices (expressed in terms of an arbitrary numeraire). Absolute prices can be determined in Marx's theory because the rate of profit is taken as a predetermined given, rather than assumed to be an unknown which is determined simultaneously with prices of production.

2. Foley's "New Solution" Interpretation of Marx's Theory

Foley's interpretation of the new solution is similar to my interpretation in several important respects. In the first place, Foley emphasizes money and the monetary nature of Marx's theory. Foley makes clear that the general analytical framework of Marx's theory is the monetary circuit of capital, represented by the familiar formula $M - C \ldots P \ldots C' - M'$. This circulation of capital corresponds to the flows of money capital which are recorded in the bookkeeping accounts of capitalist enterprises.

> A capitalist firm begins with value in money form and uses it to buy commodities, which are combined in production to yield a new commodity, one that is sold for more money than the capitalist advanced to begin with. Marx represents this motion in the diagram

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

> $M-C\ldots P\ldots C'-M'$....This diagram of capitalist circulation corresponds directly to the income, or profit and loss statement, of a capitalist firm. (1986: 33)

Consistent with this emphasis, Foley defines the key variables in Marx's theory of surplus-value—constant capital, variable capital, value added, and surplus-value—in terms of money, as the flows of money capital within the general framework of the circulation of capital (1982: 38; 1986, ch. 3). Foley also defines the key variables in Marx's theory of prices of production—profit and prices of production—in terms of money (1982: 40; 1986, ch. 6).[12]

Another important similarity between Foley's interpretation and my interpretation is its general emphasis on the methodological principle of the prior determination of aggregate magnitudes. Foley expresses this point as follows:

> In this paper I suggest...viewing the labor theory of value as the claim that the money value of the whole mass of the net production of commodities expresses the expenditure of the total social labor in a commodity-producing economy....This path begins with the global value produced by the expenditure of labor, the value embodied in the whole mass of the net commodity product, and then asks how this value comes to be realized in the prices of particular commodities. The concept of value as a property of the whole mass of the net commodity product in this approach is *analytically prior* to the concept of price, the amount of money a particular commodity brings on the market. (1982: 37, emphasis added)

In Foley 1986, the first chapter on Marx's method emphasizes that the fundamental determinations of capitalism are the aggregate magnitudes of the system as a whole, and that these magnitudes are "conserved" in the

[12] This is a significant and fundamental difference between Duménil's interpretation and Foley's interpretation. Duménil argues that all the key concepts of Marx's theory, including not only the Volume 1 concepts of constant capital, variable capital, and surplus-value, but also the Volume 3 concepts of cost price, profit, prices of production, etc., are defined in units of *labor-time*. It seems to me that Duménil loses sight altogether of the circulation of *capital* ($M-C-M'$), the general analytical framework of Marx's theory.

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

more concrete stages of the analysis. And in chapter 3, Marx's theory of surplus-value in Volume 1 of *Capital* is presented as a theory of the total amount of surplus-value produced in the capitalist economy as a whole.

Another important similarity is that Foley's interpretation assumes that *variable capital is taken as given in terms of money*, as the money wage paid to workers, rather than derived from a given quantity of wage goods, as in the Sraffian interpretation. This given quantity of money variable capital remains invariant in the transition from the theory of surplus-value in Volume 1 to the theory of prices of production in Volume 3, as in my interpretation.

Foley's justification for this interpretation of variable capital is not presented in terms of Marx's general logical method, or the general nature of the givens in Marx's theory, but is instead based on the specific nature of the relation between capitalists and workers in capitalist society. It is argued first of all that taking variable capital as given in terms of the money wage is a more accurate representation of the actual exchange relation between capitalists and workers.

> Workers in capitalist society do not bargain for, or receive, a bundle of commodities as payment for the labor power, they receive a sum of money, the money wage, which they are then free to spend as they wish....(1982: 43)

Foley also argues that this interpretation provides a better understanding of the specific nature of exploitation in capitalism and of the nature of the class struggle between capitalists and workers. He argues that this interpretation enables one to perceive that capitalist exploitation is not identical with the existence of a surplus product, and that the goal of workers' struggles should not be the elimination of the surplus product per se, but should instead be the elimination of the social relations of capitalism in which the surplus product is appropriated by capitalists in the form of surplus-value.

However, and here is where our differences begin, Foley's interpretation treats constant capital differently from variable capital, and hence treats constant capital differently from my own interpretation. Constant capital is not taken as given in terms of money, as the quantity of money used to purchase means of production, as in my interpretation. Instead, constant capital is derived from given physical quantities of means of production (i.e., the technical conditions of production), as in the Sraffian

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

interpretation. As a result, constant capital changes in the transition from the theory of surplus-value in Volume 1 to the theory of prices of production in Volume 3. In Volume 1 constant capital is equal to the value of the given means of production, and in Volume 3 constant capital is equal to the price of production of the same given means of production, as in the Sraffian interpretation.

Therefore, I argue that there is a key methodological inconsistency in Foley's interpretation between the determination of constant capital and the determination of variable capital. Variable capital is taken as given in money terms, but constant capital is derived from given physical quantities. Foley does not provide a rationale for this inconsistent treatment of constant capital and variable capital. I argue that because constant capital and variable capital are specific forms of the general concept of capital, and are the two components of the initial money capital (M), they should both be determined in the same way. Either they should both be taken as given in terms of money or they should both be derived from given physical quantities. Similarly, constant capital and variable capital are the two components of the cost price of commodities in Marx's theory of prices of production, suggesting again that they should be determined in the same way. Marx often wrote or expressed the equation for the determination of prices of production as the sum of the cost price plus the average profit ($k + rk$), thereby leaving no possibility for different determinations of the two components of the cost price, constant capital and variable capital. Nowhere in Marx's writings is there a suggestion that constant capital and variable capital are determined in different ways. I have argued above that there are strong reasons for assuming that constant capital and variable capital should be taken as given, as the two components of the money capital (M) or the cost price (k) that initiates the circulation of capital.

In one passage, Foley seems to suggest that Marx took as given the entire money capital invested in capitalist enterprises—both the constant capital and the variable capital—rather than deriving these components of capital from given physical quantities.

> One striking difference between Marx's treatment of the problem and later treatments is that Marx describes the two economies solely in terms of the accounts of the capitalist firms; *he does not specify the actual production and distribution of use-values*. Later treatments, perhaps in the name of theoretical rigor, describe both economies

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

> in terms of the production and distribution of particular use-values, and *derive* the accounts of the capitalist firms from this assumed data on production and distribution. When one holds constant the production and distribution of use-values, it turns out that...aggregate value added and aggregate profit cannot both be the same in the two [economies].
>
> I want to suggest that Marx had good theoretical reasons for describing the two economies in terms of the accounts of the capitalist firms rather than in terms of the production and distribution of use-values. The social facts relevant to struggle and change in a capitalist society concern the production and distribution of value itself, and the actual production, distribution, and consumption of use-values that follow from these struggles take a secondary place. (1982: 44, first emphasis added)

It seems to me that Foley's argument could be applied to constant capital as well as to variable capital. However, Foley applies this argument only to variable capital, thus resulting in the inconsistent treatment of constant capital and variable capital.

Foley's inconsistent treatment of constant capital and variable capital leads him to the following erroneous conclusions regarding Marx's theory of prices of production, which will be discussed further below: (1) Marx made a partial error in his determination of prices of production in Volume 3. Contrary to the standard interpretation, Marx did not fail to transform variable capital, because the same variable capital is taken as given in money terms in both Volume 1 and Volume 3. However, as in the standard interpretation, Marx did fail to transform constant capital, because constant capital is derived from given means of production, first as the value and then as the price of production of these given means of production. (2) The total price of commodities also changes from Volume 1 to Volume 3, so that the total price is no longer equal to the total value of commodities. (3) The rate of profit also changes from Volume 1 to Volume 3, i.e., the "price" rate of profit is not equal to the "value" rate of profit.

Another important difference between Foley's interpretation and my interpretation is the nature of the determination of the rate of profit, just mentioned. Foley agrees with the Sraffian interpretation that there are two rates of profit in Marx's theory—the "value" rate of profit determined in

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

Volume 1 and the "price" rate of profit determined in Volume 3—and that these two rates of profit are in general not equal, so that the rate of profit changes as a result of the transformation of values into prices of production. Foley also agrees with the Sraffian interpretation that the "price" rate of profit is determined *simultaneously* with prices of production, and is derived from the given physical quantities of the technical conditions of production and the real wage. In contrast, I have argued above that there is only one rate of profit in Marx's theory—the "price" rate of profit—and that this rate of profit is determined *prior* to the determination of prices of production by the analysis of capital in general. Foley provides no justification for his interpretation, presumably because this interpretation has been the generally accepted interpretation. However, in my view, Foley has accepted the erroneous Sraffian interpretation on this crucial point.

It also seems to me that the simultaneous determination of the rate of profit is inconsistent with the general methodological principle emphasized by Foley of the prior determination of aggregate magnitudes. According to Foley, the prior determination of aggregate magnitudes applies only to the following magnitudes: value added, variable capital, and surplus-value. It does not apply to the following other variables: total price, constant capital, and the rate of profit. Instead, these latter variables are determined simultaneously with individual prices of production. It seems to me that this is another important methodological inconsistency in Foley's interpretation.

Another difference between Foley's interpretation and my interpretation is that Foley redefines the aggregate price-value equality which Marx emphasized from the *gross* price of commodities to the *net* price of commodities, or the value added component of the gross price of commodities. Foley *assumes* that the aggregate net price-value equality is satisfied, i.e., it is assumed that the aggregate value added (after the determination of prices of production) is proportional to the total current labor. In his system of equations that determine prices of production, this aggregate net price-value equality is the $(n+1)$st equation; it is assumed as a "conservation principle" or an "invariance postulate." This invariance postulate is essentially an expression of the methodological principle of the prior determination of aggregate magnitudes. It is assumed that the aggregate value added is determined in Volume 1, and is taken as given in the determination of prices of production in Volume 3. The determination of prices of production affects only the distribution of this given, predetermined amount of the aggregate value added.

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

From this assumption, and the assumption discussed above that variable capital is taken as given as the money wage and remains invariant in the transformation, the other aggregate equality—that the aggregate profit is equal to the aggregate surplus-value—follows as a matter of simple algebra. However, according to Foley's interpretation, the aggregate *gross* price-value equality will in general *not* be satisfied, because the constant capital component of the gross price of commodities will in general not be equal to the labor time embodied in the means of production.

Foley's justification for this redefinition of the aggregate price equality seems to be that what is most important in Marx's theory is the relation between value added and current labor, because surplus-value is one part of the value added. This is the key relation that is assumed to be invariant in the transformation. The relation between the gross price and the total labor is much less important.

I agree in part with Foley's argument on this point. I agree that the most important point of Marx's labor theory of value is that money value added is determined by current labor (see equation (2) above). I also agree that the aggregate value added remains invariant in the transformation, and that the aggregate net price-value equality will be satisfied simultaneously with the aggregate profit-surplus value equality. However, I also argue (as above) that constant capital is determined in the same way as variable capital, and therefore is determined in a different way from Foley's interpretation. Constant capital is not derived from given means of production, but is instead taken as given in terms of money and remains invariant in the transformation, just like variable capital. On the basis of this interpretation of constant capital, the aggregate gross price-value equality is also satisfied simultaneously with the aggregate profit-surplus value equality, as Marx concluded.[13] This argument has also been

[13] Duménil provides an additional argument to support the redefinition of the aggregate price-value equality from gross to net terms: that the gross price-value equality involves "double-counting." The argument seems to be that, as an expression or measure of *current* labor, the gross price of commodities involves "double counting." This statement is true, but it is irrelevant to Marx's theory. According to Marx's theory, the gross price of commodities represents, not just the current labor, but also the *past* labor required to produce the means of production. The constant capital component of the gross price of commodities does not represent current labor, but rather past labor. Therefore, including constant capital in the aggregate price-value equality does not involve double counting of the current labor. Marx clearly stated many times the aggregate price-value equality in terms of *gross* price and gross value. I have shown above that, if constant capital is taken as given as the money expended to purchase means of production, then Marx's conclusion,

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

emphasized by other proponents of the new solution, such as Glick and Ehrbar, Devine, and Campbell.

In sum, the most important difference between Foley's interpretation and my interpretation is the nature of the determination of constant capital. According to my interpretation, constant capital is determined in the same way as variable capital—both are taken as the given quantities of money capital that initiate the circulation of capital. According to Foley's interpretation, constant capital is determined differently from variable capital. Variable capital is taken as given as a quantity of money capital, as in my interpretation, but constant capital is derived from given physical means of production, as in the Sraffian interpretation. Thus, I argue that Foley only goes "half way" in breaking away from the Sraffian "physical quantities" interpretation of Marx's theory. If Foley were to accept my "monetary" interpretation of constant capital, then all our other differences would disappear. We could then agree that: (1) Marx's theory of prices of production in Volume 3 is logically complete and consistent (i.e., Marx did not commit a "logical error," even a partial one, in the determination of prices of production); (2) the rate of profit would not change as a result of the determination of prices of production; and (3) the aggregate *gross* price-value equality is also satisfied simultaneously along with the aggregate net price-value equality and the aggregate profit-surplus value equality, as Marx concluded. These conclusions are more consistent than Foley's own conclusions with the important methodological presuppositions discussed in the beginning of this section with which Foley agrees: the monetary nature of Marx's theory and the prior determination of aggregate magnitudes.

3. Conclusion

I have argued that the "new solution" interpretation of Marx's theory is an important advance in Marxian scholarship, especially in Foley's version. However, even Foley has been only partially successful in breaking away from the dominant Sraffian interpretation of Marx's theory. Foley rightly emphasizes the monetary nature of Marx's theory, and this leads him to assume that variable capital is taken as given as the money wage and not derived from the given means of subsistence.

---

that the *gross* price-value equality is satisfied simultaneously with the profit-surplus value equality, is correct.

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

However, Foley continues to assume that constant capital is derived from given means of production, as in the Sraffian interpretation, and therefore ends up with inconsistent methods of determination of constant capital and variable capital. Also, Foley rightly emphasizes the macroeconomic nature of Marx's theory of surplus-value in Volume 1, and this leads him to assume that the aggregate value added is determined prior to its division into individual parts. However, Foley continues to assume that the rate of profit is determined simultaneously with individual prices, as in the Sraffian interpretation, and therefore does not consistently adhere to the principle of the prior determination of aggregate magnitudes.

I have presented above and in other recent work arguments to support my interpretation that both constant capital and variable capital are determined in the same way, and that both are taken as given as the two components of the money capital (M) that purchase means of production and labor-power in the first phase of the circulation of capital. These arguments are: (1) the general formula for capital, which begins with M and which therefore suggests that the starting point of Marx's theory of capital is this initial money capital; (2) the logical structure of parts 1, 2, and 3 of Volume 1 of *Capital*, according to which the analysis of money and circulation in parts 1 and 2 provide the logical presuppositions for Marx's theory of surplus-value in part 3 and beyond; (3) the methodological principle of historical specificity, according to which the key concepts of a theory of capitalism should refer to its historically specific features (e.g. money, capital) and not to the general features that capitalism shares with all modes of production (e.g., means of production); (4) the many passages throughout the various drafts of *Capital* that refer to the initial money capital (M) in the circulation of capital as "given," "presupposed," etc. If these arguments are correct, then the "new solution" remains inconsistent, and has not gone far enough in breaking away from the dominant Sraffian interpretation of Marx's theory.

References

Campbell, Al. 1997. The Transformation Problem: A Simple Presentation of the "New Solution." *Review of Radical Political Economics* 29 (3): 59–69.

Carchedi, Guglielmo. 1984. The Logic of Prices as Values. *Economy and Society* 13 (4): 431–55.

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

Cullenberg, Stephen. 1994. *The Falling Rate of Profit: Recasting the Marxian Debate*. London: Pluto Press.

Devine, James N. (1990). The Utility of Value: The "New Solution," Unequal Exchange, and Crisis. *Research in Political Economy* 12: 21–39.

Duménil, Gerard. 1980. *De la valeur aux prix de production*. Paris: Economica.

_______. 1983–84. Beyond the Transformation Riddle: A Labor Theory of Value. *Science and Society* 47 (Winter): 427–50.

_______. 1986. From Value to Prices of Production: A Reinterpretation of the Transformation Problem. Unpublished English translation of Duménil (1980) by Mark Glick.

Foley, Duncan. 1982. The Value of Money, the Value of Labor-Power, and the Marxian Transformation Problem. *Review of Radical Political Economics* 14 (Summer): 37–49.

_______. 1986. *Understanding Capital: Marx's Economic Theory*. Cambridge, Mass.: Harvard University Press.

Freeman, Alan. 1995. Marx without Equilibrium. *Capital and Class* (56), Summer: 49–89.

Giussani, Paolo. 1991. The Determination of Prices of Production. *International Journal of Political Economy* 21, Winter, 67–87.

Glick, Mark and Hans Ehrbar. 1987. The Transformation Problem: An Obituary. *Australian Economic Papers* 26: 294–317.

Kliman, Andrew and Ted McGlone. 1988. The Transformation nonProblem and the nonTransformation Problem. *Capital and Class* 35, Summer, 56–83.

Korsch, Karl. 1938. *Karl Marx*. London: Chapman Hall. Reprinted (1963), New York, N.Y.: Russell.

Lipietz, Alain. 1982. The "So-Called Transformation Problem" Revisited. *Journal of Economic Theory* 26 (February): 59–88.

Mage, Shane. 1963. The Law of the Falling Rate of Profit. Ph.D. dissertation, Columbia University, New York.

Marx, Karl. 1963. *Theories of Surplus Value*, Volume 1. Moscow: Progress Publishers.

_______. 1987. *Marx-Engels Corrected Works*, Volume 29. New York, N.Y.: International Publishers.

_______. 1968. *Theories of Surplus Value*, Volüme 2. Moscow: Progress Publishers.

_______. 1971. *Theories of Surplus Value*, Volume 3. Moscow: Progress Publishers.

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

_______. 1973. *Grundrisse*. Middlesex, England: Penguin Books.
_______. 1977. *Capital, Volume 1*. New York, N.Y.: Random House.
_______. 1981. *Capital, Volume 3*. New York, N.Y.: Random House.
Marx, Karl and Frederick Engels. 1975. *Selected Correspondence*. Moscow: Progress Publishers.
_______. 1988. *Marx-Engels Collected Works*, Volume 30. New York, N.Y.: International Publishers.
_______. 1991. *Marx-Engels Collected Works*, Volume 33. New York, N.Y.: International Publishers.
_______. 1992. *Marx-Engels Gesamtausgabe (MEGA)*, Band 4, *Karl Marx Okonmische Manuskript 1863–67*, Teil 2. Berlin: Deitz Verlag.
Mattick, Paul Sr. 1959. Value Theory and Capital Accumulation. *Science and Society* 23 (Winter): 27–51.
_______. 1969. *Marx and Keynes: The Limits of the Mixed Economy*. Boston, Mass.: Porter Sargent.
Mattick, Jr., Paul. 1981. Some Aspects of the Value-Price Problem. *Economies et Societes* (Cahiers de l'ISMEA Series) 15 (6–7): 725–81.
Mohun, Simon. 1993. A Re(in)statement of the Labor Theory of Value. *Cambridge Journal of Economics* 18: 391–412.
Moseley, Fred. 1993. Marx's Logical Method and the Transformation Problem. In *Marx's Method in 'Capital': A Reexamination*. Moseley (ed.). Atlantic Highlands, N.J.: Humanities Press.
_______. 1997. The Development of Marx's Theory of the Distribution of Surplus-value. In *New Perspectives on Marx's Method in Capital*. F. Moseley and M. Campbell (eds.). New Jersey: Humanities Press.
_______. (forthcoming). Hostile Brothers: Marx's Theory of the Distribution of Surplus-Value in Volume 3 of *Capital*. In *Essays on Volume 3 of Capital*. Geert Reuten (ed.). Amsterdam: University of Amsterdam Press.
Ramos-Martinez, Alejandro. 1998. Value and Price of Production: New Evidence on Marx's Transformation Procedure. *International Journal of Political Economy* 28(4) fall.
Ramos-Martinez, Alejandro and Adolfo Rodriquez-Herrera. 1996. The Transformation of Values into Prices of Production: A Different Reading of Marx's Text. In *Marx and Non-Equilibrium Economics*. A. Freeman and G. Carchedi (eds.). U.K.: Edward Elgar Publishing.
Rosdolsky, Roman (1977). *The Making of Marx's Capital*. London: Pluto Press.

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015

Wolff, Richard, Antonio Callari, and Bruce Roberts. 1984. A Marxian Alternative to the "Transformation Problem." *Review of Radical Political Economics* 16 (2–3): 115–35.

Downloaded from rrp.sagepub.com at IRES-Institut de Recherches on December 18, 2015