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Book Review

Money and Totality: A Macro-Monetary Interpretation of Marx's Logic in *Capital* and the End of the "Transformation Problem."

By Fred Moseley. Leiden, The Netherlands: Brill, 2016. xviii + 406 pages + index. Hardcover $180.00. ISBN-13: 9789004216556

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Money and Totality provides the fullest elaboration to date of Fred Moseley's "macro-monetary" interpretation of Marx's theory of capitalist profit and exploitation. Twenty years in the making, this work reflects Moseley's close study of Marx's economic writings and the development of his interpretation of Marx's evolving account in a series of articles and conference presentations. Citations in this review are to *Money and Totality* unless otherwise indicated.

Moseley's primary critical target is what he terms the "standard interpretation" of Marx's theory (xi, 6–7), involving a literature begun by Bortkiewicz (1952, 1975) and Sweezy (1970) and continuing through the "Sraffian" analysis of Morishima (1973), Steedman (1977), and others. This body of argument asserts a fundamental inconsistency between Marx's "value-based" account in the first two volumes of *Capital* and his "price-based" account in the third volume, manifested most clearly in the latter work's treatment of the "transformation" of commodity values into prices of production. According to this critique, Marx fundamentally erred in failing to "transform" input cost as well as output revenue terms from value to price magnitudes.

In response, Moseley's macro-monetary interpretation of Marx's account posits a unified framework or "single system" of analysis premised on the long-run equilibrium of a capitalist economy, in which both values and prices are understood to be *sequentially* rather than *simultaneously* determined as in the Sraffian framework. Furthermore, this interpretation depicts Marx's analysis as proceeding on two levels of abstraction, concerned, respectively, with the *production* of surplus value in *Capital* Volume 1 and the *distribution* of this predetermined quantum of surplus value in *Capital* Volume 3. On the basis of this framework, Moseley seeks to demonstrate that the charge of logical inconsistency in Marx's account is invalid.

This argument is developed in two parts. In part 1, encompassing the first five chapters of the book, Moseley introduces the elements of his macro-monetary interpretation, presents a formal algebraic model in support of this interpretation, and identifies textual evidence for his approach in Marx's unpublished and published drafts of *Capital* and related texts. One nice feature of this textual study is that Moseley takes up Marx's texts in the order they were written (thus treating the material in *Capital* Volume 3 prior to that in *Capital* Volume 1), making it easier for the reader to trace the development of Marx's ideas across successive drafts. In the seven chapters comprising part 2, Moseley critically examines the standard interpretation of Marx's theory of value, surplus value, and exploitation as well as critical responses in the literature to this approach and to the alternative he proposes, and addresses criticisms of his system in the last chapter of this section.

Readers who engage this work will encounter an extensively developed argument reflecting a thorough study of Marx's theory of capitalist value and exploitation. Moseley is among the relatively few Marxist economists whose analysis reflects careful scrutiny of the large volume of Marx's previously unpublished economic writings, which have only been available in English since the last quarter of the previous century. I mean to take nothing away from this impressive display of scholarship in saying that, based on my own reading of this work and the present text, I'm not convinced that Moseley has effectively refuted the standard interpretation's charge of logical inconsistency in Marx's account. I offer three comments relating to this assessment.

First, I suspect that Moseley's macro-monetary approach constitutes a *revision* of Marx's theory of value and surplus value rather than simply an *interpretation* of it. Given that the two accounts overlap substantially, it is arguably not surprising that Moseley finds textual support for most aspects of his perspective in Marx's writing. But there are also significant points of divergence in the two accounts.

Perhaps the most fundamental of these relates to Marx's understanding of the determination of commodity *values* and their connection to commodity *prices*. While Moseley's macro-monetary account of Marx's theory of surplus value and exploitation effectively begins with the latter's introduction of the circuit of capital $M-C-M'$ in the fourth chapter of *Capital* Volume 1 (Marx 1976), Marx's own analysis begins in the first chapter of that volume with fundamentally "microeconomic" questions concerning the basis and magnitude of individual commodity values. As is well known (and acknowledged by Moseley), Marx posits that the magnitude of a given commodity's value is "exclusively" determined by the labor time socially necessary to produce it (Marx 1976: 129). Marx subsequently stipulates that the labor time socially necessary to produce a given commodity encompasses both *direct* labor expenditures and the *indirect* labor required to produce the means of production used up in producing the good (Marx 1976: 294). Marx's account of the determination of values has two immediate corollaries: first, to derive the values of given commodities, one must specify their conditions of production; and second, *only* these conditions determine commodity values (Marx 1976: 130).

Moreover, Marx consistently affirms the exclusive determination of commodity values by their conditions of production from the first chapter of *Capital* Volume 1 through the last substantive chapter of *Capital* Volume 3 (see, for example, Marx 1976: 144–45, 168, 186, 190, 260, 274, 293, 300, 318, 325, 675; Marx 1978: 123, 462; Marx 1981: 133, 180, 238, 272, 283, 780, 783, 998, 1021). In particular, Marx does not alter this stipulation when referring to commodity values arising specifically under the conditions of *capitalist* production (Marx 1978: 462; Marx 1981: 998).

This assessment is not challenged by the fact that, beginning in chapter 7 of *Capital* Volume 1, Marx typically refers to value magnitudes in pecuniary terms, as this simply reflects his assumption (motivated at the end of chapter 5) that commodity prices are *proportional* to their respective values and thus represent them exactly up to a given factor of proportion (Marx 1981: 275). Marx refers to commodity prices defined in this way as *value prices* (Marx 1981: 275).

Marx explicitly maintains the assumption of price-value proportionality after the fifth chapter of *Capital* Volume 1, throughout *Capital* Volume 2 (as noted in Marx 1981: 263), in his discussion of *cost prices* prior to analyzing the transformation of values into prices (Marx 1981: 203, 252), and in the fragment from the penultimate draft of *Capital* known to Marxian scholarship as "The Results of the Immediate Process of Production" (Marx 1976: 966). Thus, wherever Marx refers to commodity values in pecuniary terms in these texts, he invariably does so in a context where commodity prices are understood as exact proportional representations of commodity labor values.

Moseley starkly diverges from this characterization in his treatment of *value prices* on the grounds that "Marx distinguished between the value-price of commodities as *products of capital* and the value-price of *simple commodities*" (30; emphasis in the original). In Moseley's reading, the significance of this distinction is that "[t]he 'transferred value' component of the value price of simple commodities is proportional to the labor time required to produce the means of production, but the 'transferred value' component of the value-price of commodities produced by capital is the *actual constant capital* [emphasis in the original] advanced to purchase the means of production.

. . , *which tends to be equal to the price of production of the means of production*" (30; emphasis added).

Moseley provides no specific reference to Marx's texts for this formulation, and it is evidently inconsistent with Marx's characterization of value-prices as being proportional to their respective values denominated in labor time. Moreover, the necessary implication of Moseley's interpretation is that under capitalism, commodity values are *not* solely determined by socially necessary labor time, which directly clashes with Marx's consistent representation throughout the three volumes of *Capital* and in related work.

An immediate corollary of the foregoing is that Moseley diverges sharply from Marx in positing that commodity values under capitalism are determined by the sum of constant capital, which is determined by prices of production, and the "monetary expression" of current socially necessary labor time, which does not depend on prices of production (see equation (5), 32, and related discussion). Moseley refers to the latter component as "the *key assumption in Marx's labor theory of value*" (31, emphasis in original) but gives no reference to Marx's texts to support this claim, and as far as I know, Marx never made this "key assumption" in explicating his theory of value. It should instead be understood as a theoretical *result* contingent on specific and highly restrictive conditions. I'll discuss this point further below.

My second major comment concerns Moseley's depiction of Marx's "two levels of abstraction" in assessing the connections between commodity prices and values on one hand and surplus value and surplus labor on the other. The primary issue here is that these two levels of abstraction are mutually inconsistent in general. Furthermore, Moseley's representation is generally inconsistent with his claim that Marx's two theoretical scenarios depict the "same" system, specifically a capitalist economy understood to be in long-run equilibrium.

The starting point for my comments here is Marx's characterization of *surplus value*. Marx begins by introducing the circuit of capital $M - C - M'$ as a particular manifestation of *circulation*, that is, the buying and selling of commodities. Marx defines surplus value as the positive increment ΔM by which M' exceeds the initial capital outlay M, subject to the condition that this increment reflects the *valorization* of the value embodied in M (Marx 1976: 251–2). In the following chapter, Marx posits that a given increment ΔM must meet *two* distinct requirements to satisfy this valorization condition. The first, acknowledged by Moseley (108), is that the increment must reflect the creation of *new value* subsequent to the initial advance of M, rather than a mere redistribution of existing value (Marx 1976: 265–6).

The second valorization condition stipulated by Marx, which Moseley does not mention, is that this new value must be *realized* in pecuniary form in the circulation process—that is, it must be *sold* (Marx 1976: 268). But since the newly produced commodities must be sold at specific prices, an immediate corollary of this condition is that the *production* of surplus value and its *distribution among sellers* are necessarily determined *simultaneously*, whether or not this distribution is analyzed explicitly. This poses a fundamental challenge to the notion that the magnitude of surplus value can be derived independently of the conditions determining its ultimate distribution.

Attempts to untie this Gordian knot unavoidably encounter the dilemma similar to that identified in the standard interpretation of Marx's account: if values and surplus value are defined independently of prices of production, then except under unrealistically restrictive production conditions (in particular, identical sectoral "organic compositions of capital"), these magnitudes do not satisfy the long-run equilibrium condition of uniform sectoral rates of profit, and thus could not satisfy Marx's value realization condition for surplus value if, as Moseley insists, it arises in a single system. This problem is exacerbated if long-run capitalist equilibrium is *also* understood to dictate equalization of the *rate of surplus value* across sectors, as Marx insists (Marx 1981: 275; a complication that Moseley does not directly address).

Alternatively, if surplus value is defined in terms of *prices of production*, ensuring the equilibrium condition of uniform profit rates, then the magnitude of surplus value generally varies with the production conditions determining these prices, so that the production and distribution of surplus value are interdependent.

Moreover, Moseley effectively acknowledges the quantitative inconsistency of the two levels of abstraction in his discussion of Marx's "transformation" of value prices into prices of production in *Capital* Volume 3 when he notes that sectoral levels of *surplus value* (determined by the value-price regime) may diverge from their corresponding levels of *profit* (determined by the price-of-production regime) (152). But if the object of analysis is a "single (capitalist) system," as Moseley insists, then one of the two regimes simply cannot exist in the context of the theory.

Moseley's approach to resolving this inconsistency is not compelling. He responds to the charge of the standard interpretation that Marx neglected to transform input magnitudes ("cost prices," equal to the sum of constant and variable capital outlays) as well as the output magnitudes ("prices of production") by referring to passages in Marx suggesting that input magnitudes are *given* and thus *fixed*, so that there is "nothing to transform." However, this reading simply reframes the inconsistency in question because these "fixed" constant and variable capital magnitudes still violate the dictates of long-run capitalist equilibrium if they are not consonant with profit rate equalization.

Moseley's response to this difficulty is to argue that the interpretation of input costs in terms of value prices corresponds to a "partial" explanation of the capitalist equilibrium under study, while the interpretation of revenue products and resulting equalized sectoral profit rates corresponds to a "fuller" explanation of this equilibrium (164). It is difficult to know what sense to make of this characterization, as it seems to suggest that one can resolve a quantitative inconsistency in two components of a given analytical system simply by associating these components with different stages in the analyst's *explanation* of the system.

I don't think this premise is coherent. It is not the case that commodities initially exchange in some alternative "partially explained" economy in which profit rates are not equalized and are then resold in another "fully explained" economy in which they are. Thus, *either* commodities exchange at their values, in which case the system is not in long-run equilibrium except under highly restrictive and arbitrary conditions, or commodities exchange at their prices of production, in which case production and distribution of surplus value are determined simultaneously and the ratio of aggregate surplus value to aggregate surplus labor (assuming the latter is well defined) generally varies with production and labor market conditions.

My third major comment concerns Moseley's formal algebraic representation of his macro-monetary framework in chapter 2 of *Money and Totality*, and in particular his claims, on the basis of this analysis, that (1) aggregate surplus value is determined independently of equilibrium prices of production for current output, yet (2) aggregate surplus value equals aggregate equilibrium profits, and (3) aggregate value prices are equal to aggregate prices of production. These claims are not mutually consistent in general, so they can only be ensured by imposing, explicitly or otherwise, arbitrary or tautological assumptions that are inconsistent with the dictates of long-run capitalist equilibrium under plausibly general conditions of production. I believe that is what Moseley has done here. Moreover, his analysis of these claims is built on the unproven and dubious assumption that commodity values—that is, the labor times socially necessary to produce individual commodities—are well defined and uniquely determined in the context he considers.

Start with the latter point. Moseley's formal analysis of these claims hinges critically on a variable he terms the "monetary expression of value" (denoted **m**), defined as the inverse of the labor value of gold, the commodity serving as money (31). But he does not show how this value magnitude is derived or whether it is uniquely determined by given production conditions. This lacuna is particularly significant given that Moseley categorically rejects the relevance to Marx's value theory of the sort of linear production models studied in the standard interpretation.

The analysis of these models has yielded important insights as to the formal conditions needed to derive determinate magnitudes for commodity values, and just as importantly, to derive the quantitative link between embodied labor time and corresponding levels of gross direct labor flows (such as flows of "necessary" and "surplus" labor time) that Moseley seeks to establish. Perhaps the most crucial insight conveyed by this literature concerns the necessary *interdependence* of commodity valuation (in either pecuniary or labor terms) across sectors, given that production of any one good generally requires inputs of commodities produced in other sectors (as Marx himself acknowledged in his discussion of the transformation problem, for example, Marx 1981: 260).

In light of these interconnections, the determination of value or price magnitudes requires solving a system of simultaneous equations, *regardless* of whether the economic interactions represented by these equation systems occur simultaneously in real time. Thus, if processes of value determination do not occur simultaneously in the temporal sense, as Moseley insists, one must "close" the analytical system under study by specifying recursive linkages *across* time periods, supplemented by given initial conditions of the intertemporal system. Conversely, if these formal connections aren't completely specified, then the corresponding price or value magnitudes will be indeterminate, and it is consequently impossible to make definite analytical statements about the relevant value or price magnitudes. Additional degrees of indeterminacy are introduced in the system if one discards the standard interpretation's typical restriction to fixed coefficients and constant returns to scale.

Given these considerations, the existence and uniqueness of commodity values cannot be taken for granted, but Moseley fails to provide the needed demonstration. Moreover, he then imposes the arbitrary and restrictive assumption that the monetary expression of value is also equal to the constant **m** for *all* industries in the economy (32), which requires not only that labor values are also well and uniquely defined given production conditions in each industry but also that these production conditions are *identical* and in a fixed relation to production conditions for gold. This is tantamount to assuming equal "organic compositions of capital" across industries, which is neither empirically true in general nor implied by the conditions of long-run capitalist equilibrium.

Based on this specification of **m** and his variant definition of value prices, Moseley derives an expression for aggregate surplus value with two components, the "monetary expression" of direct labor expenditures in the current period and aggregate variable capital, which, as a component of cost price, is denominated in terms of the prices of production of wage goods (32, equation (7)). It must be emphasized that this specification of aggregate surplus value is purely abstract, with no apparent connection to the requirements of long-run capitalist equilibrium. In particular, there is no basis for the postulate that competition among capitalists would serve to equalize sectoral rates of return based on this measure of surplus value, rather than on equilibrium profits determined by prices of production.

As a consequence, there are no evident grounds for Moseley's subsequent assertion that aggregate variable capital is equal to **m** times "necessary labor," or the labor time socially necessary in the current period to reproduce workers' wage bundles (34, equation (8)). On one hand, the latter magnitude depends on the labor values of wage goods, which have not been shown to be well or uniquely defined in Moseley's system. On the other hand, as he insists, variable capital is based on prices of production for wage goods, and Moseley has at this point in his analysis established no relationship between the values of commodities in the wage bundle and their corresponding prices of production. In turn, there is thus no coherent basis for his inference that surplus value is equal to **m** times surplus labor (equation (9)).

Next, after defining prices of production in each sector as cost prices augmented by profits (defined in turn as the general profit rate times the capital stock employed in that sector [35, equation (10)]), Moseley asserts that the rate of profit is equal to the aggregate surplus value divided by the aggregate capital stock (36, equation (11)). But this only follows if aggregate surplus value, the abstract construction discussed above, is in fact equal to total capitalist profits, which depend on the equilibrium prices of production of all currently produced goods. Moseley does not establish this equality. Thus, his subsequent inference that aggregate profits are equal to aggregate surplus value (40) (and thus that aggregate prices of production are equal to aggregate value prices) obtains only insofar as he assumes this relationship in the first place.

Notwithstanding my strong reservations about the analytical coherence of Moseley's macro-monetary account, *Money and Totality* is a stimulating and important contribution to the literature. On one hand, Moseley's sustained effort to engage the complete written output of Marx's *Capital* project will deepen our understanding of Marx's mature critique of political economy, especially as this effort has also generated contributions such as his recent edition of Marx's 1864–1865 manuscript (Marx 2016). On the other hand, Moseley's formal framework invites new approaches to closing the analytical value and price system that might, with further development, provide an insightful alternative to the Sraffian approach. These considerations suggest grounds for future explorations along the lines that Moseley has pursued.

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Commodities as Products of Capital: A Reply to Skillman's Review of *Money and Totality*

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Abstract

This paper responds to the most important criticism in Skillman's review of my book *Money and Totality: A Macro-Monetary Interpretation of Marx's Logic in* Capital—that I misinterpret the fundamental concept of the "value" of commodities in Marx's theory in Volume 1 of *Capital*. My reply emphasizes the difference between "simple commodities" and "commodities as products of capital." I argue that Marx's theory of value is about the value of commodities produced by capital, which is the macroeconomic total price of all commodities, and which is equal to the sum of the actual constant capital advanced at the beginning of the circuit of money capital and the new-value produced by labor of the current period ($P = C + N = C + m\ L_c$).

JEL Classification: B51; B14

Keywords

Marx, commodities as products of capital, circuit of money capital, macroeconomic

1. Introduction

This paper is a response to Gil Skillman's review of my recent book *Money and Totality: A Macro-Monetary Interpretation of Marx's Logic in* Capital in a recent issue of the *Review of Radical Political Economics* (Skillman 2018). I appreciate very much Skillman's substantial review of my book (Moseley 2016) and I would like to respond to his most important criticism—that I misinterpret the fundamental concept of the "value" of commodities in Marx's theory in Volume 1 of *Capital*.

Skillman interprets the value of commodities in the standard way: First of all, the value of commodities is interpreted as *microeconomic* unit values of individual commodities. And second, the value of an individual commodity is interpreted as either the labor time required to produce a unit of the commodity (L^i), which is the sum of the labor required to produce the means

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of production consumed in the production of the commodity (L^i_{mp}) and the current labor time required to produce the commodity (L^i_c),

$$L^i = L^i_{mp} + L^i_c,$$

or a price (P^i) that is proportional to that quantity of labor time,

$$P^i = k\left(L^i_{mp} + L^i_c\right),$$

with k as an unexplained proportionality factor.

2. Marx's Theory of the Value of Commodities as Products of *Capital*

I argue that this simple standard version of the labor theory of value is not an accurate interpretation of Marx's more complicated theory of value in Volume 1 of *Capital*. In the first place, the "value" of commodities in Marx's theory is a complicated concept that has three interrelated aspects—the *substance* of value (abstract labor), the *magnitude* of value (socially necessary labor time [SNLT]), and the *necessary form of appearance* of value (money and prices; see, the titles and the contents of the sections of chapter 1 of Volume 1 of *Capital*). After section 3 of chapter 1, the "value" of commodities without further attribution usually refers to the third aspect—the form of appearance of value in terms of money and prices. For example, in the key chapter 7 of Volume 1, in which Marx presents his basic theory of surplus value, the value of the cotton and the yarn is always stated in terms of shillings (e.g., 15 shillings, 30 shillings, etc.). In what follows, "value" refers to the price form of value unless otherwise noted.

Second, Marx's theory of value in Volume 1 is a *macroeconomic* theory of the *total value* and the *total surplus value* produced in the economy as a whole, not a microeconomic theory of the values or prices of individual commodities. The microeconomic prices of individual commodities cannot be explained in Volume 1 because individual prices also depend on the distribution of surplus value (i.e., the equalization of the profit rate), and before the distribution of surplus value can be explained, first the total amount of surplus value must be determined and that is the task of Volume 1 at the first level of abstraction in Marx's theory of the *production of surplus value*. Individual prices with equal rates of profit are abstracted from in the macro theory of the total surplus value in Volume 1 and these individual prices are eventually explained in Volume 3 at the second level of abstraction of the *distribution of surplus value*, with the predetermined total surplus value taken as given. The individual commodities that are discussed in Volume 1 are representatives of the total commodity product (e.g., the yarn in chapter 7 of Volume 1). (See, chapter 5 of my book for eighty pages of textual evidence to support this interpretation of the two levels of abstraction in Marx's theory.)[1]

[1]Skillman argues that the *two levels of abstraction* in my interpretation (the production and distribution of surplus value) and the prior determination of the total surplus value is not possible because commodities are sold at a single price at a single point in time and thus the production and distribution of surplus value must be determined simultaneously at the same time by this single price. However, this criticism interprets the prior determination of the total surplus value in a *temporal* sense—the production of surplus value at one point in time and then the distribution of surplus value at a later point in time. But I argue that the prior determination of the total surplus value (by the total surplus labor) means *logically prior* (the whole is determined before the parts), not temporally prior. According to Marx's labor theory of value and surplus value, the total surplus value *must be determined logically prior* to its division into individual parts because all the individual parts *come from the same source*, the surplus labor of production workers.

Third, the analytical framework of Marx's theory of the total surplus value in Volume 1 is the *circuit of money capital*, expressed by the familiar formula:

$$M - C \ldots P \ldots C' - M' \qquad M' = M + \Delta M.$$

The framework of the circuit of money capital (what Marx called the "valorization process") focuses Marx's theory on the most important phenomenon of capitalist economies and the most important question in Marx's theory of capitalism: what is the origin of ΔM and what determines its magnitude?

Fourth, the quantities of money capital in the circuit of money capital refer in principle to *actual* quantities of money capital advanced and recovered in the actual capitalist economy, not to hypothetical quantities in a hypothetical "value economy" that would later have to be "transformed" into the actual quantities of money capital. Thus the initial $M = (C + V)$ refers to the actual quantities of money capital advanced to purchase means of production and labor-power at the beginning of the circuit of money capital (equal to the prices of production of the means of production and means of subsistence) and the final ΔM refers to the actual total ΔM recovered at the end of the circuit in the economy as a whole.

Fifth, to explain the actual total ΔM at the end of the circuit of money capital, the actual initial M at the beginning of the circuit is *taken as given*, along with the labor theory of value. The initial M exists as a definite quantity of money capital at the beginning of the circuit of capital, prior to the recovery of M' and ΔM, and this preexisting quantity at the beginning of the circuit is taken as given to explain the M' and ΔM at the end of the circuit. Another reason that the initial M is taken is given is that (as mentioned above) the initial M refers to the *actual* quantities of money capital advanced to purchase means of production and labor-power which are equal to *prices of production* of the means of production and means of subsistence, and prices of production cannot be explained in the macro theory of the total surplus value in Volume 1,

Finally, Marx distinguished between what he called "simple commodities" and what he called "*commodities as products of capital*." Marx's theory of value in Volume 1 of *Capital* is about commodities as products of capital. The value of commodities as products of capital consists of two main components: *constant capital* and *new-value*, and these two components are *determined in entirely different ways*. Constant capital already exists at the beginning of the circuit of money capital as the actual quantity of money capital advanced to purchase means of production, prior to production, and this previously existing actual quantity of money capital is taken as given and transferred directly, as this actual quantity of money capital, to the value of commodities as products of capital. On the contrary, the *new-value* component did not exist prior to this period production but is instead the result of the labor of the current period, and this new-value component is added to the preexisting constant capital to determine the macro value of commodities as products of capital ($P = C + N$).

Within the context of the circuit of money capital, the constant capital component of the value of commodities as products of capital is the *actual constant capital advanced* at the beginning of the circuit to purchase means of production; constant capital is not a hypothetical value of the means of production without reference to the circuit of money capital. The labor time required to produce the means of production has already acquired the general social form of money, as the actual quantity of money constant capital advanced to purchase the means of production, and it is through this already-existing actual quantity of money constant capital (equal to the price of production of the means of production) that the labor time required to produce the means of production plays a partial indirect role in the determination of the value of commodities as products of capital. Even though this actual money constant capital is not proportional to the labor time required to produce the means of production, this labor time is the main determinant of the price of production of the means of production (but not the only determinant), and thus is the main determinant of constant capital and the main cause of changes of constant capital.

By contrast, the current labor required to produce the current output plays a direct proportional role in the determination of the new-value component of the value of commodities as products of capital; that is, the new-value component is proportional to the quantity of current labor-hours, with the factor of proportionality (in a gold money economy) determined by the quantity of gold produced per hour (which Marx derived in section 3 of chapter 1):

$$N = m L_c.$$

For example, in the key chapter 7, m is assumed to be equal to 0.5 shillings per hour, and thus a quantity of current labor of six hours produces new-value = 3 shillings and a quantity of current labor of twelve hours produces new-value = 6 shillings.[2]

Thus, the macro value of commodities as products of capital is determined the sum of these two components:

$$P = C + m L_c.$$

The main difference between the value of commodities as products of capital and the value of simple commodities (as in Skillman's interpretation) is the first component. The first component of the value of simple commodities is equal to (or proportional to) the labor time required to produce the means of production. On the contrary, the first component of the value of commodities as products of capital is equal to the actual money constant capital advanced at the beginning of the circuit of money capital to purchase the means of production (which is equal to the prices of production of the means of production, not their values). As mentioned above, the labor time required to produce the means of production has already acquired the social form of money, as this actual quantity of money constant capital advanced, and it is this actual quantity of money capital already advanced that becomes the first component of the value of commodities as products of capital.

It follows from this "macro-monetary" interpretation of the value of commodities as products of capital in Volume 1 of *Capital* that *there is no* "transformation problem" in Marx's theory of prices of production in Volume 3; that is, Marx did *not* "fail to transform the inputs of constant capital and variable capital," as is commonly alleged (including by Skillman). In Marx's micro theory of prices of production in Volume 3, the *inputs are the same actual quantities of money capital* as in the macro theory of the total surplus value in Volume 1, which are equal to the prices of production of the means of production and means of subsistence. The only difference between the two volumes with respect to the inputs of constant capital and variable capital is the level of aggregation. The economy-wide actual totals of constant capital and variable capital in Volume 1 are disaggregated into individual industry actual subtotals in Volume 3. Thus, no "transformation" of the quantities of constant capital and variable capital is necessary or appropriate in

[2]Skillman criticizes me because I do not show that m is well-defined and unique. This criticism seems to be based on an interpretation at Marx's theory in terms of a system of simultaneous equations and the way to "show" uniqueness is that the number of equations and the number of unknowns must be equal. But my interpretation of Marx's theory is not based on a system of simultaneous equations. Consistent with Marx's general labor theory of value, the SNLT required to produce a unit of gold is the actual quantity of labor-hours, adjusted for skills and unequal intensities of labor. Marx assumed that such a unique quantity exists.

Marx's theory, because these quantities are the same actual quantities of money capital at both levels of abstraction.

Michael Heinrich stated in a cover note for my book:

> Moseley presents an entirely new "macro-monetary" interpretation of Marx's theory which finds the solution for the "transformation problem" already in Volume 1 of *Capital*—really exciting.

I am glad that Heinrich emphasized that a reconceptualization of Volume 1 is the key to the solution of the "transformation problem" in Volume 3.

3. Textual Evidence

Unfortunately, Marx tried to simplify the published version of Volume 1 (at the constant urging of Engels), and in particular he tried to finesse the distinction between simple commodities and commodities as products of capital and the difference between constant capital and the labor time required to produce the means of production as the first component of the value of commodities as products of capital. There are fewer methodological comments in the published editions of Volume 1 than in the earlier drafts in which Marx stated that the means of production enter the labor process (i.e., the valorization process) as *commodities*, and thus with already existing prices that are *presupposed*. (Please see Moseley 2016: sections 1–4 of chapter 4) Marx wanted to make *Capital* more accessible to workers, but capitalism is a complicated economic system and theoretical complications are inevitable. Marx tried to simplify these complications, which from the point of view of rigorous theory was a mistake, and it has left a legacy of ambiguity and misunderstandings.

However, if one studies all the four drafts of *Capital*, as I have done in chapter 4 of my book, and if one considers the determination of constant capital (and variable capital) within the broader context of the key aspects of Marx's logical method that I have discussed above (the two levels of abstraction [production and distribution of surplus value], the circuit of money capital, the actual capitalist economy from the beginning in Volume 1, and commodities as products of capital), I think a strong case can be made for this macro-monetary interpretation of the determination of the macro value of commodities produced by capital.

Chapter 4 of my book presents one hundred pages of textual evidence related to this "money capital" interpretation of the macro value of commodities as products of capital, and I hope that interested readers study this textual evidence. Because of a space constraint, I give just a few examples.

One of the most important discoveries in Marxian scholarship in recent decades is that there was a *second draft of Volume 1* in the *Manuscript of 1861–63*, in between the *Grundrisse* and the final published editions. The *Manuscript of 1861–63* consists mainly (about two-thirds) of the *Theories of Surplus Value (TSV)*, which are of course well known, but this manuscript also begins with a second draft of parts 2 through 4 of Volume 1 (before he broke off to write *TSV*) and also includes, toward the end, about 250 pages on parts 1, 3, and 4 of Volume 3, which is also very interesting.[3]

The following passages come from Marx's draft of his theory of the "valorization process" (which later became chapter 7, section 2 of Volume 1) in which Marx emphasized that means of production enter the valorization process as *commodities*, and thus with *already existing prices*,

[3]An English translation of the entire *Manuscript of 1861–1863* was published for the first time in the *Marx-Engels Collected Works*, Volumes 30–34, from 1988 to 1992.

and these already existing prices of the means of production, which are equal to the constant capital advanced to purchase the means of production, become a *presupposed constituent* of the value of the product:

> All the **prerequisites** of the labor process, all the things that went into it, were not just use values but **commodities**, use values with a **price** expressing their exchange value. **Commodities were present in advance as elements** of this process, and must emerge from it again. Nothing of this is shown when we look at the simple labor process as material production. We assume that the **elements** of the labor process are **not use values** to be found in the possession of the money owner himself, but were **originally acquired as commodities** by purchase and that this forms the **prerequisite** of the entire labor process. (Marx and Engels 1988 [1861–1863]: 67–68; bold emphasis added)

A few pages later, Marx stated that the price of the means of production that is transferred to the value of the output is *presupposed because* the means of production are themselves *commodities* which are purchased at the beginning of the circulation of capital, and thus the labor time contained in the means of production *has already been expressed* as the *price* at which the capitalist purchased them. This already existing actual price of the means of production, which is equal to the constant capital advanced to purchase the means of production, is presupposed and is transferred directly to ("re-appears" in) the value of the output and becomes a "constituent" of the value of the output:

> This value [of the raw material] is however **already expressed in the price** at which the material of labor was bought, say e.g. a price of 100 thalers. **The value of this part of the produce enters into it already determined as price**. . . [The means of labor are] equally **purchased**. Hence the labor time contained in it, say of 16 working days, **is expressed in its price of 16 thalers**. (Marx and Engels [1861–1863] 1988: 70; bold emphasis added)
>
> *The values of the material and means of labor therefore appear again in the product as constituents of its value.* This value is *presupposed*, since the **labor time contained in the material and means of labor was expressed in their prices in its general form, as social labor**; these are the **prices at which the money owner bought them as commodities before he began the labor process**. (Marx and Engels [1861–1863] 1988: 73–74; italicized emphasis in original; bold emphasis added)[4]

In *Theories of Surplus Value* (in a discussion of Samuel Bailey), Marx stated that, in the determination of the value of commodities as products of capital, the constant capital component is *equal to the price of production* of the means of production, not equal to their values (and similarly for variable capital; Marx called this point Bailey's "only contribution"):

> It is clear that what applies to the difference between the cost price and the value of the *commodity* as such—as a result of the production process—likewise applies to the *commodity* insofar as, in the form of **constant capital**, it becomes an ingredient, a **pre-condition**, of the production process. *Variable capital*, whatever difference between the value and the cost price it may contain, is replaced by a certain quantity of labor which forms a constituent part of the value of the new commodity, **irrespective of whether its price expresses its value correctly or stands above or below the value**. On the other hand, the difference between the cost price and value, insofar as it enters into the price of the new commodity independently of its own production process, is **incorporated into the value**

[4]It should be noted that when Marx stated in this passage that the labor contained in the means of production was expressed in its "general form, as social labor," he meant that this labor was expressed in the form of *money*, or as the *price* of the means of production (see Marx [1861–1863] 1988: 11 and 34 for similar expressions of money as the general form of social labor).

> of the new commodity as a **presupposed element**. (Marx [1861–1863] 1971: 166–67; italicized emphasis in original; bold emphasis added)

Next, in section 1 of the "Results" manuscript entitled "Commodities as the Product of Capital,"[5] Marx stated again that, since the "elements" (i.e., the inputs) of capitalist production enter the process of production as *commodities* with *specific prices*, the constant capital component of the value of commodities as products of capital *is given by the specific prices* at which the inputs were purchased (e.g., £80):

> Since. . . the elements of capitalist production already **enter the process of production as commodities**, i.e. **with specific prices**, it follows that **the value added by the constant capital is already given in terms of a price**. For example, in the present case it is **£80** for flax, machinery, etc. (Marx [1863] 1977: 957; bold emphasis added)

Finally (for now), the clearest and most succinct statement of the two main components of the value of commodities as products of capital is a summary statement in chapter 1 of Volume 3 of Marx's theory of value in Volume 1:

> We know from Volume 1. . . that the value of the product newly formed, in this case **£600**, is composed of (1) the **reappearing value of the constant capital** of **£400 spent** on the means of production, and (2) a **newly produced value** of **£200**. (Marx [1863] 1977: 119; bold emphasis added)

4. Conclusion

Controversies over different interpretations of *Capital* are of course notoriously difficult to resolve. I hope that readers read my chapter 4 and consider the substantial textual evidence that I provide (much of it unfamiliar and some of it published for the first time in recent decades) to support the monetary aspect of my interpretation, including my interpretation of the value of commodities as products of capital ($P = C + m\, L_c$) within the analytical framework of the circuit of money capital $(M - C \ldots M + \Delta M)$. And in particular that in the Volume 1 macro theory of the total surplus value, the first component of the value of commodities as products of capital is the *actual constant capital* advanced and consumed in capitalist production, which is taken as given and then later explained in two stages as equal to the prices of production of the means of production (see Moseley 2016: 19–21 and chapter 4 for a discussion of this two-stage explanation of the given actual quantities of constant capital [and variable capital]). The labor theory of value for a theory of capitalism is more complicated than the simple labor theory of value of the standard interpretation of Marx's theory.

One significant advantage of my interpretation is that it makes Marx's theory a *logically consistent whole* and there is no "transformation problem" in Marx's theory—as opposed to the standard interpretation which makes Marx's theory logically contradictory and there is an insoluble transformation problem and Marx's labor theory of value should be rejected for that reason. A widely accepted principle in hermeneutics (the study and interpretation of texts) is that when there are competing interpretations of a text, the preferred interpretation is that one that *makes the text more of a consistent whole*. Based on this principle, it would seem that my "macro-monetary" interpretation should be the preferred one. Why continue to insist on the standard interpretation—handed down from Bortkiewicz to Sweezy to Steedman—when there is an alternative

[5]The "Results" manuscript was written just after the *Manuscript of 1861-1863* and was intended as a summary of Volume 1 and a transition to Volume 2.

interpretation, which is logically sound and with substantial textual evidence, that eliminates the transformation problem and makes Marx's theory a logically consistent whole?

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Moseley's "Macro-Monetary" Reading of *Capital*: Rejoinder and Further Discussion

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Abstract

Moseley (2018) offers a partial reply to my review of his *Money and Totality*, addressing one comment at length while mentioning a second in passing and ignoring the third. In this rejoinder, I respond to his replies and develop the three main arguments of my review in greater detail, with particular focus on the logical consistency of Moseley's "algebraic summary" of his macro-monetary reading of Marx's transformation analysis.

JEL Classification Codes: B14, B51

Keywords

Marx, Marxian economics, labor theory of value, prices of production, transformation problem

1. Introduction

In a recent review essay (Skillman 2018), I acknowledged Fred Moseley's *Money and Totality* as a major work of Marxian scholarship, but argued that it did not succeed in defending Marx's value-theoretic analysis in *Capital* from charges of logical inconsistency in its treatment of the relationship between commodity values and prices of production. I developed this argument in three points: first, Moseley's "macro-monetary" approach constitutes a substantial *revision* of Marx's theory of value, rather than simply an "interpretation" of it; second, Moseley's attempt to distinguish "levels of abstraction" respectively involving the *production* and *distribution* of surplus value is inconsistent with Marx's characterization of the latter term, which implies that the magnitude and distribution of aggregate surplus value are *simultaneously* determined; and third, Moseley's "algebraic summary" of his macro-monetary value system is generally inconsistent unless highly restrictive conditions are imposed and otherwise indeterminate elements of the system are arbitrarily *defined* so as to ensure his desired results.

Moseley's reply to my review (Moseley 2018) primarily addresses the first point while making a passing comment on the second one and ignoring the third point almost entirely. My purpose here is twofold: to assess the relevance and force of his replies to my first two comments,

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and then to elaborate more fully on the questions and concerns raised in my review, particularly with regard to the meaning and logical consistency of Moseley's representation of the connection between commodity values and prices of production.[1] These considerations serve to reinforce my earlier assessment of Moseley's contribution. Indeed, as I explain, Moseley's reply tends to corroborate key elements of my earlier critique.

That being said, I should note that the primary intent of my first comment is not to make an indictment, but to suggest an opportunity. Freed of the commitment to defend Marx's "transformation" procedure against charges of logical inconsistency, Moseley's macro-monetary framework might potentially be developed in directions that would resolve the apparent inconsistencies in Marx's account in new ways or yield fresh analytical insights.

2. The "Macro-Monetary" Approach: Interpretation or Revision of Marx's Value Theory?

2.1. Preliminary matters

Before engaging Moseley's substantive response to the first point developed in my review essay, I want to address his characterization of my argument. First, Moseley refers to this as my "most important criticism" (Moseley 2018: 708), but the basis for this assessment is not apparent. I did not label it as such, and he gives no rationale for his claim. While I think that it is certainly important to be clear about what Marx did and did not say regarding the determination of commodity values and their relationship to competitive prices, my third argument concerning the failure of his macro-monetary approach to resolve the logical inconsistency in Marx's transformation analysis, unless it does so tautologically, presumptively carries greater weight. I explore this point in more detail below.

Second, Moseley asserts that I "interpret. . . the value of commodities in the standard way" as "*microeconomic* unit values of individual commodities" such that "the value of an individual commodity is interpreted as either the [direct and indirect] labor time. . . required to produce a unit of the commodity. . . or a price. . . that is proportional to that quantity of labor time" (Moseley 2018: 708–9). This is a misrepresentation of what I wrote.

First, I do not offer an "interpretation" of Marx's value theory. Instead I represent *Marx's own* characterization of commodity values and their relation to commodity prices, supporting each representation with references to specific passages in the relevant volumes of *Capital*. Inasmuch as this is the case, one of two implications follow. Either what Moseley terms "the standard way" of interpreting commodity values and their relation to prices is in fact *Marx's own* interpretation, or else I have somehow read the indicated passages from *Capital* inaccurately or too narrowly. If Moseley believes the latter to be the case, then it is incumbent on him to demonstrate how I have misread what Marx wrote in the indicated passages. However, he has not done so, and as I further discuss below, these passages are starkly inconsistent with his macro-monetary reading of Marx's value analysis.

Second, neither Marx (in any passage I cite) nor I suggest that "the value of an individual commodity is *interpreted* as. . . a price. . . that is proportional to that quantity of labor time [required to produce a unit of the commodity]," contrary to Moseley's suggestion (Moseley 2018: 709, emphasis added). While it is true, as I noted in my review, that Marx frequently refers to value magnitudes in pecuniary terms, he does so on the basis of the assumption, explicitly motivated in chapter 5 of *Capital* volume 1 (Marx 1976 [1867]: 268–69) and maintained through chapter 8 of *Capital* volume 3 (Marx 1981 [1894]: 249), that commodity prices are in fixed

[1]Readers with less interest in the contents of Marx's texts relating to this discussion may wish to skip to section 4, where the latter argument is developed.

proportion to their respective values. The commodity's value is thus *expressed* in monetary terms, not "interpreted" as a price.

2.2. The value of commodities understood as products of capital

In section 2 of his reply to my review, Moseley advances a number of claims regarding Marx's theory of value in volume 1, asserting that this theory is "more complicated" than the "simple standard version of the labor theory of value" he falsely attributes to me. However, as noted, he has not presented any evident basis for this assessment given that I simply reference Marx's own characterizations of commodity values and their relation to prices.

In contrast, Moseley provides no specific citations for his claims regarding Marx's "more complicated" theory in this section, and persistently ignores the many passages cited in my review that starkly contradict his interpretation. He presents selective textual evidence for his interpretation from Marx's drafts and working notebooks written prior to the three volumes of *Capital* (the last two volumes being published by Engels after Marx's death). As I show, however, these passages do not provide compelling support for his interpretation, and again, Moseley simply ignores many passages from the same notebooks that directly clash with his interpretation. I should emphasize that I'm not assessing the potential usefulness of Moseley's macro-monetary interpretation of Marxian value theory here, but just arguing that his interpretation does not reflect Marx's own theoretical account.

In this section, I focus on Moseley's first, second, and sixth claims pertaining to Marx's theory concerning the determination of commodity value magnitudes under the capitalist mode of production, saving the discussion of his third, fourth, and fifth claims, regarding the nature and determination of surplus value and its relation to the circuit of capital, for section 3.

Moseley first notes (and I agree) that in volume 1 of *Capital*, Marx distinguishes three aspects of commodity value: its *substance* (abstract labor), *magnitude* (socially necessary labor time), and *necessary form of appearance* (prices denominated in monetary units). On the basis of this reading, Moseley subsequently restricts his attention to what he terms the "price form of value," expressed in monetary terms.

The latter term, however, constitutes an unjustified extrapolation from Marx's treatment of value and price concepts. To speak of commodity prices as the *expression* or *appearance* of commodity values, as Marx does, is not equivalent to characterizing price as a *form* of value, as Moseley wants to do. In particular, Marx notes that commodity prices may quantitatively *diverge from* (that is, be disproportionate to) their corresponding values determined by socially necessary labor time (Marx 1976 [1867]: 196–97).

In recognition of this, to facilitate his account of the systemic basis for surplus value in volume 1, Marx adopts the assumption that commodity values are proportionate to their respective prices,[2] on the grounds that divergences of prices and values are "disturbing incidental circumstances which are irrelevant to the actual course of the process" (Marx 1976 [1867]: 269n).[3] This assumption, which is maintained throughout the first volume of *Capital* and until chapter 9 of the third volume, accounts for Marx's subsequent representation of value magnitudes in pecuniary terms. However, and this is the key point, throughout the three volumes of *Capital*, Marx

[2]Specifically, Marx assumes that commodity prices and values are "the same," but interprets this condition as one of price-value *proportionality* in volume 3: "It is. . . a very different matter whether commodities are sold at their values (i.e. whether they are exchanged with one another in proportion to the value contained in them, at their value prices") (Marx 1981 [1894]: 275). Note the implied definition of *value-prices* as hypothetical commodity prices that are in fixed proportion to corresponding commodity values.

[3]I argue elsewhere that the inference underlying this claim is fallacious (see, e.g., Skillman 2017), but that is not germane to the present discussion.

continually reaffirms the core postulate that commodity value magnitudes are solely determined by the direct and indirect labor time socially necessary to produce them, *particularly* under the capitalist mode of production (see, for example, Marx 1976 [1867]: 144–45, 168, 186, 190, 260, 274, 293, 318, and 675; Marx 1978 [1885]: 123, 462; Marx 1981 [1894]: 133, 180, 238, 265–66, 272, 283, 780, 783, 998, and 1021). In his reply to my review, Moseley simply ignores this contrary textual evidence, making no effort to reconcile it with his reading of Marx's value theory.

Second, Moseley asserts that "Marx's theory of value in volume 1 is a *macroeconomic* theory of the *total value* and the *total surplus value* produced in the economy as a whole, not a microeconomic theory of the values or prices of individual commodities," noting that "[t]he microeconomic prices of individual commodities cannot be explained in volume 1 because individual prices also depend on the distribution of surplus value (i.e., the equalization of the profit rate)" (Moseley 2018: 709). The latter observation is a red herring: granting that *equilibrium* commodity prices "cannot be explained" without considering the implications of profit rate equalization does not of itself compel the conclusion that "Marx's theory of value is a *macroeconomic* theory of. . . *total value*."

Moreover, and in contrast to Moseley's assertion, Marx explicitly expresses commodity value magnitudes "microeconomically," at the level of a representative commodity: "What exclusively determines the magnitude of the value of any article is therefore the amount of labor socially necessary, or the labor-time socially necessary for its production" (Marx 1976 [1867]: 129; also see 269n, 274, 293, 318, and 675). Furthermore, Marx asserts that exchange ratios *among* commodities are regulated by their respective individual values, a claim that could not be made if values were determined solely in the aggregate as Moseley insists: "in the midst of the accidental and ever-fluctuating exchange relations between the products, the labor-time socially necessary to produce them asserts itself as a regulative law of nature" (Marx 1976 [1867]: 168).

Given these passages, which Moseley does not address in *Money and Totality* or in his reply to my review, the supposed "textual evidence" he adduces for his strictly *macroeconomic* interpretation of Marx's value magnitudes *also* supports a more inclusive reading of *Capital*, according to which Marx defines and deploys value magnitudes "microeconomically" at the level of individual commodities, and then *builds up to* corresponding macroeconomic terms by aggregation across individual units. The key difference from Moseley's interpretation is that commodity values must therefore be *determined* at the individual level, and as I discuss below, Moseley's macro-monetary system provides no basis for making such determinations, even where it is *required* by the logic of his own framework.

Finally, Moseley argues that "Marx distinguished between 'simple commodities' and what he called '*commodities as products of capital*'" (Moseley 2018: 710). In the latter case, Moseley contends, "the value of commodities consists of two main components: *constant capital* and *new-value*" (Moseley 2018: 710). Specifically, Moseley maintains that: (1) commodity values take the "form" of *value-prices*, which he defines as "the price *form of appearance* of value in units of money" (Moseley 2016: 29–30); (2) the contribution of means of production to such "value-prices" is in the form of "*actual constant capital advanced*," because:

> The labor time required to produce the means of production has already acquired the general social form of money. . . and it is through this already-existing actual quantity of. . . constant capital (equal to the price of production of the means of production) that the labor time required to produce the means of production plays a partial indirect role in the determination of the value of commodities as products of capital. (Moseley 2018: 710)

And (3) the contribution of *current* or *direct* labor to value-prices is given by the quantity of current labor expended times a constant *m* representing, in an economy for which gold serves as the money commodity, "the quantity of gold produced per hour" (Moseley 2018: 711).

Moseley offers no specific references to Marx's text in *Capital* in support of these formulations, and as I discuss below, the indirect textual evidence he offers for this approach is based on a highly selective reading of Marx's manuscripts preceding the text he subsequently published as volume 1 of *Capital*. There are several ways in which Moseley's interpretation differs markedly from Marx's own characterizations in *Capital*. First, he defines *value-prices* differently from Marx, who defines these as proportional to corresponding commodity *value*s (see my footnote 2).

Second, his contention that "the value of commodities" produced under capitalism might be defined in this way is based on a confusion of commodity *values* and the *expression* or *form of appearance* of such values. As noted earlier, Moseley defines prices as the *form of appearance* of commodity values, and Marx observes that such "appearances" may diverge from commodity values; indeed, under Moseley's formulation, they generally will. And third, to reiterate, throughout the three volumes of *Capital*, Marx repeatedly affirms that under the capitalist mode of production, commodity values are determined by the direct and indirect labor time socially necessary to produce them, which is starkly inconsistent with Moseley's suggestion that constant capital expenditures based on prices of production "partially determine" the *value* of commodities.

In view of these considerations, Moseley's macro-monetary representation of commodity values constitutes a significant *revision* of Marx's theory *except* in the very special case that all commodity prices bear the same proportion to their respective values (measured in units of labor time), in which case Moseley's and Marx's "value-prices" are identical. (However, as I discuss below, Moseley provides no evident basis in his framework for determining the labor value of any commodity, including the money commodity.) If and only if this special case obtains, the contributions of used-up means of production and direct labor to commodity valuation can be represented equivalently in money or labor units.

2.3 Moseley's textual evidence

In section 3 of his reply, Moseley offers "textual evidence" in support of the interpretation of Marx's value theory offered in his section 2. This evidence is simply a portion of material already presented in *Money and Totality*, and which I criticized in my review as being based on a selective reading of Marx's manuscripts prior to the drafts ultimately published as the three volumes of *Capital*. Moseley suggests that apparent discrepancies in Marx's treatment of "commodities as products of capital" arise from the fact that in volume 1, he tried to simplify the analysis by "finessing" the distinction between "simple commodities" and commodities as products of capital (Moseley 2018: 712). Moseley provides no evidence for this claim. Moreover, as I show below, this explanation is seriously compromised by the presence of contradictory passages in the sources Moseley cites, parallel to passages also found in *Capital*.

First, Moseley cites passages from Marx's economic manuscript of 1861–63 (the "second draft" of *Capital*, preceding its partition into three volumes in the third and penultimate draft) suggesting that "means of production enter the valorization process as *commodities*, and thus with *already existing prices*, and these already existing prices. . . become a *presupposed constituent* of the value of the product" (Moseley 2018: 712–13). He cites two passages in support of this claim, the first indicating that under capitalism, means of production are purchased in advance as commodities (Marx and Engels 1988 [1861–63]: 67–68), and the second indicating that the "value [of these means of production] is. . . *expressed* in the price at which the material of labor was bought," so that "[t]he value of this part of the product enters into it already determined as a price" (Marx and Engels 1988 [1861–63]: 70, emphasis added). From this, Moseley infers that the portion of constant capital (expressed in monetary units) corresponding to used-up means of production directly constitutes the corresponding *value* portion of the commodities thus produced.

There is a fundamental problem with this interpretation. In the passage immediately prior to the second one cited by Moseley, Marx again confirms that commodity values are determined by *labor* magnitudes, not *monetary* ones:

> The exchange value of the product. . . that emerged from the labor process consists of *the total amount of labor time materialized in it*, of the total quantity of labor worked up, objectified, in it. It therefore consists firstly of the value of the raw material contained in the product, or labor time required to produce this. (Marx and Engels 1988 [1861–63]: 70, emphasis added)

This observation directly contradicts Moseley's interpretation. Moreover, the apparent discrepancy in the two passages can again be accounted for by the difference between a commodity's *value*, measured in labor units, and the *expression* of that value in monetary terms. Finally, Marx's tendency to refer to commodity values interchangeably in monetary or labor units can be explained by his assumption, earlier in the narrative cited by Moseley, that all commodities exchange at their respective values (Marx and Engels 1988 [1861–63]: 33).

Next, Moseley cites the following passage from the "Theories of Surplus Value" section of the 1861–63 manuscript in which Marx discusses the work of Samuel Bailey: "It is clear that what applies to the difference between the cost price and the value of the *commodity* as such—as a result of the production process—likewise applies to the *commodity* insofar as, in the form of constant capital, it becomes an ingredient, a pre-condition, of the production process" (Marx and Engels 1989b [1861–63]: 352). Moseley interprets Marx as saying here that "in the determination of the value of commodities as products of capital, the constant capital component is equal to the price of production of the means of production, not equal to their values" (Moseley 2018: 713).

I don't see the basis for Moseley's reading here. In context, Marx appears simply to note that one of the reasons that a commodity's price might differ from its value is that the prices of means of production used up in creating it might also differ from (that is, be disproportionate to) their corresponding values. This claim does not establish that the "value of commodities as products of capital" is determined by actual constant capital expenditures as opposed to the labor embodied in the constant capital goods used up in production. Moreover, Marx's critique of Bailey, which begins thirty pages prior to the passage cited by Moseley, primarily takes Bailey to task for confusing the *expression* or *measure* of values in market prices from the underlying *values* themselves, which are determined by labor time (Marx and Engels 1989b [1861–63]: 322). Moseley's interpretation of the above passage serves to perpetuate this confusion.

Furthermore, just as in the three volumes of *Capital*, there are multiple passages in the 1861–63 manuscript in which Marx reaffirms that commodity values, particularly under capitalist production, are determined by direct and indirect socially necessary labor time (see, for example, Marx and Engels 1988 [1861–63]: 34, 97, 163, 167, 260, 318–19, 328, 408, and 420; Marx and Engels 1989a [1861–63]: 68, 261, 264, 268, 359, 415, and 454; Marx and Engels 1989b [1861–63]: 53, 210, 266, 272, and 513; Marx and Engels 1991 [1861–63]: 81, 136, and 477; Marx and Engels 1994 [1861–63]: 22), not by the money spent on constant capital goods.

Next, Moseley cites a passage from the largest remnant of the penultimate draft of *Capital* volume 1, titled "Results of the Immediate Process of Production," in which Marx states that "[s]ince. . . the elements of capital production already enter the process of production as commodities, i.e., with specific prices, it follows that the value added by the constant capital is already given in terms of a price" (Marx 1976 [1867], appendix). However, in a subsequent passage, Marx continues to distinguish between commodity *values* and their *expressions* in price, and notes that he has maintained the assumption of price-value equivalence which allows him to refer to value magnitudes interchangeably as labor or monetary magnitudes: "*Price* in this context is in general just the money expression of *value*. Prices differing from the underlying values have not yet entered into our discussion" [Marx 1976 [1867], appendix: 966).

A similar comment can be made with respect to the final bit of evidence adduced by Moseley, taken from the opening chapter of *Capital* volume 3, in which Marx writes: "We know from volume 1. . . that the value of the product newly formed. . . is composed of. . . the reappearing value of the constant capital. . . spent on the means of production." However, again, this is based on the assumption of price-value equivalence that allows Marx to refer to value magnitudes indifferently in units of labor or monetary units. A few pages later, and then repeatedly throughout volume 3, Marx reaffirms the determination of commodity values by socially necessary labor time: "The value contained in a commodity is equal to the labor time taken in making it, and this consists of both paid and unpaid labor" (Marx 1981 [1894]: 133; see additional references above).

3. Production and Distribution of Surplus Value: Simultaneous or Sequential Determination?

Moseley contends that Marx's analysis of *surplus value* is developed on the basis of two *distinct* levels of abstraction, such that the first, presented in volume 1 of *Capital*, concerns the *production* of given aggregate magnitudes of surplus value, while the second, found in Marx's transformation analysis of *Capital* volume 3, concerns the subsequent *distribution* of those magnitudes according to the dictates of capitalist competition.

In my second major comment on Moseley's macro-monetary approach to *Capital*, I argued that by Marx's definition of surplus value, the production (or, more accurately, the *determination* or *realization*) of surplus value necessarily occurs *simultaneously* with its distribution upon the sale of the products of capitalist production. What is "produced" prior to the determination and distribution of surplus value is instead *surplus product*, which is in turn the result of *surplus labor*, both of which are in any case logically distinct from, and prior to, surplus *value*. The point I want to emphasize here is that Moseley *affirms* the foregoing representation in principle, but then explicitly violates it in the algebraic representation of his macro-monetary system.

To see this, start with Moseley's third claim in his reply to my review, which is that Marx understands *surplus value* as the increment $\Delta M = M' - M$ emerging from the *circuit of capital* $M - C - M'$. Following Marx's elaboration in the second volume of *Capital* (Marx 1978 [1885]: 109), Moseley expresses this circuit in expanded form as $M - C \ldots P \ldots C' - M'$ (Moseley 2018: 710), where $M - C$ denotes an initial exchange of money M for commodities C comprising the means of production and labor power $C, \ldots P \ldots$ represents production activity occurring outside of the circulation process, and $C' - M'$ represents the sale of the output of capitalist production C' for a greater amount of money M' (Marx 1978 [1885]: 109).

I agree entirely with this characterization, but note its immediate implication that, for capitalists to receive surplus value, the products of capitalist production must be *sold*. And since commodities are in any case sold at particular prices, it *must* be that the "production" of surplus value and its distribution across sectors occurs *simultaneously*. Marx recognizes this *dual* origin of surplus value in production and circulation when he writes: "But can surplus-value originate anywhere else than in circulation, which is the sum total of all the mutual relations of commodity owners? Outside circulation, the commodity-owner only stands in a relation to his own commodity. . .. [Thus] [c]apital. . . must have its origin both in circulation and not in circulation" [see Marx 1976 [1867]: 268, 302; also, Marx and Engels 1988 [1861–63]: 28). Moseley embraces this formulation in *Money and Totality*, stating: "[t]he circuit of. . . capital takes place in two '*spheres*', the sphere of *circulation* and the sphere of *production*, and consists of *three phases*, consecutive in time [and ending with] the *recovery* of money capital through the sale of commodities after production, again in the sphere of circulation" (Moseley 2016: 11).

As indicated by the expanded schematic for the circuit of capital presented by Moseley, the magnitude produced prior to the sale of capitalist output is not *surplus value* but rather *surplus* *product* (C' minus C), assuming, as Marx and Moseley do, that both means of production and real wages are paid out of capital advanced M. Given that assumption, by Marx's analysis in volume 1 of *Capital*, surplus product is in turn a manifestation of *surplus labor* extracted from workers employed by capital (Marx 1976 [1867]: chapter 7). However, these entities are logically distinct from surplus value, and determined prior to it.

The *surplus product* of capitalist production corresponds to a vector of sectoral outputs net of depreciation and real wages (Marx 1976 [1867]: 338). Marx defines *surplus labor* as the total current expenditure of living labor net of the portion corresponding to the labor time socially necessary to produce workers' wage bundles, which he terms *necessary labor*:

> We have seen that the laborer, during one portion of the labor-process, produces only the value of his labor-power, that is, the value of his means of subsistence. . . The portion of his day's labor devoted to [producing the value of the worker's means of subsistence]. . . I call "necessary" labor time, and the labor expended during that time necessary labor. . . During the second period of the labor process. . . his labor is no longer necessary labor. . . This part of the working day I call surplus labor-time, and to the labor expended during that time I give the name of surplus labor. (Marx 1976 [1867]: 325)

Note that since the corresponding output is not yet sold at the point that it is being produced, surplus labor is both temporally and logically prior to the emergence of surplus value. Note also that in Marx's account *necessary labor* is determined solely by the labor embodied in the real wage bundle, without any reference to pecuniary magnitudes such as commodity prices.

In his reply to my review, Moseley argues that my criticism "interprets the prior determination of the total surplus value in a *temporal* sense—the production of surplus value at one point in time and then the distribution of surplus at a later point in time" rather than in a "*logically prior*" sense (Moseley 2018: 709 note 1). First, this reply is inconsistent with his own insistence that the phases of the circuit of capital are "consecutive in time." As he states in *Money and Totality*:

> Marx's circuit of money capital. . . takes place in *real historical time*. Capital *exists* first in the form of money advanced in the sphere of circulation, then in the form of means of production and labor power in the sphere of production, then in the form of commodities produced at the end of the of the production process, and then finally back again in the form of money recovered, including more money than was originally advanced at the beginning of this real historical process. This temporal aspect of the circuit of money capital was succinctly expressed by Marx. (Moseley 2016: 11)

Moreover, it should be clear from the foregoing that the simultaneous determination of the *total magnitude* of surplus value and its *distribution* is a logical *as well as* a temporal necessity, since Marx's *definition* of surplus value presumes that the surplus product is *sold*.

Furthermore, Moseley affirms this assessment in his reply to my review. After identifying surplus value as the increment $\Delta M = M' - M$ resulting from the circuit of capital, he asserts that:

> the quantities of money capital in the circuit of. . . capital refer in principle to *actual quantities of money capital advanced and recovered in the actual capitalist economy, not to hypothetical quantities in a hypothetical "value economy" that would later have to be "transformed" into the actual quantities of money capital*. Thus. . . *the final ΔM refers to the actual ΔM recovered at the end of the circuit* in the economy as a whole. (Moseley 2018: 710, emphasis added)

Moseley specifies in *Money and Totality* that this "actual" magnitude is determined by "long-run equilibrium prices of commodities. . . equal to their prices of production, *not to their values*" (Moseley 2016: 7, emphasis added).

For Marx, the temporal (and logical) order of determination is thus as follows: capitalists advance variable capital to purchase workers' means of subsistence, whose embodied labor time represents the portion of the working day corresponding to necessary labor. Capitalists compel a working day in excess of this magnitude, yielding surplus labor, the output of which is surplus product. This product is then sold at given prices, which determine both the aggregate magnitude and the distribution of surplus value. As shown above, Moseley explicitly embraces this formulation in principle.

On what basis, then, does Moseley assert that a given aggregate magnitude of surplus value is produced prior to its distribution? He arrives at this by explicitly violating his own principle, defining surplus value on the basis of monetary *value* magnitudes rather than on the basis of prices of production realized by an "actual" capitalist economy "in long-run equilibrium." Specifically, Moseley posits in *Money and Totality* that "[t]he final money capital recovered. . . in a year is equal to the *value* of the commodities produced *and sold*. . . Therefore, the surplus-value produced in one year is *by definition* equal to the difference between the value of commodities produced [and sold] this year [*P*] and the cost-price of these commodities [*K*]" (Moseley 2016: 28, emphases added).

Subsequently, Moseley refers to *P* more specifically as "the total *value-price* of commodities produced by the total social capital in a year," where he defines "value-price of commodities" as the "price form of appearance of *value* in units of money" (2016: 29–30). In his formal system, Moseley explicitly distinguishes "value-prices" (*P*) from *prices of production* (denoted *PP*). Thus, Moseley's expression of surplus value in his formal system explicitly contradicts his representation of Marx's understanding of the term. It is plainly inconsistent to assert *both* that surplus value is determined by aggregate "value-prices" *and* that surplus value is determined by aggregate prices of production, *unless* it is assumed a priori that the two price magnitudes are equal.

A similar problem afflicts Marx's own transformation analysis in chapter 9 of the third volume of *Capital*, where he assumes that means of production and subsistence are purchased at their respective values, but the products generated by these means are sold at their prices of production. As is well known, Marx explicitly acknowledges this inconsistency (Marx 1981 [1894]: 264–65) but does not resolve it. Moseley, in contrast, neither acknowledges nor successfully resolves the inconsistency. As I show in the next section, Moseley's formal system can only eliminate the inconsistency in Marx's transformation analysis by implicitly imposing the condition that the magnitude and distribution of aggregate surplus value are determined *simultaneously*, not *sequentially*, such that "value-prices" and "prices of production" are *assumed* to be identical.

4. *Non Sequitur* or Simple Tautology? Deconstructing Moseley's Algebraic Summary of the Macro-Monetary Interpretation of Marx's Theory

The third, and arguably most important, point advanced in my review, which Moseley does not address, is that his macro-monetary system cannot be understood to resolve the inconsistency in Marx's transformation analysis unless arbitrarily restrictive conditions are imposed and certain key terms are then simply defined to assure the aggregate equalities that Moseley seeks to affirm. The first point to be noted in this connection is that Moseley's algebraic summary of his macro-monetary system in chapter 2 of *Money and Totality* is *only* that—a summary of quantitative relationships that he believes to hold, including the proportionality of variable capital and necessary labor, the corresponding proportionality of surplus value and surplus labor, the equivalence of aggregate value-prices and aggregate prices of production, and the equivalence of aggregate surplus value and aggregate profit. All of these results are merely asserted, rather than derived as necessary implications of previously specified conditions.

Consequently, Moseley's asserted results obtain only *tautologically* in the sense that they hold only if very restrictive and unrealistic assumptions are made and constituent terms are then defined specifically to ensure these outcomes. In the absence of such tautological interpretations, Moseley's general claims are unsupported.

4.1 Definition of aggregate value-prices and aggregate surplus value

The first seven equations of Moseley's algebraic summary in *Money and Totality* (Moseley 2016: 28–32) give expressions for aggregate value-prices and aggregate surplus value. These are:

$$S = P - K \tag{1}$$

$$K = C + V \tag{2}$$

$$P = C + N \tag{3}$$

$$N = mL, \tag{4}$$

implying:

$$P = C + mL, \tag{5}$$

$$S = (C + N) - (C + V), \text{ and thus} \tag{6}$$

$$S = N - V = mL - V \tag{7}$$

where:

P denotes aggregate *value-prices* of commodities produced and sold in the current period, where *value-price* is defined as "the price form of appearance of [commodity] value in units of money" (Moseley 2016: 29–30);
S denotes aggregate *surplus value* in the current period, denominated in money units;
C denotes aggregate *constant capital* expenditures on means of production in the previous period, determined by physical input requirements and corresponding prices of production in the previous period, and taken as given in the current period;
V denotes aggregate *variable capital* expenditures on labor-power, determined by direct labor input requirements and corresponding money wage rates, and taken as given in the current period;
K denotes aggregate *cost-prices* of commodities, defined as the sum of aggregate constant and variable capital and denominated in money units;
L denotes aggregate *direct* labor expenditures in the current period;
N denotes the aggregate "new value" produced by current-period labor, expressed in monetary units; and
m denotes "the (money) new value produced *per hour* of abstract socially necessary labor"; in the case of an economy with a money commodity (say, gold), "m is determined by the quantity of gold produced per hour of abstract labor" (Moseley 2016: 31).

Equations (1) and (2) imply $S = P - (C + V)$ and equations (3) and (4) imply (5), $P = C + mL$. Note that while C, V, and L can in principle by determined by empirical referents (respectively, total expenditures of money on means of production and labor power, and of current-period labor under average production conditions), determination of S requires the derivation of aggregate value-prices, which requires in turn information on the derivation of m and a corresponding explanation of the basis for the assumption that $mL = V + S$, as dictated by equations (3) and (4).

There are three fundamental problems with Moseley's definition and application of the term m in his formal system. First, no basis is provided within this system for calculating m, and Moseley does not explain how "the quantity of gold produced per hour of abstract labor" might be derived, much less how it can be uniquely determined. In his reply to my review, Moseley suggests that this criticism is based on "an interpretation of Marx's theory in terms of a system of simultaneous equations" (Moseley 2018: 711 note 2). He misunderstands my point, which is that the "simultaneous-system" approach is at least a demonstrated method of determining the *indirect* as well as the *direct* labor time socially necessary to produce given commodities, including the commodity serving as the medium of exchange. Since he rejects this approach, Moseley has the burden to show how these magnitudes might be uniquely determined from given theoretical or empirical data. Failing this, he cannot claim to have shown that Marx's analysis of the "transformation problem" is "logically coherent and complete."[4] One possibility, to be explored below, is that Moseley simply ignores the indirect labor component of commodity values, which is inconsistent with Marx's own conception of "socially necessary labor time."

Second, even assuming that the labor time socially necessary to produce a commodity could be uniquely determined in his system, Moseley does not specify how "the (money) new value produced per hour of abstract socially necessary labor" is determined for *non-money* commodities. There are two subordinate issues here. On one hand, as with the money commodity, Moseley does not show how the direct and indirect labor time socially necessary to produce these commodities might be determined. On the other, since these commodities are not denominated in money units, the determination of their corresponding "new (money) value" magnitudes requires that they be *transformed* into pecuniary terms by weighting them with corresponding per-unit monetary magnitudes. But which ones? Moseley does not say.

Third, assuming that such a measure can be coherently constructed for each industry, Moseley's assumption that "the (money) new value produced per hour of abstract socially necessary labor" equals m for all industries is presumptively as stringent and unrealistic as, if not tantamount to, assuming that sectoral commodity prices and values are in constant proportion.

To facilitate explanation of these points, suppose that there are n commodity-producing industries in the economy in addition to the one producing the money commodity (gold), with a given non-gold industry denoted by subscript $j = 1,2,..., n$. Now let Λ_g denote the labor time socially necessary to produce a unit of gold, including both direct labor and labor embodied in used-up means of production, and similarly let Λ_j denote the labor time socially necessary to produce a unit of industry j's commodity.[5] Correspondingly, let m and m_j denote the respective magnitudes of "new value produced per hour of socially necessary labor time" for gold and non-money commodity j. Finally, let MP_j denote an as-yet unspecified *pecuniary* magnitude for industry j, determined in some way by market prices.

On the first point, Moseley's definition of m implies that $m = 1/\Lambda_g$, denominated in units of gold per hour of labor time. He then assumes that the quantity of money value per hour of socially necessary labor time in industry j, denoted here by m_j, is also equal to m for all industries. The significance of this assumption is entirely unclear, as Moseley does not explain how m_j is

[4]In particular, Moseley's suggestion here that "the [socially necessary labor time] required to produce a unit of gold is the actual quantity of labor-hours, adjusted for skills and unequal intensities of labor" does not explain how one determines the *indirect* labor time required to produce the inputs *used up* in the production of gold, even in principle. Moseley notes that "Marx assumed that such a unique quantity exists," but does not demonstrate that this is a logically coherent assumption on his terms, given Marx's definition of socially necessary labor time.

[5]I'm using Λ to denote total socially necessary labor time, including the labor embodied in used-up means of production, in order to distinguish it clearly from the *direct* or *living* labor time, which Moseley denotes by L.

constructed. Thus, it can't be determined *what* is being equated to m for all industries, so it is impossible to tell how plausible or realistic this assumption is, or how it provides more information than is already contained in the equation $m = 1/\Lambda_g$.

Two possible interpretations suggest themselves. One is to define $m_j = MP_j / \Lambda_j$, understood as the ratio of commodity j's *market price* to its labor value. By this interpretation, assuming that $m_j = m$ for all non-money-producing industries j is tantamount to assuming that all commodity prices bear a constant proportion to their respective labor values. This is an extremely stringent assumption, and one that Marx notes does not hold in the general case (Marx 1976 [1867]: 269 note 24). This interpretation does at least correspond to the scenario explicitly assumed by Marx beginning in the first volume of *Capital* (Marx 1976 [1867]: 268–69); however, as noted in the previous section, this approach "solves" the contradiction in Marx's transformation analysis by simply assuming it away.

An alternative interpretation, suggested by Moseley's equations (4) and (5) above, is to define $m_j = MP_j / L_j$, where L_j denotes (only) the *direct* labor time required to produce the current output of industry j, and MP_j is interpreted as the aggregate *revenue product* of industry j, perhaps net of capital expenditures (more on this caveat below). Assuming that $m_j = m$ for all non-money-producing industries j according to *this* interpretation is every bit as strenuous and unrealistic as the condition of price-value proportionality, and has the added disadvantage of having no apparent connection to any assumption or inference asserted by Marx. In light of these difficulties, Moseley's algebraic summary cannot reasonably be construed to provide a coherent resolution of the apparent inconsistencies in Marx's transformation analysis.

With these caveats in mind, consider the determination of aggregate surplus value S in Moseley's system, noting that by definition $V = wL$, where w is the average money wage rate per hour of labor expended in the economy. Then from Moseley's equation (7), we have:

$$S = mL - V = mL - wL = [(1/\Lambda_g) - w] \cdot L \tag{7'}$$

This indicates that surplus value is determined by production conditions in the money commodity-producing industry (as given by $1/\Lambda_g$), arbitrarily assumed to be mirrored by production conditions in every other industry, net of the average wage rate w, multiplied by total current-period labor expenditure. The magnitude of w is determined in turn by the prices of production of means of subsistence. Since Λ_g conveys no information about prices of production in either the previous or the current period, or about production conditions in any industry but that producing gold, it is unclear at best why this expression has anything to do with Marx's definition of surplus value, or with the determination of total profit in actual capitalist economies.

4.2 Necessary labor, surplus labor, and surplus value

With equation (8) of the algebraic summary (Moseley 2016: 34), Moseley asserts a proportional relation between surplus value in given industries and the surplus *labor* extracted in those industries. As discussed previously, for Marx this is an *inference* based on the assumption that all commodities exchange at their respective values, while for Moseley, this relation holds *by assumption* regardless of the connection between commodity prices and values.

Specifically, Moseley writes:

$$S_i = mL_i - V_i = mL_i - mNL_i = m(L_i - NL_i) = mSL_i, \text{ where:} \tag{8}$$

S_i denotes the surplus-value produced by the average worker per day;

L_i denotes the total current-period labor expended by the average worker per day;

NL_i, or necessary labor per day, denotes the portion of current-period labor expended by the average laborer in a day that just suffices to repay the variable capital expended in purchasing that worker's labor power; and

$SL_i = L_i - NL_i$ denotes surplus labor per day, or the portion of the average working day left over after necessary labor has been performed.

When aggregated across workers and days, equation (8) becomes:

$$S = mL - V = mL - mNL = m(L - NL) = mSL,^{6} \tag{9}$$

where NL represents aggregate necessary labor and SL represents aggregate surplus labor time.

Equation (9) embodies the assumption that $NL = V / m$, that is, that aggregate necessary labor time is just equal to aggregate variable capital divided by money value produced per hour of labor. This relationship is not derived explicitly, and it is unclear why it holds. On one side of the equation, NL represents the total labor time socially necessary to produce means of subsistence consumed by workers producing in the current period, while on the other, V represents total current-period labor expenditure multiplied by the average wage rate, which, as Moseley notes, is determined in turn by the prices of production of the means of subsistence. Since m is not determined by prices of production, however, it is unclear how division by this factor serves to "deflate" a measure based on prices of production to a relevant measure of necessary labor time.

In order to examine this point more closely, let B represent the subset of industries producing means of subsistence commodities, let b_j denote the quantity of commodity j consumed by a representative worker, and let pp_j be the unit price of production of good $j \in B$. Then, by definition, aggregate variable capital V is given by:

$$V = wL = \sum_{j \in B} pp_j b_j L = \sum_{j \in B} PP_j L, \tag{8'}$$

where PP_j denotes aggregated production prices in sector j, assuming, as Marx does, that all wages are spent on means of subsistence.

Thus, Moseley's equation (9) requires:

$$NL = \sum_{j \in B} PP_j L / m = \Lambda_g \sum_{j \in B} PP_j L \tag{9'}$$

which has no apparent sense. First, Λ_g is determined (albeit in a manner that Moseley does not spell out) solely by production conditions in the money commodity industry, with no reference to the wage or profit rate, and thus has no established relationship to aggregate prices of production based on profit rate equalization. But second, even if such a connection were shown, this does not establish the connection between m and aggregate prices of production *for the subset of the economy producing means of subsistence*. Thus, the proportionality of surplus value and surplus labor indicated by Moseley's equation (9) cannot be presumed to obtain in the general case.

[6]Moseley instead writes (9) as $S = dnmSL_i$, where d denotes total number of working days per year and n denotes the total number of workers employed. I've written (9) in this equivalent form in order to avoid introducing additional variables to the system that are not used subsequently.

4.3 Prices of production, the rate of profit, and Marx's "aggregate equalities"

Equations (10) and (11) of Moseley's algebraic summary provide expressions for prices of production and the general rate of profit, intended to describe a capitalist economy in a hypothetical equilibrium state in which the rate of profit is equalized across industries. Specifically, he writes:

$$PP_j = K_j + RM_j \tag{10}$$

$$R = S / M, \text{ where} \tag{11}$$

PP_j denotes aggregate prices of production in industry *j*;
K_j denotes aggregate cost prices in industry *j*;
M_j denotes the total capital stock in industry *j*, denominated in money; and
R denotes the "price rate of profit."

Moseley is careful to distinguish *R*, the profit rate based on "actual (equilibrium) prices" in the economy, from the so-called "value rate of profit" (Moseley 2016: 36). However, it should be clear from the preceding analysis (as reflected in equation (7′)) that there is no evident basis for believing that *S* as specified in his system is identical to aggregate profits based on prices of production. To see this, let *PP* denote aggregate prices of production in the economy and Π denote aggregate profits in this economy. Then it is evidently the case that:

$$\Pi = PP - (C + V) \tag{10′}$$

Comparison with Moseley's equations (1) and (2) shows that $\Pi = S$ if and only if $PP = P$, that is, if and only if aggregate prices of production equal aggregate value-prices. This equality has not been established in his system, so this is merely imposed by fiat. However, if this equation holds, it then follows from Moseley's equation (5) that $PP = C + mL$, which implies in turn that $m = (PP - C) / L$. Thus, for Marx's "aggregate equalities" to obtain in Moseley's formal system, given $m = 1 / \Lambda_g$, it must be the case that:

$$1 / \Lambda_g = (PP - C) / L. \tag{11′}$$

It should be clear, however, that (11′) will not hold except by accident.[7] The left-hand side of the expression is determined by production conditions in the gold-producing industry, with no reference to prices of production or production conditions in other industries. The numerator of the right-hand side, in contrast, is determined by prices of production in two different periods, the current period (for *PP*) and the previous period (for *C*), and the denominator depends on direct labor inputs and total outputs in all other industries. Thus, Moseley's subsequent assertions of Marx's aggregate identities (Moseley 2016: 38–40) simply *do not obtain* in the general case.

4.4 Reconstructing Moseley's algebraic summary as a tautological special case

Given that core terms in Moseley's algebraic summary are undefined or indeterminate, perhaps the best way to understand his formal system is by working backwards from the equivalence results he wishes to establish and defining these terms in such a way that they ensure his

[7]Readers may recognize the right-hand side expression of (11′) as the inverse of the "value of money" in the "new interpretation" due to Duménil and Foley (see, for example, Foley 1982: 46 note 7). In effect, equation (11′) is a completely arbitrary restriction on the magnitude of this variable.

conclusions. Accordingly, let "the (money) new value produced *per hour* of abstract socially necessary labor" in industry *j* be given by $m_j = (PP_j - C_j)/L_j$, which represents the net revenue product (total revenue net of capital expenditure) in industry *j* based on its price of production divided by the aggregate current labor expenditure in that industry.

There is no reason to think that this ratio is identical across industries, whether or not in "long-run equilibrium," and Moseley cites no passage from Marx indicating otherwise. Consequently, his assumption to this effect is highly restrictive, theoretically unmotivated, and empirically unrealistic, and made even more so by the additional stipulation that the common value of this ratio is given by $m = 1/\Lambda_g$, which is determined by production conditions in the gold industry. This judgment is not altered if *m* is instead specified as equal to $1/L_g$, the reciprocal of the aggregate *direct* labor expended to produce gold in the current period.

Given the stipulation that $m_j = m$ for all industries *j*, it follows that $PP_j - C_j = mL_j$ and thus:

$$\sum_j (PP_j - C_j) = PP - C = m\sum_j L_j = mL. \tag{12'}$$

Using equation (12′) to substitute for *mL* in Moseley's "aggregate value-price" equation (5) yields the implication that $P = PP$, i.e., that Moseley's aggregate value-price is identical to aggregated *prices of production* (which requires in turn that sectoral value-prices are equal to their corresponding prices of production). As noted above, this ensures Marx's aggregate equalities by fiat, but with the consequence that the magnitude and distribution of aggregate surplus value are determined *simultaneously* upon the sale of current output at prices of production.

Next, using equation (12′) to substitute for *m* in Moseley's expression for "necessary labor" *NL* yields $NL = [V/(PP - C)] \cdot L$. By this formulation, to determine necessary labor, one must multiply total current labor expenditure by the ratio of variable capital to the net revenue product of current output. From this, it follows that aggregate *surplus labor* is given by $SL = [1 - (V/(PP - C))] \cdot L$. These formulations reverse Marx's order of determination by requiring that net revenues from the sale of output be determined *prior to* the determination of aggregate necessary (and thus surplus) labor, rather than having net revenue product being determined by the magnitude of surplus labor extracted in production as per the passage from the first volume of *Capital* cited in section 3 above. This deviation from Marx's account is necessary in Moseley's system, since he offers no direct way of determining the labor embodied in the real wage bundle.

5. Conclusion

I close this discussion with two observations about Moseley's specification and application of *m*, "new monetary value produced per hour of labor." First, if Moseley's *m* is defined as needed to ensure the logical consistency of his algebraic system, it implements the "new interpretation" of Foley and Duménil, although (ironically) on the basis of a strenuous "microeconomic" assumption not imposed in their interpretation. To see this, note that Moseley initially defines this magnitude at the *sectoral* level, and then imposes the arbitrary condition that these measures are *identical* across sectors and thus equal to some constant *m*. Next, the logical consistency of Moseley's system requires $m = (PP - C)/L$, which as noted in footnote 7 is the inverse of "value of money" in the "new interpretation." Thus, $m = 1/m_{NI}$, where m_{NI} denotes the latter magnitude. Finally, observe that in Moseley's system, by equation (9), $S = mL - V = (m - w) \cdot L$, while $S = PP - C - V = (PP - C) \cdot (1 - wm_{NI})$ in the "new interpretation." It is readily verified that these two expressions are equivalent under the stated conditions.

Second, note that if the foregoing conditions hold, Moseley's additional stipulation that $m = 1/\Lambda_g$ is superfluous, since no primary claim in his analysis depends on it, as well as arbitrary, since there is no reason to think that this magnitude would equal $m_j = (PP_j - C_j)/L_j$ for any sector j, except incidentally.

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