

# MONEY AND TOTALITY

## Another Round of Debate on Value Formation and Transformation

*David Laibman*

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David Laibman is Professor Emeritus of Economics, at Brooklyn College and the Graduate School, City University of New York, and Editor of *Science & Society*. His books include *Value, Technical Change and Crisis: Explorations in Marxist Economic Theory* (1992), *Capitalist Macrodynamics* (1997), *Deep History: A Study in Social Evolution and Human Potential* (2007), *Political Economy after Economics: Scientific Method and Radical Imagination* (2012), and *Passion and Patience: Society, History and Revolutionary Vision* (2015). Email: [dlaibman@scienceandsociety.com](mailto:dlaibman@scienceandsociety.com)



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**Abstract:** Fred Moseley's *Money and Totality* (2016) presents the author's "macro-monetary interpretation" of Marx's value theory, with particular reference to the transformation of value into price of production in *Capital*, Volume III. This theory, while trying to be faithful to Marx's texts, accomplishes this by means of a logically indefensible claim, which, if it came to be seen as representing Marx's work as such, would contribute to sidelining and disconfirming the Marxist tradition. Review of the long-standing "transformation problem" debate, in the light of Moseley's contribution, in non-technical terms, suggests that the way forward is to avoid text-based orthodox defenses of Marx in favor of re-working his core insights, building on the accomplishments of Marxist theory in the 20th century, and using the tools and methods of modern economic theory and social science wherever possible.

**Key words:** Marxist value theory; transformation problem; labor value

***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, and Boston, Massachusetts: Brill, 2016. \$180.00. pp. 415.

The controversy about Marx's theory of value—in particular, its place in the theory of capitalist production, exploitation, and competition—has continued, unabated, since Engels's famous challenge in the "Preface" to *Capital*, Volume III.

The “transformation problem” debate has continued to fascinate Marxist political economists, who may in fact exaggerate the extent to which Marxist influence outside of a narrow circle of devotees depends on its outcome.

Fred Moseley, in the book *Money and Totality: A Macro-Monetary Interpretation of Marx’s Logic in Capital and the End of the “Transformation Problem”* (Moseley 2016) under consideration here, offers a comprehensive treatment, from the standpoint of his “Macro-Monetary Interpretation” (MMI), with detailed attention to the source texts—*Capital*, Volume III, and the various “drafts” (*Grundrisse*, *Contribution*, Manuscripts of 1862–1863 and 1865) that have been made available with the publication of the MEGA2 volumes—and various alternative interpretations that have arisen in Marxist and Marxism-influenced circles in the 20th century and beyond, mainly among English-language authors.

I provide an introduction to the problem in Section I, so that my consideration of Moseley’s work can be reasonably self-contained. My intention in this section is to explain and develop the topic in a way that is of some use to Marxists and other interested readers who are not already deeply familiar with this literature. The following Section II offers a summary of Moseley’s core argument, as laid out in *Money and Totality*; I will not pursue all of the details, but rather hope to focus on the central points. Section III then offers a critical analysis of Moseley’s MMI position, in relation to the main alternative. That alternative is represented by my own “theoretical time/consistent structure interpretation” (TT/CSI), which, however, modestly joins forces with a long tradition linking the work of Marxists (Sweezy, Dobb, Meek, Sraffa, Okishio, Brody, etc.), with contributions from many others (Bortkiewicz, Seton, Samuelson, Pasinetti, Kurz and Salvadori, etc.). Moseley calls this the “standard interpretation.” Section IV will conclude, with a few observations about the takeaway from this intense but frustrating and (apparently) non-convergent debate.<sup>1</sup>

## I. The Transformation Problem: An Introduction

To situate Moseley’s main point, a brief summary of the transformation problem is in order. I will do this in words alone, without recourse to numerical examples, mathematical notation, or diagrams.

Picture a capitalist economy, consisting of an arbitrary number of industries or sectors, each of which (for the sake of simplicity) produces a single output, using labor supplied by a non-propertied working class. All products take the form of commodities, circulated on competitive markets. The labor process uses physical means of production, or inputs, produced by a subset of the industries. These inputs are entirely circulating capital; they disappear into the products and have to be replaced entirely from the outputs of the input-goods (means-of-production)

sectors, in each period of production. We ignore fixed capital. We also ignore land and other non-produced resources (forests, waterways, etc.). The industries are of course owned by capitalists, an ownership that is in itself the effective means of preventing workers from themselves acquiring access to means of production other than by selling their ability to work—their labor power—to the capitalists. This crucial dependence of workers upon the capitalists for their very survival is the immanent exploitative power, reproduced through valorization of all of this relationship's elements—their existence as commodities with spontaneously determined values, making the process appear to be the result of natural, objective forces—which makes possible the appropriation of surplus value from the workers' labor.

Surplus value is extracted from each worker, and so from each group of workers grouped by sector, in proportion to labor performed. This, for the specifically capitalist market economy, is the “labor theory of value,” or the principle relating value creation to performance of labor. Labor creates value at a rate determined by labor time expended and simultaneously effects the transfer of embodied labor from the inputs used up in production. If the values of outputs in the various industries, measured either in quantities of labor or in money, are formed in this way, they will be equal or proportional (depending on the measure chosen) to the total (direct plus indirect) labor time embodied in each commodity.

The proportionality of surplus value to labor performed is a crucial abstraction: it depicts a capitalist economy in which all workers are identical, and identically exploited. This is a prime example of an assumption that is patently untrue—it ignores the massive racial, gender, cultural, and geographic sources of differentiation that create stratification within the working class—but necessary to focus on the core properties of the capitalist class system as such. We also assume, at least for a first-order analysis of the value problem, that all labor is simple, unskilled (or average-skilled) labor, and so measurable in uniform quantities of labor time.

The result, to this point, is that profit is formed in each industry in a proportion to wage costs—the “variable capital” expenditure of the capitalists—and that that proportion is the same in all of the industries. If it were not—if the rate of exploitation differed from sector to sector—workers would move from industries with higher rates to those with lower ones, until the rates became equal throughout.<sup>2</sup> This mobility of labor power results precisely from the assumed absence of stratifying differentiation or “extra-economic” restraints. A core aspect of Marx's project in *Capital* was to pursue this sort of abstraction, to “lay bare” the central nature of surplus value production and get beyond all attempts to portray profit and capitalist enrichment as due to any number of extraneous and complicating factors: monopoly, illegality, “superior knowledge,” racial or ethnic or gender division, plunder and conquest, “sheer evil,” and so forth.

Now, we come upon a major fact about the nature of production of different goods: conditions of production are inherently diverse, so that the proportions between quantities of labor and quantities of the associated means of production (inputs) vary significantly from industry to industry. This depends, of course, on the existing state of technology in any given era. But differences in proportions (Marx's "compositions of capital") are unavoidable. If we look at present-day data sources such as the US Federal Reserve Board's "fixed capital per worker in manufacturing," for example, we find "oil and petrochemicals" among industries with the highest ratios: when the product takes a fluid (liquid or gaseous) form, it is inherently easier for larger quantities of product to be processed and managed by a given work force. "Heavy industry," "automotive," and related sectors follow. At the other end of the spectrum, we find light industry, retail, consumer services—sectors that require, by the nature of their products, larger work forces for any given amount of non-human inputs (as measured, of course, by value; we leave annoying measurement issues to one side for now). Whatever we might believe about the effect of the IT revolution on these necessities, or the possibility of eventual convergence of inputs-to-labor ratios, a general treatment must address the reality of differences among industries in these ratios. These differences—unlike, for example, differences in mobility and skill among workers—cannot be abstracted away, even provisionally.

To continue: If surplus value is formed in equal proportion to wages, but physical input costs (Marx's "constant capital") bear differing proportions to wages, then an inescapable conclusion follows: surplus value must bear differing proportions to physical input costs (or, alternatively, to the sum of wages plus physical input costs). But those latter proportions *are* precisely the rates of profit in the various industries.<sup>3</sup> We have, then, owing to the assumption of equal rates of exploitation across industries, combined with the fact of differing compositions of capital, the result that *rates of profit differ* among industries.

This, however, flies in the face of yet another property of a developed capitalist economy that we surely want to retain: "capital"—meaning the sum of wealth that functions to increase itself, that is, to create surplus value—is also mobile. The law of value applied to capital must require that individual capitals move incessantly away from lower rates of profit toward higher ones<sup>4</sup> and therefore enforce a tendency for the profit rate to equalize across industries. Any capitalist who failed to pursue the highest possible rates would be doomed to failure. Marx calls the resulting convergence the formation of a "general rate of profit."

Competition among industries with differing profit rates thus results in the famous transformation problem. It is illustrated by Marx in a series of numerical examples in chapter 9 of Volume III of *Capital* (or, alternatively, in the now-available 1865 Manuscript from which Engels compiled what we have come to

know as *Capital*, Volume III). Here is what happens: Capitalists move into industries with high profit rates, and out of those with low ones. The resulting increase in supply of output in the high-rate industries, and the opposite in low-rate industries, causes prices to move (downward and upward, respectively) away from the labor-value prices. This results in some surplus value being competed away from capitalists in the high-rate sectors and appropriated by those in the low-rate sectors. Marx calls this the “transformation of surplus value into profit”; it occurs along with, and requires, transformation from labor-value prices to a new set of prices called “prices of production.”

The competitive process, then, results in a *pooling-and-redistribution* of surplus value: it is as though the capitalists take the given surplus value, produced in the various sectors, to a meeting at some central site where they put it into a common pile, and then re-assign it to each of themselves in amounts proportional to the value of the capital invested in each production process, so that their rates of profit come out to be equal. Of course, no such “meeting” ever takes place; this is just a metaphor for the result of an unregulated, random competitive struggle. The result, however, is the same: each capitalist winds up with an amount of surplus value that differs from the amount produced in the production process controlled by it, in such a way that the profit rate is equalized, and a general rate formed.

A note on terminology: from now on, I will use the term “value” to mean “labor-value price” and “price” to mean “price of production”—the transformed unit values that create an equal, general profit rate. So, we can say, as a result of profit-rate equalization—the operation of a fully developed capital market—values are transformed into prices.<sup>5</sup> Values and prices, in this sense, can be thought of as centers of gravity around which *market prices* fluctuate. Also, I follow the classical literature, and Moseley, in treating value and price as absolute magnitudes. These are not the prices of textbook economics, which are unit prices or price-relatives: quantities of money per unit of output. For students accustomed to conventional microeconomics, both “prices” and “values,” as these terms are used here, are sums of price-times-quantity pairs.

Marx’s story about the pooling-and-redistribution of surplus value and formation of an equal rate of profit and prices of production is compelling. It suggests, in fact, that workers are exploited by the entire capitalist class, not by each individual capitalist separately, since the surplus value appropriated by capitalists in a given industry does not come entirely from “their own” workers, but from a process involving all of the workers and capitalists taken together. Clearly, when a given sum of surplus value is pooled, and then redistributed, the sum itself does not change; the total profit (transformed surplus value) is equal to the total (originally produced) surplus value—a point that Marx emphasized. Moreover, since the values of the wage goods and physical input goods (elements of “variable

capital” and “constant capital”) are not affected by pooling-and-redistribution, the sum of the prices in all of the industries is equal to the sum of the values. These two equalities—total profit = total surplus value, total price = total value—together provide a strong, intuitive foundation for the view that the prices are derived from and determined by the values, so that they appear as a developed form of Marx’s value theory, and not as a contradiction of that theory. Despite one early judgment that, with his prices-of-production concept and corresponding “admission” that prices in a competitive capitalist economy deviate from values, Marx had committed “theoretical suicide,” most early observers saw this in the way Marx and Engels clearly intended: as a fleshing out, or concretization, of the labor-value theory rather than a refutation of it.

Problems, however, loomed on the horizon. These crystallized in the famous article by Ladislaus von Bortkiewicz ([1913] 1984).<sup>6</sup> If values are to be transformed into prices, some of the industries—one might even say most of them—will be industries that produce the wage goods whose cost appears as variable capital, and the physical input goods whose cost appears as constant capital, in Marx’s schema. Marx’s III:9 tables, however, show the outputs in each industry being transformed from value to price, while the *input values remain untransformed*. This, in fact, is crucial to the calculation (as Moseley emphasizes). Marx derives profit in each industry by first calculating a general rate of profit: The total surplus value (of all of the industries) is summed up, and divided by the similarly summed-up constant plus variable capital, to get the global—“macro”—profit rate, which is then applied to the unchanged constant and variable capital sums in each industry to get each industry’s profit. Unchanged constant capital plus variable capital, plus the thus-calculated profit, equals price of production in each industry. The fact that input-goods and wage-goods prices are *not* transformed is essential to Marx’s procedure.

Bortkiewicz, as his title indicates, regarded Marx’s failure to transform the inputs as an essential error. He set out to correct this error by applying at-first-known transformation multipliers to the elements of constant and variable capital, in a model with three sectors—physical input goods, wage goods, and luxury goods. The output of sector 1 and the physical input goods in all three sectors are thus the same good, and so acquire the same multiplier; the output of sector 2 and the wage goods in all three sectors acquire a different multiplier; and the condition that the profit rate is the same in all sectors is imposed. This results in three equations, which determine three unknowns: the two multipliers and the profit rate. When the multipliers are applied throughout the three sector equations, one arrives at a representation of the economy with fully transformed values, of both input and output quantities, in which the profit rate is indeed equal in all sectors.

Two problems, however, emerge, from the standpoint of Marx's imagery: first, the profit rate that results is not equal to the one derived by Marx by simply dividing the surplus value sum by the (untransformed) constant-plus-variable capital sum. Second, the twin equalities—between total price and total value, and between total profit and total surplus value—do not hold, except in special cases.<sup>7,8</sup>

Bortkiewicz's critique of Marx turned out to be a forerunner of the full development of the theory of a "classical" price system (Kurz and Salvadori 1995), with Sraffa's 1960 volume as a major milestone. Each industry is represented by an equation, with cost plus profit on the left, and the value of output on the right. The givens in the equations are the inputs and outputs for a known and unchanging technique of production or state of technical knowledge, often expressed in the form of input-to-output ratios or technical coefficients, plus the wage rate or share, reflecting the degree of exploitation or the extent to which capitalists are able to extract a share of the net output of the economy as a return to their ownership. The unknowns are the prices and the rate of profit. The result is a system-wide determination of prices—akin to Marx's prices of production—reflecting full competition: among workers forming a common wage rate, and among capitalists forming a common profit rate.

This brings us to the brink of the core question: what determines the rate of exploitation, and the resulting division of the net output between workers and capitalists? Stated differently, why is the rate of exploitation greater than zero or (alternatively stated) the wage share less than unity? The Sraffa system—Moseley's "standard interpretation"—can be used to pose the fundamental question of *Capital I*: How does surplus value emerge, not *in spite of* the full operation of competition and formation of capitalism-inflected value, but *because of it*? Pending an answer to the further question whether the Sraffa system actually helps Marxist theory to probe to this level, I would claim—controversially, as we will see!—that the Sraffa (more generally: classical) price system is in fact the only coherent account of prices, wages, and profits on offer in economic theory. It is presumably the basis on which further investigations, in the tradition begun by Marx, into accumulation, technical change, crisis, monopoly, monetary phenomena, institutional transformation, and the conditions for societal transformation, can be initiated.<sup>9</sup>

This, then, is the background for Moseley's MMI of Marx's work.

## II. The Moseley Proposal

Moseley's book consists of 12 chapters, including the Introduction, plus a Conclusion. There are two parts: Part 1 on the MMI (chs. 1–5) and Part 2 on "Other Interpretations" (chs. 6–12). The Introduction (ch. 1) covers all of the main points;

Chapter 2 presents the MMI a bit more formally. The argument throughout the book is mainly literary; equations are used sparingly, and even the actual numerical tables in *Capital III* are not presented and discussed directly. Chapters 3 and 4 cover Moseley's detailed research into Marx's texts, both those predating *Capital*, *Capital* itself, and certain other materials, mainly letters, that appeared simultaneously with or subsequent to the publication of *Capital I* in 1867. Chapter 5 addresses the theory of money. The chapters of Part 2 cover a range of alternative views, beginning with the "standard interpretation" of Bortkiewicz, Sweezy, and Sraffa, and moving on through "Shaikh's iterative interpretation," the "new interpretation," the "temporal single system interpretation," the "*Rethinking Marxism* interpretation," and the "organic composition of capital interpretation." One chapter addresses critiques of the MMI by two authors: myself and Riccardo Bellofiore.

We are thus confronted with a welter of "interpretations," and the question arises: interpretations of what? One must assume: *Marx's texts*. The *enterprise* of Marxist political economy in this approach consists mainly in studying those texts and attempting to extract their inherent truth. While it is not possible to pin this assumption down completely, it seems, to this "interpreter" at any rate, to suffuse Moseley's work overall. The motivating center of the book, and of the years of work of which it is the culmination, is a massive effort to defend Marx against all of his "critics," where a "critic" is usually someone who is attempting to resolve contradictions and ambiguities, to build upon the foundations laid down by Marx and carry his work forward. The pooling-and-redistribution story of *Capital III:9* is the shining jewel of this project, and all of the architecture of the MMI—for example, the methodological considerations, the "macro" interpretation of Volume I, and the claims concerning the monetary nature of the key variables—is developed in its defense.

Despite the plethora of "interpretations," Moseley's main target is the "standard interpretation," which I have summarized above, and the Bortkiewicz critique of Marx's "failure" to transform the inputs. If the elements of constant and variable capital remain constant, so that pooling-redistribution fully describes the way in which prices of production are formed, the twin equalities—total price = value, total profit = surplus value—are retained. Marx's Chapter 9 arithmetic is, in Moseley's view, a *complete* and completely accurate description of the process. The MMI, then, finds in Marx an assertion of the given-ness of the constant and variable capital input values, in money form, derived from Marx's formula for capital:  $M-C-M'$ , where it is clear that the capital process *begins* with a quantity of *money*. So the inputs (meaning both the non-human inputs and the wage) are given, and therefore constant, at the outset.<sup>10</sup> Ontological priority is awarded to the sequential aspect of production—inputs precede outputs—rather than to the simultaneous aspect. If the value of the inputs is given, Marx's story is literally accurate;



there is a single transformation in which the production-price form of value is determined.

I must now document this characterization of Moseley's position by quoting several passages at length.

From the Introduction:

... the crucial point for the “transformation problem” is that, in Marx's theory of prices of production in Volume III, the *same quantities of constant capital and variable capital* are taken as given as in the Volume I theory of the total surplus-value—the *actual* quantities of money capital advanced to purchase means of production and labor power in the actual capitalist economy. . . . The question that Marx's theory of prices of production is intended to answer is this: how is the original  $M_i$  in each industry recovered and the total surplus-value distributed in proportion to the original  $M_i$  in each industry? (Moseley 2016, 16)

From the Conclusion:

And the crucial point with respect to the “transformation problem” is that, in Marx's theory of prices of production in Volume III, the same quantities of constant capital and variable capital are taken as given as in the Volume I theory of the total surplus-value—the actual quantities of money capital advanced to purchase means of production and labor power in the beginning of the circuit of money capital. . . .

That is why Marx did not “fail to transform the inputs” of constant capital and variable capital from values to prices of production—because no such transformation is necessary or appropriate in Marx's theory. The inputs of constant capital and variable capital in Marx's theory of prices of production in Volume III are the same actual quantities of money capital advanced in the real capitalist economy that are inputs in Marx's theory of total surplus-value in Volume I. There are not “two systems” in Marx's theory—a “value system” and a “price system”—with two sets of magnitudes of constant capital and variable capital. . . . Therefore, there is no “transformation” of constant capital and variable capital that is supposed to be made in Marx's theory (Moseley 2016, 390–391).

... the “transferred value” component of the value of commodities produced by capital is the actual money constant capital advanced to purchase the means of production utilized in the production of those commodities by capital, which is equal to the price of production of the means of production, not their value. (Moseley 2016, 392; all italics in the original)

The reader must take my word for it that, in between the two nearly identical formulations in the Introduction and the Conclusion, the same argument is repeated in every chapter, practically on every page, always of course with regard to the particular polemical or exegetical context of the relevant chapter. The final passage quoted above makes clear the ultimate point: the values of means of production and the elements of the wage are not transformed, because *they are already transformed: they are already prices of production*. The transformation has *already taken place* with regard to the elements of constant and variable capital.

Marx's III:9 example is therefore only concerned with transformation of goods that are not input goods or wage goods, or are at least not input goods or wage goods that were involved in the pooling-redistribution of surplus value that resulted in the formation of the prices of production that are part of the *given* capital that is constant (unchanging) for the purposes of the illustrated transformation.

I believe that the discussion just above "lays bare" the core of Moseley's position. There is much more, of course: as noted, the given-ness of constant and variable capital is linked to the role of a given money magnitude in Marx's formula for capital,  $M-C-M'$ . It is embedded in a methodological interpretation of the levels of abstraction (macro and micro) in the argument in Volumes I and III, respectively. And it is linked to Moseley's preference for a sequential view of production (all production or just capitalist production?), as against one that emphasizes the simultaneous aspects.<sup>11</sup>

Moseley is also preoccupied with textual evidence, which he marshals with admirable perspicacity. On the textual foundations for the MMI interpretation of Marx's views, I would say that, while there is some contradictory evidence—acknowledged by Moseley, and I think inevitable in a thinker of Marx's stature—the main body of Marx's thought on prices of production is entirely in line with the MMI interpretation. As a critic of MMI (see below), I readily agree (there is no need for me to "admit"; I don't seek confirmation for all of my positions in Marx's texts) that Marx's thinking was dominated by his III:9 model, in which the values of the means of production are given, presupposed magnitudes. I would not want to try to impose later conceptions upon Marx, or to read those conceptions back into his work, much less to presume to know what he would say about all this if he were still alive. Moseley has done an exemplary job of assembling the relevant texts, showing their path of development through the early "drafts" of *Capital*, laying out his own ("macro monetary") interpretation, and seeking to find the relations between his own position and any number of present-day positions (including my own).

But the question remains: what are we to make of this? If we forget, for the moment, about "interpreting" Marx, what path should we follow in thinking about value, price, and capitalism, going forward? Is the MMI a suitable basis for the

continuing development, and theoretical-practical success, of the Marxist project?

### III. Outline of a Critique

Let me come directly to the point. The MMI cannot serve as a suitable interpretation of Marx and as a proper basis for Marxist scientific research in political economy because it is inherently self-contradictory and (in that sense) incoherent.

In the Moseley transformation, the goods that are the outputs of the industries being represented (five, in Marx's Volume III tables) are (must be) *either* (i) input goods (purchased directly by capitalists) or wage goods (purchased by workers after payment to them of a money wage); *or* (ii) not.

If they are not—we can take this case first—then there appear to be two sub-possibilities. First, they could be luxury goods, as in Bortkiewicz' model. In that case, the III:9 transformation fairly well describes what happens: prices of input goods and wage goods are determined, simultaneously with the rate of profit, “elsewhere” (but why should we assume that capitalists in those sectors compete—pool-and-redistribute—first, with luxury-goods capitalists only joining the fracas later?). In any case, Sraffa was clear that prices of what he called “basics”—goods that enter into production of all goods, directly or indirectly—are determined together with the profit rate, independently of production conditions in the luxury-goods sectors; prices of luxury goods (non-basics) adjust to equate profit rates in those sectors with the already determined general rate of profit. In Sraffa, this process is simultaneous: even if the result is approached through a series of iterative steps, those steps are traversed simultaneously by all sectors. In this version of the Moseley story, for some reason the input-goods and wage-goods sectors act first, only then to be followed by luxury-goods; this latter transformation is the only one we actually see, since we are told that the input goods and wage goods already have fully formed prices of production. This seemingly arbitrary imposition of sequentiality does not change the ultimate outcome, however, although it might be thought to affect *which* capitalist firms wind up in which sector, at the emergent general profit rate. Needless to say, it is hard to attribute to Marx an intention to focus on luxury goods alone in the transformation. In general, the very postulate that inputs do not need to be transformed because they have “already” been purchased by capitalists at prices of production appears as a monstrous begging of the question, since we will then need to know how *those* prices of production were arrived at.

The other possibility—under the general case in which the industries whose value transformation is being illustrated are different from the industries that produce their means of production and wage goods—is even less appealing. Suppose

there are two *regions* (we need a word other than “industries” or “sectors”), let’s say east of the Mississippi and west of the Mississippi. All input goods and wage goods are produced east of the Mississippi (hereafter the “east region”). Capitalists in the east region do not compete with capitalists in the west region. Also, there are fierce unidirectional currents in the river, so that goods can be ferried across from east to west, but not from west to east. So, the west capitalists can buy their input goods from the east, at given prices determined (somehow! not by simple pooling-and-redistribution) in the east. These are the *given* prices, determining the *given* constant and variable capital quantities of the III:9 tables. Capitalists in the west region, then, have a pooling-and-redistribution process that looks very much like the III:9 story that Moseley elevates to central importance. It is not clear in this Mississippi River tale how the west-region capitalists compensate the east-region capitalists for the goods acquired from them; perhaps by selling luxury goods to them (but this reverts to the earlier luxury goods case). Even then, we would have to ask how the west capitalists get those luxury goods across the river.

We seem to have some rather insuperable problems if we pursue the assumption that the goods being produced in the III:9 tables are different from those entering into production as physical or wage inputs. In any case, the requirements of generality suggest that we should be examining a single, integral capitalist system, in which *all* of the goods being produced are represented among both outputs and (where appropriate) inputs, and in which a *single* principle of price formation is being studied. This brings us back to case (i) above: the transformation *does* involve goods that enter into the wage or into production directly as inputs. The industries represented in Marx’s tables, or in Sraffa’s equations, are *basic*, in Sraffa’s sense: the goods being produced are also—I fear I must say “simultaneously”—inputs. We can, I think, ignore luxury goods altogether to examine this problem further.

This general case brings the inconsistency of the Moseley story into full relief. If the constant capital and variable capital elements are based on prices of production—the rationale for excusing Marx, and the rest of us, from any need to transform them—then these prices of production *must be fully formed at the outset*. But then the pooling-and-redistribution of surplus value, which is the whole point of the exercise, *cannot happen*. If the capitalists look, after production, and see equal rates of profit everywhere, there is no incentive or need to shift capital from lower to higher rates, and no process of price-of-production formation can take place; *of course*, since, as we have been told, the input goods (both categories) are *already* at prices of production. But if there is indeed a pooling-and-redistribution and transformation, then *prices change*; this contradicts the original premise that prices (of production) were already in existence. Note that some goods cannot be at prices of production while others are at (untransformed) values, or somewhere else; either prices of production have been arrived at everywhere, or nowhere.

*You can't have it both ways.* Prices of production cannot *already exist* for the inputs, and *also* be the result of transformation for the outputs.

I would like to argue, forcefully: this is *not* a matter of “interpretations.” One can *not* say, “In *your* interpretation, prices of production cannot both exist and not (yet) exist at the same time. In *my* interpretation, they can.”<sup>12</sup> No amount of study of Marx’s texts will resolve this issue. It is a matter of what *we* collectively determine to be a sound basis for our theory (and the research it inspires) in the Marxist tradition.

Does all this mean that Marx’s III:9 tables, and the entire story told in Part II of Volume III, are wrong? Did Marx make “errors,” as Bortkiewicz insisted? I once thought that we could distinguish between “Errors 1” and “Errors 2,” a formulation quoted by Moseley in his thoughtful response to the article where I address his work, among others’ (Laibman 2000). Errors 1 would be serious, system-compromising errors; Errors 2 are minor, correctable errors, whose correction actually advances the theory. My point was obviously that Marx made a few Errors 2, but not any Errors 1. Moseley insists that failing to transform the inputs, *if* this were indeed an error at all, would be serious, in the Errors 1 category: “. . . its ‘removal’ contradicts the prior determination of the total surplus value, which does indeed ‘strike at the heart’ of Marx’s theoretical system” (374). I will have a bit more to say about what does and what does not “strike at the heart” (quoting myself) of Marx’s system below, and whether that system requires “prior determination” of surplus value, where “prior” means “independently of capitalist relations of distribution.” I will only say here that we can and should embrace the general possibility of errors made by Marx. Can you imagine evolutionary biologists refusing to acknowledge any possibility of errors in Darwin’s work, or mathematicians doing the same with Newton?

However—perhaps under Moseley’s influence!—I would like to retreat a bit, and suggest that the III:9 pooling-and-redistribution story, with unchanged inputs, is not an “error” at all, of any kind (Bortkiewicz to the contrary notwithstanding). It can be thought of as a short-run, or momentary, snapshot of an ongoing iterative process (here I am following Shaikh 1977; cf. Moseley 2016, ch. 7). Answering Ian Steedman’s charge of absurdity (Steedman 1977)—failing to transform the inputs amounts to asserting that a good is simultaneously purchased at one price and sold at another—several authors have pointed out that, when time is involved, capitalists can be imagined to purchase inputs at one moment, and sell goods, including input goods, at another. The III:9 exercise shows exactly such a dynamic moment, and *at that moment* pooling-and-redistribution *is* an accurate description: input prices, having been the basis of once-for-all purchases that have already taken place, do not change in that capacity, and the twin equalities (and, indeed, the ones that Marx did not emphasize) hold.

Prices, however, do change as a result, and *in that transition* to a *new transformation* the individual and total constant and variable capital sums *must change*. Again, this is not a matter of textual veracity or interpretive choice. It cannot be ignored, because it does not correspond to someone's "interpretation," or view of Marx's "method." If I say " $x + y = 3$  and, simultaneously,  $x + y = 4$ , and that is Marx's method," so if you criticize this as illogical, you are playing a trick by going outside of the approved method," I am asking you to abandon all prospect of rational debate. If prices change as a result of profit-rate equalization, then—they change, period. And that includes the prices of elements of constant and variable capital.

The profit rates, initially equalized, then return to a state of inequality: if the denominators change, the ratios change. There must then follow a *second moment* of pooling-and-redistribution. Indeed, what emerges is an infinite series of such moments. Marx, in this view, did not err at all! His story is a precise account of a *single moment* in a dynamic process. His "error" was being mortal: he did not live long enough to trace the full trajectory of the process that he had begun to analyze. The iterative sequence of III:9 transformations is in fact—as Moseley indeed acknowledges—a dynamic and sequential approach to the solution of the system of equations describing the capitalist economy, in a given state of technology and social relations (the balance of class forces), but with time passing, in the sense that we allow a series of steps to unfold, with pooling-and-redistribution altering prices at each step and the new prices taking effect as the basis for input values (constant and variable capital quantities) at the next step. The question arises: does this iterative process have a convergent end result? The answer—one with considerable mathematical support—is that it does, and that result, not surprisingly, is the same as what we get if we solve the Bortkiewicz-Sraffa equations simultaneously.<sup>13</sup>

We have, so ably collected by Moseley, a series of "interpretations," some of which (not all) are designated by acronyms. Thus, MMI, TSSI, RMI (macro monetary, temporal single system, Rethinking Marxism) (this leaves out the "standard interpretation" and some others). I would like to add to the list: the *theoretical time/consistent structure interpretation*, TT/CSI. The idea is simple. We control the way in which we think about time ("theoretical time"), allowing time to pass in one sense, while holding it constant in another—much like episodes of sci-fi series in which time is frozen for some individuals, who are in motionless poses, while others walk around them. So we hold the important things—forces and relations of production, technology and class—constant, and allow the value configuration to pass through a series of steps toward the inner reality of the situation ("consistent structure"). That reality is, apparently, the classical-Marxian price system represented by Sraffa's equations, toward which all roads lead. This system, then, represents the transformation of value under the impact of capitalist

social relations and is the end result of the “transformation problem.” The TT/CSI proposal seems to grasp a core aspect of Marx’s methodology: the seeking out of an inner essential set of relations behind the apparent flux of perceived phenomena, in which it is hard to separate the accidental and fortuitous from the necessary and structural. Surely, value theory is, or should be, about finding that core of inner relations.<sup>14</sup>

Logical working-through of the MMI transformation, then, reveals that it *must be*—can not *not be*—a step in an iterative chain, leading to a single determinate result, in which the price (transformed value) of every good is the same, whether it appears as an input or as an output, and an equal rate of profit has emerged. This is the classical, “standard,” Sraffian system. It is, I believe, entirely consistent with rigorous investigations in Marxist political economy into the nature and source of exploitation—the source of surplus value ( $\Delta M$ ), emphasized by Moseley—and into the identification and substantiation of the *value dimension*: the substratum of socially necessary abstract labor time underlying the economic appearances available to experience and enabling us to grasp the inner nature of the capitalist social relation and unify the many appearances of that relation.<sup>15</sup>

Questions remain, however, concerning the “twin equalities”: of total price with total value, and total profit with total surplus value. It is remarkable how much intellectual effort has been invested in their defense. Moseley is in a long line of Marxist authors who insist that Marx must be “vindicated” on this topic. The temporal single system (TSS) school, in particular, while stressing temporal dynamics and transformation at all points and essentially dissolving all theoretical analysis into a short-run story in which anything might be happening, and no systemic foundations can be defined (see Moseley 2016, ch. 9 for a critique), allows the twin equalities to shine through at every point. The proposition that the total profit of the capitalists is exactly equal to the surplus value generated in production, in particular, seems irreplaceable: if this were not to hold, would not the entire foundation of Marx’s theory of exploitation crumble?

First, we need to do the science. The most general conclusion that emerges from the formation of profit-rate-equalizing values (prices of production), in a complete and logically consistent analysis, is that the clarity of the simple (untransformed) labor-value paradigm disappears, once capitalist competition obscures and mystifies the core relationships. In fact, competition and profit-rate equalization can be understood as having the *functionality* of mystifying, and thereby helping to enable, surplus value extraction. It is simply a property of the production-price-profit system that the various equalities—as noted above (note 8), there are more than two—cannot in general hold simultaneously. If profit = surplus value is the ultimate prize, then it must be accepted that the others, including total price = total value, will not hold.

Full value determination, however, should not have to rely on what must be an endless and unresolvable debate about which imagery is the most important to retain. Since most of the intuitive properties are distorted by the formation of a common rate of profit, it would, I believe, be most sensible to drop the “equalities” requirement altogether and recognize that the core features of the capitalist system—the basis of net income created in current labor, the basis of profit in surplus value or unpaid labor, the insight that fully valorized labor power (labor markets in “equilibrium”) results in exploitation and extraction of surplus value—simply *do* appear in mystified and distorted form, something one would in fact expect them to do.

Moseley, indeed, is inconsistent in his choice of equalities to defend. He focuses on the twin equalities because they were prominent in Marx’s own writings. But in response to an argument by me (Moseley 2016, 370) he notes (I am tempted to say: “admits”) that constant and variable capital “are *not* equal to the *value* of given means of production and means of subsistence” (italics in the original), that is, what capitalists actually pay for the goods that enter into production differs from the monetary equivalent of the labor embodied in them. This is a discomfiting complication, and Moseley wishes to mitigate its implications; so he writes, “C and V [constant and variable capital] clearly do have a relation to these physical quantities . . .” (370). Nevertheless, the physical quantities (actually, the value sums representing them) are not exactly *equal* to C and V. This non-intuitive property is acceptable to Moseley. However, the idea that the value of the aggregate surplus product “has a relation to” aggregate profit, while not being exactly *equal* to it, is not. Why the different treatment? Why the resistance to simply accepting the fact that certain quantitative relations—as a result of the obscuring effect of competitive pooling-and-redistribution making *capital as such*, and not labor, seem to be the source of profit—appear in distorted and mystified form?

#### IV. Concluding Remarks

I should end—the debate itself never ends—by returning to the admirable points of the book and to the things that Moseley and I have in common.

The organization and analysis of Marx’s texts in *Money and Totality* is superb and will serve as a valuable source for further investigations for a long time to come.

Moseley and I agree in taking Marx seriously and using his work to build firm foundations for revolutionary practice and social transformation. We also agree in seeing prices of production as centers of gravity reflecting an underlying structure, and in rejecting approaches that retreat into empiricism and complete loss of theoretical clarity in the guise of “temporalist” concern with process and change. I also



highly appreciate Moseley's raising, in his Conclusion, of the matter of strategy for resolving differences and seeking out sources of agreement. This bears upon the need to seek convergence and get beyond the disappointing sense that debates within Marxist theory repeat from generation to generation, without moving forward, to which I alluded earlier.

I must, however, insist that his rejection of what I see as the broad highway of Marxist theoretical work—what he labels and rejects as the “standard interpretation”—leads Marxist political economy into a cul-de-sac, which does not withstand tests of logic and rigor, enabling non-Marxist economists and political economists to reject the Marxist project in its entirety.

In particular, I believe that we had best not treat “Marx's method” as an unassailable fortress, a realm unto itself that can only be addressed in its own terms. Marx's contributions, and those of his followers for the last 150 years, are enormously important, and they cover a vast territory, from empirical findings to theoretical models to distinctive contributions to philosophical and methodological foundations. But they must be continually argued for and re-confirmed, in intense interaction with mainstream (bourgeois) social science. And if the logical foundations of key aspects of the Marxist edifice are found wanting, claims for the “impressive explanatory power of Marx's theory” (Moseley 2016, 397) will not be convincing.

## Notes

1. For those interested in probing more deeply into the background, I would suggest, in chronological order: Sweezy (1942); Samuelson (1971); Laibman (1973–1974); Shaikh (1977); King (1990); Laibman (2002); Fine and Saad-Filho (2012); Laibman (2012)—in addition to the many sources cited in Moseley, covering the various present-day schools or “interpretations.” A Mini-Symposium on Moseley's book appeared in the *International Journal of Political Economy*, vol. 31, no. 1 (IJPE 2017), with contributions by Moseley, Ben Fine, Eleutério F. S. Prado, and Simon Mohun and Roberto Veneziani. These papers either recapitulate the contents of the book (Moseley), address philosophical dimensions of the problem that do not affect the theoretical questions addressed by me (Fine; Prado), or put forward a model of the classical type that is in essential agreement with my own work, but without examining the details of the Moseley proposal (Mohun and Veneziani). The IJPE Mini-Symposium appeared online and in print after the present paper had been drafted.
2. To be sure, the condition as actually perceived by workers must be carefully specified. Workers need not care about rates of exploitation as such; they need only respond to differences in the money wage—and, in given circumstances, the real wage—per unit of labor time expended.
3. Rates of profit can be defined in a number of different ways. For this exposition, we can follow Marx and define the rate of profit as the ratio of profit, or surplus value, to the sum of the circulating capital advanced, or wages plus the value of physical inputs. Again, I am proposing that we ignore some technicalities and alternative formulations for present purposes.
4. As well as pursuing class-struggle strategies, technical-change strategies and financial strategies that maximize the profit rate in the short run of intense *real competition* (Shaikh 2016) among

capitals. This, however, takes us away from our more limited story about the nature of the capitalist class process at a given moment in time.

5. A caution is needed here. The concise terminology “values” and “prices,” as defined above, must not be taken to mean that *labor* quantities are transformed into *money* quantities. “Prices,” for example, are prices of production, transformed values, which simultaneously take on both a labor-value form (quantities of abstract labor) and a money form. We can account for the relation between values and prices either in labor time or in money, but we are not speaking of a “transformation” from one to the other.
6. The best introduction to the algebra of the Bortkiewicz argument, and to the tradition emerging from that algebra, which includes the seminal work of Sraffa (1960), remains Sweezy (1942, ch. VII). See also Meek (1956).
7. There are some other issues, relating to conditions for overall supply-demand balance among industries and to the special status of the luxury-goods sector. I will ignore these here.
8. A fuller analysis reveals that, of the multiple “equalities” or *invariance conditions* for the full (inputs-plus-output) transformation, it is possible for any *one* of *several* intuitively reasonable conditions to hold: price = value, profit = surplus value, transformed value added = untransformed value added, transformed wage basket = untransformed wage basket, transformed total costs = untransformed total costs. No *two* of these, however, can hold simultaneously! This will be true, *unless*—the basis for certain special cases—their exact commodity compositions are the same. For example, if the wage basket consists of certain amounts of the outputs of the economy, in certain proportions, and the “profit basket” just happens to consist of the goods in the *same* proportions, then one can have wage invariance, profit invariance and net output invariance (since net output equals wages plus profits) simultaneously. The question arises: is the choice of invariance condition simply a matter of preference for the imagery conveyed by that condition, or is there an objective basis for determining the condition, and so the absolute scale of the transformed value system (as opposed to its internal proportions only)? See Laibman (1973–1974, 2002).
9. Moseley of course rejects the Sraffa model in its entirety (2016, 230ff), largely on the basis that it “takes as givens” physical quantities rather than the monetary constant and variable capital that he favors. Sraffa’s treatment of fixed capital is also taken to task, for what I regard as some valid reasons; but this seems a bit disingenuous, since Moseley follows Marx in essentially basing his argument on a circulating-capital framework (despite the formal presence of fixed capital in the numerical tables in III:9). In general, the matter of “givens” and their constancy is raised to an altogether excessive place of prominence in Moseley’s thinking; various things may be regarded as given for particular purposes, depending on context. It would be reasonable to suggest that Marx’s real “givens,” in *Capital*, vol. I, chapter I, are *the same as* Sraffa’s: a historically determined system of production of commodities.
10. Apologies to the reader for a source of confusion stemming from Marx’s terminology: we are forced to say that “constant capital” and “variable capital” are both constant! The second “constant” means given, or presumed, or unchanging, prior to the transformation to prices of production. The constant/variable distinction itself arises from Marx’s position that only one portion of capital advanced—the variable portion—results in increase over value advanced, and is thus the source of surplus value. This distinction, one might note, becomes problematic in the context of fixed capital: there is no variable capital *stock*, at least not one held by capitalists.
11. Anticipating my critique slightly, I must ask, *is* production simultaneous or sequential? The answer, I believe, must be *both*. These are twinned aspects of a dialectical unity. Clearly, we need picked cotton before it can be spun into yarn, yarn before it can be woven into cloth, and

cloth before it can be sewn into garments. But equally clearly, spinners do not start work only on Tuesday, waiting until after cotton has been picked on Monday; weavers do not wait until Wednesday, until after yarn has been spun on Tuesday; and so on. All of these *sequential* activities are carried on *simultaneously*.

12. The problem here is entirely within the realm of formal logic. I hope it will not be imagined that dialectics enables us to embrace sloppy thinking. I am not an expert in dialectical logic and its exposition, nor am I an anti-dialectical Marxist. I would, however, insist that dialectical reasoning and dialectical sensibility cannot be allowed to countenance formal-logical contradiction; if they did, all scientific reasoning and investigation would be undermined. Moreover, one cannot counterpose logical consistency to descriptive insight, as by claiming that illogical arguments can nevertheless be fruitful. In this case, the insightful potentials must be brought within the overall frame of a logically consistent model, as I indeed believe can be done with Marx's III:9 story.
13. The iterative, or sequential, solution to the equations determining equilibrium prices of production was proposed by several authors in the early part of the 20th century; Moseley's (and my) reference to Shaikh (1977) in this regard must not be considered to be exhaustive. It should also be noted that, while the iterations may begin with the "labor values"—the direct-plus-indirect quantities of labor time expended in production per unit of commodities—this is *not* a requirement: any arbitrary vector of non-profit rate-equalizing prices can appear as the starting point of the convergent process leading to prices of production (profit rate-equalizing benchmark prices). Furthermore, the convergent process requires imposition of an invariance condition from outside. Shaikh, for example, assumes (and therefore gets) total price = total value equality. The iterative form of the solution does not affect the "twin equalities" issue. Finally, my own defense of the value dimension (see below, on the "theoretical time/consistent structure" interpretation) does not rely on a labor-value starting point for the convergent process, or on the direct labor-value vector as anything other than a limiting case of prices of production, where the wage share approaches unity.
14. It should be clear that my TT/CSI proposal combines the fully iterated "Sraffa" price system with affirmation of the *value dimension*: the role of abstract labor time in a completely adequate rendering of the core capitalist social relation. This will of course not be acceptable *either* to Marxists or Marx-interpreters such as Moseley, *or* to "Sraffians"—those who insist that the visible price/wage/profit system is alone a reasonable object of investigation. Was Sraffa himself a "Sraffian"? Perhaps not. One anecdote, from the mid-1960s, has him answering a critic who noted that the *corpus* of Marx's value theory is not present in *Production of Commodities*, by saying, "Marx already wrote that book! Why should I repeat all that now?" This, of course, does not definitively resolve the question.
15. It might be noted in passing that this system—call it the *Sraffa system*, or, in the context specifically of Marxist value theory, the TT/CSI—is indeed a *single* system, avoiding the duality or dualism that MMI and TSSI writers like to disparage. Putting to one side the issues surrounding the original emergence of capitalism out of precapitalist market economy ("simple commodity production") or the "historical" transformation (Morishima and Catephores 1978), labor values in a pure capitalist economy *are* the prices of production; "transformation" thus becomes unnecessary. The remaining issue can be described by the term "capitalist value *determination*," which refers to the problem of identifying the invariance condition that fixes, uniquely, the absolute scale of the profit-rate-equalizing values (or prices of production). See Laibman (2002). There is, then, a *single system* of capitalism-determined values. By contrast, "dualism" seems to describe well a view in which prices of production already exist in the determination of the elements of constant and variable capital, but are simultaneously being formed on the basis of those elements.

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