

THE MACRO-MONETARY INTERPRETATION OF MARX'S TRANSFORMATION PROBLEM AND A SYMPATHETIC CRITIQUE OF THE 'NEW INTERPRETATION'

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The long-standing criticism of Marx's theory of prices of production in Volume 3 of *Capital*, from Bortkiewicz on, is that Marx "**failed to transform the inputs**" of constant capital and variable capital from values to prices of production. The validity of this criticism depends on the **method of determination** of the magnitudes of constant capital and variable capital in Marx's theory and, given this method of determination, whether or not the magnitudes of constant capital and variable capital **should be transformed** from values into prices of production in Volume 3.

I argue that the magnitudes of constant capital and variable capital are **taken as given**, both in the theory of surplus-value in Volume 1 and in the theory of prices of production in Volume 3. And the crucial point is that the **same quantities** of constant capital and variable capital are taken as given in both of these stages of the theory - the **actual quantities** of money capital advanced to purchase means of production and labor-power in the first phase of the circulation of capital in the real capitalist economy [the **M** in **M - C ... P ... C' - (M + ΔM)**]. The same initial, given **M** in the circulation of capital is taken as given in both Volume 1 and in Volume 3. This is the reason the quantities of constant capital and variable capital **do not change** or **do not have to be transformed** from values to prices of production in Volume 3, and why Marx **did not fail** to make such a transformation - because the same quantities of constant capital and variable capital are taken as given in both volumes. (Similar interpretations of the

determination of constant capital and variable capital have been presented by Yaffe 1976, Mattick Jr. 1981, Carchedi 1991, Ramos 1998-99).

In recent decades, the “new interpretation” of Marx’s theory presented, by Foley, Duménil, Mohun, and others, has received considerable attention and acceptance. I argue in this paper that the “new interpretation” is partially right and partially wrong. The new interpretation is partially right in that **variable capital** is taken as given, as the actual money capital advanced to purchase labor-power in the real capitalist economy, and the same quantity of variable capital is taken as given in both Volume 1 and Volume 3, as in my interpretation. However, the new interpretation is partially wrong in that **constant capital** is determined in a **different** way - constant capital is derived from given quantities of means of production, as in the standard interpretation of Marx’s theory. Constant capital is first derived in Volume 1 as the value of the given means of production, and then is transformed into the price of production of the given means of production in Volume 3.

Therefore, I argue that there is a **fundamental methodological inconsistency** in the new interpretation’s determination of variable capital and constant capital. Variable capital and constant capital are determined in two different ways. I argue, to the contrary, that variable capital and constant capital are **determined in the same way** in Marx’s theory - they are both taken as given, as the actual quantities of money capital advanced to purchase means of production and labor-power in the real capitalist economy. Variable capital and constant capital are the two components of the initial money capital advanced to purchase means of production and labor-power (i.e. $M = C + V$). Both constant capital and variable capital are advanced prior to production, and thus both are known quantities prior to production and the production of surplus-value. Therefore, both of these known quantities of constant capital and variable capital

are taken as given in Marx's theory of surplus-value and prices of production. The main empirical phenomenon that Marx's theory is intended to explain is the transformation of the initial, given $M (= C + V)$ into $M + \Delta M$.

This paper examines in detail the different versions of the "new interpretation" presented by Foley, Duménil, and Mohun. The first section presents a summary of my "macro-monetary" interpretation of Marx's theory, as the perspective from which the new interpretation will be considered. Marx's circuit of money capital [$M-C \dots P \dots C'-(M + \Delta M)$] is emphasized as the general analytical framework of Marx's theory, both in Volume 1 and in Volume 3.

1. MACRO-MONETARY INTERPRETATION OF MARX'S THEORY

1.1 Volume 1

The main goal of Marx's theory is to explain the **total surplus-value** produced in the capitalist economy as a whole; i.e. explain how surplus-value is produced and what determines its magnitude. Marx introduced this main question in Chapter 4 of Volume 1 in terms of "**the general formula for capital**", which is:

$$(1a) \quad M - C - M' \quad \text{or} \quad M - C - (M + \Delta M).$$

The emergence of ΔM , or surplus-value, at the end of the circulation of capital is the main purpose of capitalist production and the most important phenomenon to be explained in a theory of capitalism. Most of Volume 1 of *Capital* is devoted to this all-important question (see Moseley 2004 for an extensive discussion of this main purpose of Volume 1).

The "general formula for capital" in Chapter 4 is an abbreviated form of the complete form of the circulation of capital. The complete form is:

$$(1b) \quad M - C \dots P \dots C' - (M + \Delta M).$$

We can see that the complete circulation of capital consists of **three phases**: (1) the purchase of means of production and labor-power, (2) the production process, and (3) the sale of commodities. The first and third phases take place in the “sphere of circulation”, i.e. on the market.

This complete formula for the circulation of capital is the overall analytical framework for Marx’s theory of surplus-value in Volume 1. Marx’s theory of surplus-value analyzes this process of the circulation of capital and the emergence of surplus-value at the end of this process. Marx summarizes clearly and succinctly the circulation of capital as the overall analytical framework of his theory in the following important paragraph at the beginning of Part 7 of Volume 1:

The transformation of a sum of money into means of production and labor-power is the first phase of the movement undergone by the quantum of value which is going to function as capital. It takes place in the sphere of circulation. The second phase of the movement, the process of production, is complete as soon as the means of production have been converted into commodities whose value exceeds that of their component parts, and therefore contains the value originally advanced plus a surplus-value. These commodities must then be thrown back into the sphere of circulation. They must be sold, their value must be realized in money, this money must be transformed once again into capital, and so on, again and again. This cycle, in which the same phases are continually gone through in succession, forms the **circulation of capital**. (Marx 1977, p. 709; emphasis added).

Thus we can see that the circulation of capital **begins with money, M**, the advance of a definite quantity of **money capital** to purchase means of production and labor-power, in the sphere of circulation. Therefore, Marx’s theory of the circulation of capital also **begins with this M**, as the **initial given** of his theory. This initial, given quantity of money capital is used to explain how this initial, given **M** becomes **M + ΔM**, and what determines the magnitude of **ΔM** for the economy as a whole.

Marx clearly stated these important points - that the aim of his theory is to explain how M becomes $M + \Delta M$, and that the initial M is taken as given in this theory - in the following important methodological passage from the manuscript entitled “The Results of the Immediate Process of Production” (written in 1864-65, and published for the first time in English in 1977, as an appendix to the Vintage edition of Volume 1 of *Capital*):

In what we may call its first, provisional form of *money* (the **point of departure** for the formation of capital), capital exists as yet only as money, i.e. as a *sum of exchange-values* embodied in the *self-subsistent form of exchange-value*, in its *expression as money*. But the task of this money is to generate value. The exchange-value must serve to create still more exchange-value. The *quantity of value* must be increased, i.e. the available value must not only be maintained; it must yield an increment, Δ value, a surplus-value, so that the value given, the particular sum of money, can be viewed as a *fluens* and the increment as fluxion...

Here, where we are concerned with money only as the **point of departure** for the *immediate process of production*, we can confine ourselves to the observation: capital exists here as yet only as a *given quantum of value* = M (**money**), in which **all use-value is extinguished**, so that nothing but the monetary form remains...

If the original capital is a quantum of value = x , it becomes capital and fulfills its purpose by changing into $x + \Delta x$, into a quantum of money or value = the original sum + a balance over the original sum. In other words, it is transformed into the **given amount of money** + **additional money**, into the *given value* + *surplus-value*. ...

As a *given sum of money*, x is a constant from the outset and hence its increment = 0. In the course of the process, therefore, it must be changed into another amount which contains a variable element. Our task is to discover this component and at the same time to identify the mediations by means of which a constant magnitude becomes a variable one. (Marx 1981, pp. 976-77; italicized emphasis in the original, bold emphasis added)

We can see very clearly from this passage that the “point of departure” for the circulation of capital, and therefore of Marx’s theory of the circulation of capital, is a **given quantity of money**. Money is the “point of departure” for the “immediate process of production”. In this initial, given quantity of money, “all use-value is extinguished.” The starting point of the

circulation of capital, and therefore of Marx's theory of the circulation of capital, is not use-values (means of production and means of subsistence), but rather exchange-values in the independent form of money ("nothing but the monetary form remains"). The "transformation of money into capital" is the transformation of the given initial sum of money into the "**given** amount of money + additional money". The main task of Marx's theory of capitalism is to explain how the initial **given sum of money** is transformed into **more money**, i.e. to "identify the mediations by means of which a constant [given] magnitude becomes a variable [larger] one."

The structure of the circulation of capital also suggests in another way that the initial **M** is taken as given - because the first phase of the circulation of capital is the advance of money capital to purchase means of production and labor-power (**M - C**), which takes place in the "**sphere of circulation**", prior to the second phase of production. Marx's theory of the circulation of capital begins in the sphere of circulation, with the advance of definite quantities of constant capital and variable capital to purchase means of production and labor-power. Thus, when the second phase of the production of value and surplus-value begins, the quantities of constant capital and variable capital have **already been advanced** in the sphere of circulation to purchase means of production and labor-power. Therefore, these already advanced quantities of constant capital and variable capital are in principle **known** quantities, which **can be taken as given** in the theory of how this known, given quantity of money capital becomes more money in the subsequent phases of the circulation of capital. In other words, the presuppositions of Marx's theory of surplus-value in production come from the sphere of circulation, from the purchases made by capitalists in the sphere of circulation, prior to production.

This logical sequence, of first the advance of money capital in the first phase of the circulation of capital, and then the subsequent production of value and surplus-value in the second phase of production, is reflected in the logical structure of the Parts 1, 2, and 3 of Volume 1 of *Capital*. In Parts 1 and 2, the analysis is restricted to the sphere of circulation. Part 3 begins Marx's analysis of the sphere of production (with the famous passage at the end of Part 2 about moving from the "noisy sphere of circulation" to the "hidden abode of production" marking the transition between these two stages of the analysis). In Marx's theory of the circulation of capital, the analysis of the sphere of circulation is a necessary prelude to the analysis of production because "**capital appears first in the sphere of circulation**". Capitalist production is preceded by the advance of a definite amount of money capital to purchase means of production and labor-power in the sphere of circulation. This advance of money capital (constant capital and variable capital) in the sphere of circulation, as analyzed in Part 2, provides the quantitative givens (or presuppositions) for the theory of surplus-value in the sphere of production, as analyzed in Part 3 and beyond.

Marx's theory of the circulation of capital refers to **actual** quantities of money capital advanced and recovered in the real capitalist economy. The circuit of money capital describes the main empirical phenomenon that Marx's theory is intended to explain. The initial **M**, that is taken as given in Marx's theory, refers to the actual money capital advanced to purchase means of production and labor-power; **M'** refers to the actual money capital recovered through the sale of commodities; and $\Delta\mathbf{M}$ refers to the actual difference between these two actual quantities of money capital. Marx's theory is not about hypothetical quantities in a theoretical model, but is instead about these actual quantities of money capital in circulation in the real capitalist economy. Foley (1982, 1986) also emphasizes that the variables in Marx's theory of the

circulation of capital refer to actual quantities of capital, as recorded (in principle) in the balance sheets and income statements of capitalist firms.

The actual, given quantities of constant capital and variable capital **cannot be determined in Volume 1**, because these actual quantities of constant capital and variable capital are equal to the **prices of production** of the means of production and means of subsistence, not their values, and prices of production cannot be determined in Volume 1. Prices of production have to do with the **distribution of surplus-value** (see the next subsection), or the division of the total surplus-value into individual parts. Before the distribution of surplus-value can be explained, the total amount of surplus-value to be distributed has to be determined, and that is the task of Volume 1. In order to explain the actual total surplus-value in Volume 1, the actual magnitudes of constant capital and variable capital are taken as given. These actual magnitudes must be taken as given because, according to Marx's logical method, they cannot yet be explained. At the same time, it is reasonable and legitimate to take these actual quantities as given in the analysis of the sphere of production and the production of surplus-value, because these actual quantities of money capital have already been advanced prior to production, in the sphere of circulation, and thus are in principle known quantities.

In order to provide a **partial explanation** of the actual, given quantities of constant capital and variable capital in Volume 1, Marx provisionally assumed that these actual quantities of constant capital and variable capital are equal to the **values** of the means of production and means of subsistence, respectively. Marx made this provisional assumption in Volume 1 because, as just explained, the prices of production of individual capitals cannot be determined by the theory of capital in general and the total surplus-value in Volume 1. The provisional microeconomic assumption that constant capital and variable capital are equal to the values of

the means of production and means of subsistence is the only assumption that is consistent with the macroeconomic theory of value and surplus-value in Volume 1, at this high level of abstraction.

However, the important point is that this provisional assumption about the actual magnitudes of constant capital and variable capital **does not determine the magnitudes** of constant capital and variable capital, and hence plays no role in the determination of the total price and the total surplus-value in Volume 1. Instead, the quantities of constant capital and variable capital are **taken as given**, as the **actual** quantities of money-capital advanced to purchase means of production and labor-power in the real capitalist economy. These actual given quantities of constant capital and variable capital then become **determining factors** in the value and surplus-value of commodities, as we shall see below.

This “macro-monetary” interpretation of Marx’s theory of surplus-value in Volume 1 can be expressed algebraically as follows: Surplus-value is defined as $\Delta\mathbf{M}$, the excess of \mathbf{M}' over \mathbf{M} for the total capitalist economy as a whole (ignoring for simplicity the distinction between the stock of capital advanced and the flow of capital consumed):

$$(1.1) \quad \mathbf{S} = \Delta\mathbf{M} = \mathbf{M}' - \mathbf{M}$$

The initial money capital advanced, \mathbf{M} , is divided into constant capital (\mathbf{C}) and variable capital (\mathbf{V}), the cost respectively of the means of production and labor-power consumed in the production of these commodities:

$$(1.2) \quad \mathbf{M} = \mathbf{C} + \mathbf{V}$$

We have seen above that these initial quantities of money capital are **taken as given**, as the **actual** quantities of money capital advanced to purchase means of production and labor-power and consumed in the production of commodities. These given quantities of constant capital and

variable capital then become **determining factors** of the price of commodities and the surplus-value contained in the price, in the following way:

The money recovered through the sale of commodities at the end of the circulation of capital ($\mathbf{M'}$) is equal to the price of commodities produced (\mathbf{P}), which is determined by the sum of two components: the money value transferred from the given constant capital (\mathbf{C}), and the money new-value produced by current labor (\mathbf{N}):

$$(1.3) \quad \mathbf{M'} = \mathbf{P} = \mathbf{C} + \mathbf{N}$$

In this way, the given magnitude of constant capital becomes a determining factor of the total price of commodities.

\mathbf{N} in this equation is in turn determined by the product of the quantity of current labor (\mathbf{L}) and the (money) new-value produced per hour of labor (\mathbf{m}) (e.g. 0.5 shillings per hour in many of Marx's examples):¹

$$(1.4) \quad \mathbf{N} = \mathbf{m L}$$

Substituting equations (1.2) and (1.3) into equation (1.1), we obtain:

$$(1.5) \quad \mathbf{S} = \mathbf{M'} - \mathbf{M} = \Delta \mathbf{M} \\ = (\mathbf{C} + \mathbf{N}) - (\mathbf{C} + \mathbf{V})$$

Since constant capital is a component of both the price and the cost of commodities, it cancels out in the determination of surplus-value, and thus equation (1.5) simplifies to:

$$(1.6) \quad \mathbf{S} = \mathbf{N} - \mathbf{V}$$

In this way, the given magnitude of variable capital becomes a determining factor of the total surplus-value produced.

From the given quantity of variable capital, Marx derived “**necessary labor**” ($\mathbf{L_n}$), as the labor-time required for the worker to produce money new-value that is equal to the variable

capital that the worker is paid; i.e. $L_n = V / m$. The remainder of the working day is “**surplus labor**”; i.e. $L_s = L - L_n$. Substituting these definition of necessary labor and surplus labor and equation (1.4) into equation (1.6), we obtain:

$$\begin{aligned} S &= mL - mL_n \\ &= m(L - L_n) \\ S &= mL_s \end{aligned}$$

This then is Marx’s “surplus labor” theory of surplus-value presented in Volume 1 of *Capital*. It explains the actual total surplus-value produced in the capitalist economy as a whole, and it concludes that the actual total surplus-value is proportional to the total surplus labor of workers, with m as the factor of proportionality (i.e. each hour of surplus labor produces m amount of money surplus-value). This is the main conclusion of Volume 1. Most of the rest of Volume 1 is concerned with the main ways to increase surplus-value by increasing surplus labor: lengthening the working day and increasing the intensity of labor (absolute surplus-value) and reducing necessary labor through technological change (relative surplus-value).

For the purposes of this paper, the main point to emphasize is that constant capital and variable capital are **taken as given**, as the **actual** quantities of money capital advanced to purchase the means of production and labor-power in the real capitalist economy, and these given quantities of money capital are then used to determine the actual total price and the actual total surplus-value, as outlined above.

1.2 Volume 3

Volume 3 of *Capital* is mainly about the **distribution of surplus-value**, or the division of the total surplus-value into individual parts, first the equalization of the profit rate across

individual industries (Part 2), and then the further division of the total surplus-value into commercial profit (Part 4), interest (Part 5), and rent (Part 6). In this theory of the distribution of surplus-value, the **total amount of surplus-value is taken as predetermined**, i.e. as determined by the theory of the total surplus-value in Volume 1. This is the most important feature of the overall logical structure of the three volumes of *Capital* - Volume 1 is about the determination of the magnitude of the total surplus-value and Volume 3 is about the distribution of the total surplus-value into individual parts. In other words, the total amount of surplus-value is determined prior to its division into individual parts. Marx expressed this overall logical structure in terms of levels of abstraction: the Volume 1 theory of the total surplus-value is at the level of abstraction of **capital in general**, and the Volume 3 theory of the distribution of surplus-value is at the level of abstraction of **competition**. (See Moseley 1997 and 2002 for extensive discussions of Marx's theory of the distribution of surplus-value in Volume 3.)

Marx's theory of prices of production in Part 2 of Volume 3 utilizes in effect **the same analytical framework** as the theory of surplus-value in Volume 1 - the circulation of money capital - except that it refers to **individual capitals**, rather than to capital in general.

Symbolically, the circuit of an individual capital can be expressed as:

$$(1c) \quad \mathbf{M}_i - \mathbf{C}_i \dots \mathbf{P}_i \dots \mathbf{C}''_i - \mathbf{M}''_i$$

Notice that the prices of production of individual commodities ($\mathbf{C}''_i = \mathbf{M}''_i$) are in general **not** equal to value of individual commodities (i.e. $\mathbf{C}''_i \neq \mathbf{C}'_i$ and $\mathbf{M}''_i \neq \mathbf{M}'_i$), because of the redistribution of surplus-value across industries in order to equalize the rate of profit.

The crucial point that I wish to emphasize is that the \mathbf{M}_i s in the circuit of individual capitals - the initial quantities of money capital advanced in each industry - are **the same quantities** of money capital as in the theory of surplus-value in Volume 1 - the **actual quantities**

of money capital advanced in the real capitalist economy. The only difference is that, in Volume 3, the actual quantities of money capital advanced are broken down into individual industries. The sum of the individual quantities of money capital advanced in the Volume 3 theory of prices of production is by definition equal to the total quantity of money capital advanced in the Volume 1 theory of the total surplus-value.

This is the reason the quantities of constant capital and variable capital **do not change**, or **do not have to be transformed**, in the transition from the macroeconomic theory of the total surplus-value in Volume 1 to the microeconomic theory of individual prices of production in Volume 3: because the **same quantities** of constant capital and variable capital **are taken as given** in both stages of the theory - the **actual quantities** advanced to purchase means of production and labor-power in the real capitalist economy. In other words, these given, actual quantities of money constant capital and variable capital advanced in the first phase of the circulation of capital “**remain invariant**” in the transition from the macro theory in Volume 1 to the micro theory in Volume 3. It is for this reason that Marx did **not** “fail to transform these inputs” - because the inputs do not have to be transformed, but instead remain invariant, as the actual given quantities of money capital advanced and consumed in the real capitalist economy.

The clearest evidence of this crucial point is a number of passages in Chapter 9 of Volume 3 which have to do with the **cost price** of commodities, and which have been largely overlooked in the long debate over the transformation problem. In Marx’s theory of prices of production, the initial M_i s in the above circuit are expressed as the **cost price** of commodities. In a number of passages in Chapter 9 of Volume 3, Marx states clearly, including in unambiguous algebraic formulations, that the **cost price is the same** in the determination of both the values and the prices of production of commodities. The only difference between values and

prices of production is that the profit received in each industry is not equal to the surplus-value produced in that industry (for a full discussion of this textual evidence, see Moseley 2003).

Just to give one important, but little known, example of these passages (in which Marx emphasizes that the cost price is the same in the determination of both values and prices of production): In Marx's draft of Volume 3 in the Manuscript of 1864-65, one paragraph in the middle of Chapter 9 was inexplicably left out by Engels in his edited version of Volume 3 (which is the version we are familiar with). This "missing paragraph" was discovered recently by Alejandro Ramos (1998-99), and is as follows (translated into English by my colleague at Mount Holyoke College, Jens Christiansen):

The cost price is, as we see, always smaller than the value of the commodity. The price of production can be smaller, bigger, or equal to the value of the commodity. The value of the commodity = the value of the capital consumed in the production of the commodity plus the surplus-value. If we take, as in the original development of the cost price (Chapter 1), cost price = value of the capital advanced in the production of the commodities, we have the following equations:

value = cost price + surplus-value	V = K + s
or profit as identical with surplus-value	or = K + p
cost price = value - surplus-value	or K = V - s
price of production = cost price + profit	P = K + p'
calculated according to the general rate of profit = p' .	

Because **K = V - s** and **V = K + s**, the value of the commodity is always > than the cost price. Depending on whether **s** or **p'** of each special production sphere is bigger or smaller or equal, > < or = to the average profit determined by the general rate of profit, then **P > < or = V**. Because **V = K + s** or **p**, and **P = K + p'**, **V = P** when **s = p'**, > **P** when **p' < s**, and < **P** when **p' > s**." (emphasis added)

Notice that in this extremely interesting and important paragraph that **there is only one cost price** mentioned throughout (**K**). There are not two cost prices, one a component of value and the other a component of price of production. The paragraph begins with "**The cost price ...**" The same cost price is a component of both the value and the price of production of the commodity. The value of the commodity is defined as equal to the cost price plus surplus-value

($V = K + s$), and the price of production is equal to the **same cost price** plus the average profit ($P = K + p'$). The K is the same quantity in all the equations. Since K is the same, whether the price of production is equal to, greater than, or less than, the value depends solely on whether the average profit is equal to, greater than, or less than the surplus-value. All this is clearly and unambiguously stated, and all this assumes that there is only one cost price. The surrounding paragraphs in the middle of Chapter 9 that are included in Engels' edition (pp. 263-65) repeat the same points several times.

It is widely recognized that, in Marx's tables in Chapter 9, in which he illustrates his theory of prices of production, the cost price is the same in the determination of both values and prices of production. However, it is also widely argued that this is a **mistake** in Marx's tables - that the cost price **should not** be the same, but should instead be different in the determination of prices of production than in the determination of values. But this argument overlooks the fact that Marx emphasized several times **in the text** that the **cost price is the same** in the determination of both values and prices of production, including in clear unambiguous algebraic formulations. Therefore, the fact that the cost prices in Marx's tables do not change is not a mistake, but is rather an accurate illustration of Marx's assumptions in the text.

In the determination of prices of production, the individual quantities of money capital advanced (the M_i s) are **taken as given**, just as the total quantity of money capital advanced is taken as given in the theory of surplus-value in Volume 1, as the actual quantities of money capital advanced in the real capitalist economy. As Marx expressed this key assumption:

[T]he cost price is completely **governed by the outlay** within each sphere of production ... (Marx 1981, p. 258; emphasis added)

The cost price of the commodity is a **given precondition** independent of the capitalist's production. (Marx 1981, p. 265; emphasis added)

Algebraically, prices of production ($PP_i = M'_i$) are determined by the following equation:

$$(1.7) \quad PP_i = M_i + R M_i$$

where R is the general rate of profit, which is taken as a predetermined magnitude, as determined in the Volume 1 theory of surplus-value. Or, expressed in terms of the cost price (K_i):²

$$(1.8) \quad PP_i = K_i + R K_i$$

After prices of production have been explained, Marx provides a more complete explanation of the given magnitudes of constant capital and variable capital (Marx 1981, pp. 261, 265, and 309). We saw above that Marx provisionally assumed in Volume 1 that the given magnitudes of constant capital and variable capital are equal to the **values** of the means of production and means of subsistence (because no other assumption is possible at the macroeconomic level of abstraction of capital in general). However, after prices of production have been determined, Marx explains further that the given magnitudes of constant capital and variable capital are equal to the **prices of production** of the means of production and means of subsistence, not their values. But this more complete explanation of the given magnitudes of constant capital and variable capital **does not change the magnitudes** of constant capital and variable capital themselves. The magnitudes of constant capital and variable capital remain the same - the actual quantities of money capital advanced to purchase means of production and labor-power in the real capitalist economy, which are taken as given.

The three passages mentioned in the last paragraph in which Marx clarifies that the given magnitudes of constant capital and variable capital are equal to the prices of production of the means of production and means of subsistence, rather than their values, are often cited by critics of Marx, and interpreted to mean that the magnitudes of constant capital and variable capital

must change as a result of the determination of prices of production, and that Marx acknowledges in these passages that he failed to incorporate these changes in his tables illustrating the determination of values and prices of production. However, this widespread interpretation ignores the context of these passages and the surrounding paragraphs. In the surrounding paragraphs, Marx states repeatedly that “the cost price is the same” (i.e. constant capital and variable capital are the same) in the determination of both values and prices of production, as discussed above. Therefore, either Marx is flat-out and blatantly contradicting himself in adjacent paragraphs, and even within the same paragraph, or these often-cited passages mean something other than the magnitude of the cost price must change. In previous papers (Moseley 2000, 2001, and 2003), I have discussed these passages at length and in the context of the surrounding paragraphs, and have argued that these passages mean that the given, unchanging cost price is **explained more fully** in Volume 3 than in Volume 1, **not** that the magnitude of the cost price **must change**.

1.3 Marx’s two aggregate equalities

It follows straightforwardly from this interpretation of the determination of constant capital and variable capital in Marx’s theory that **both** of Marx’s two aggregate equalities (total price of production = total value, and total profit = total surplus-value) are always true simultaneously. These two aggregate equalities are true not only for the special case of equal compositions of capital across industries, but are also true for the general case of unequal compositions of capital. These two aggregate equalities follow of necessity from Marx’s logical method of determination of the general rate of profit and prices of production, as discussed

above. They are not conditional equalities which depend on the composition of capital of individual industries.

Because the general rate of profit is determined as the ratio of the predetermined total surplus-value to the total capital advanced, the sum of all individual profits ($\sum \pi_i$) must of necessity be equal to the predetermined total surplus-value:

$$(1.9) \quad \sum \pi_i = \sum R K_i = R \sum K_i = R K = (S/K) K = S$$

Furthermore, because the quantities of constant capital and variable capital that are taken as given in the determination of prices of production in Volume 3 **are the same** as the quantities of constant capital and variable capital that are taken as given in the determination of the total price, the sum of all individual prices of production must of necessity be equal to the total price as determined in Volume 1:

$$(1.10) \quad \begin{aligned} \sum PP_i &= \sum [(C_i + V_i) + R K_i] \\ &= \sum C_i + \sum V_i + R \sum K_i \\ &= C + V + S \\ &= C + N \\ &= P \end{aligned}$$

In other words, one does not have to choose an “invariance condition”, i.e. pick only one of these two aggregate equalities to be true. All the key total quantities in Marx’s theory - constant capital, variable capital, and surplus-value - remain invariant by assumption in the transition from the theory of capital in general in Volume 1 to the theory of individual capitals in Volume 3, and thus both of Marx’s two aggregate equalities are always true, as Marx argued.

2. THE STANDARD INTERPRETATION OF MARX'S THEORY

2.1 Circuit of physical quantities

The standard interpretation of Marx's theory (e.g. Bortkiewicz, Sweezy, Morishima, Steedman, etc.) **ignores money** and the circulation of **money capital** altogether. The standard interpretation can be expressed in terms of the following truncated version of the circulation of capital:

$$(2a) \quad C_{mp}^{ms} - P - C'$$

Notice that **M** is missing altogether in this circuit, as is $\Delta\mathbf{M}$, the most important characteristic of capitalist economies. The starting point of this process is not **M**, the initial money capital advanced to purchase means of production and labor-power (as in Marx's circuit of money capital), but is instead **C**. And the **C** in circuit (2) does not represent the **prices** of the means of production and labor-power (as in Marx's circuit), but instead represents the **physical quantities** of means of production and workers' means of subsistence. According to this standard interpretation, these physical quantities are the initial givens in Marx's theory, not quantities of money capital.

Therefore, we can see that this interpretation completely ignores the initial phase of the circulation of capital in the sphere of circulation, and implicitly assumes that the means of production and means of subsistence enter capitalist production as **mere physical quantities**, rather than as **commodities** which are purchased on the market in the sphere of circulation. But this is not true. In the first place, the means of subsistence do not enter capitalist production at all; rather they enter workers' consumption. What enters capitalist production, besides the means of production, is labor-power, which is a commodity in capitalism, and which is purchased prior to production, at a price determined prior to production. Secondly, the means of

production also enter capitalist production as commodities, which are purchased prior to production, at prices which are determined prior to production, and are purchased by the initial money capital advanced at the beginning of the circulation of money capital. This initial money capital advanced, which is ignored entirely in the standard interpretation, is the starting-point, or the initial givens, of Marx's theory of the circulation of capital, not the physical quantities of means of production and means of subsistence. The title of Marx's book is *Capital* (i.e. **money** that becomes **more money**), not the production of use-values by means of use-values.

Marx emphasizes this aspect of his logical method - that the means of production and labor-power enter as "prerequisites" or "elements" of the labor process as **commodities with a price**, and not merely as physical quantities - in an earlier draft of Chapter 7 of Volume 1 (the key chapter in which Marx's basic theory of surplus-value is presented) in the *Manuscript of 1861-63*:³

Just one more preliminary remark before we proceed to this calculation [of the price of the product]. All the **prerequisites of the labour 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 labour process as material production.** (Marx 1988, p. 67; emphasis added)

We assume that the **elements of the labour process** are **not use-values** 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 labour process.** (Marx 1988, p. 68; emphasis added)

It is an **essential precondition** that the money owner should buy more than just the labour capacity. In other words, not only must **money** be exchanged for the labour capacity, but equally for the other objective conditions of the labour process ... To begin with, this **presupposition is methodologically necessary** at the stage of the development presently being considered. **We have to see how money is transformed into capital.** (Marx 1988, p. 68-69; emphasis added)

Chris Arthur has recently discovered in a hitherto unknown draft of Volume 2 in the *Manuscript of 1864-65* (published for the first time in German in 1988 in the MEGA and not yet published in English) that Marx on one occasion defined a **fourth** circuit (in addition to the three well-known circuits of money capital, productive capital, and commodity capital). This fourth circuit is similar to the standard interpretation of Marx's theory, as represented by circuit (2), in that it begins with the inputs to production (means of production and labor-power). This circuit continues through production, and then sale, and then the repurchase of the inputs. This circuit is expressed symbolically by Arthur (it is not clear from Arthur's article whether or not Marx himself expressed this circuit symbolically in this way):

$$(2b) \quad C_f \dots P \dots C_p' - M' - C_f$$

where C_f refers to the “factors of production” (means of production and labor-power) and C_p' refers the output of production. However, it is striking that Marx never again discussed this fourth circuit (at least not in his published writings thus far). This single discussion of this possible fourth circuit and the absence of any further discussion is clear evidence that this fourth circuit does not represent Marx's theoretical framework, certainly not for the all-important theory of surplus-value in Volume 1, but also not for the secondary purposes of the circuits of productive capital and commodity capital in Volume 2.

2.2 Determination of constant capital and variable capital from physical quantities

In the standard interpretation, the quantities of constant capital and variable capital are **derived from** the given physical quantities of the means of production and means of subsistence, respectively. In Volume 1, constant capital and variable capital are derived as equal to the **values** of these two given bundles of goods, and in Volume 3 constant capital and variable

capital are derived as equal to the **prices of production** of these same two bundles of goods. These physical quantities remain “invariant”, but the magnitudes of constant capital and variable capital **change** in the transition from values in Volume 1 to prices of production in Volume 3.

Algebraically, in the “value” system of Volume 1, constant capital = $\lambda\mathbf{A}$, where \mathbf{A} is the given technology matrix of physical inputs per unit of output and $\lambda\mathbf{A}$ is the labor-value of these given physical inputs. Similarly, variable capital = $\lambda\mathbf{bL}$, where \mathbf{b} is the vector of means of subsistence per unit of labor input, \mathbf{L} is the vector of labor inputs per unit of output, and $\lambda\mathbf{bL}$ is the labor-value of these means of subsistence.

In the “price” system, on the other hand, constant capital = \mathbf{pA} and variable capital = \mathbf{pbL} , where \mathbf{p} is the vector of prices of production. The fundamental givens that do not change, according to this interpretation, are the physical quantities of \mathbf{A} and \mathbf{b} (and \mathbf{L}). What changes in the two systems are the **values** or **prices of production** of these fixed physical quantities of means of production and means of subsistence, and thus also the constant capital and variable capital that are equal to these prices. It is this change in the magnitudes of constant capital and variable capital that Marx is almost universally criticized for failing to make.

However, we can see from the above that this criticism is based on a fundamental misinterpretation of the method of determination of the inputs of constant capital and variable capital in Marx’s theory. Marx’s theory of the circulation of capital is not accurately expressed by circuit (2), but is instead accurately expressed by circuit (1). The circulation of capital does not begin with physical quantities, but instead begins with money, with definite quantities of money capital advanced to purchase means of production and labor-power, in the sphere of circulation, prior to production. Therefore, the initial givens in Marx’s theory are **not physical quantities** of means of production and means of subsistence, whose prices change from values to

prices of production in the transition from Volume 1 to Volume 3. Rather, the initial givens in Marx's theory are the **actual quantities of money capital** advanced in the first phase of the circulation of capital, in the sphere of circulation. These actual quantities of money capital advanced **do not change** in the transformation from the macro theory of Volume 1 to the micro theory of Volume 3.

Therefore, Marx did **not** "fail to transform the inputs" of constant capital and variable capital from values to prices of production, because, according to Marx's logical method, the magnitudes of constant capital and variable capital **do not change**, but are instead **taken as given as the same quantities** - the actual quantities of money capital advanced in the real capitalist economy to purchase means of production and labor-power.

Since this standard interpretation of Marx's theory is mistaken, the criticisms of Marx's theory that allegedly "follow" from this interpretation - that only one of Marx's two aggregate equalities can be satisfied at a time, that there are two rates of profit, not one (the "value" rate of profit and the "price" rate of profit), that values are "redundant", etc. - are also mistaken. Or, rather these conclusions do not apply to Marx's theory, based on his own logical method of the circuit of money capital, but instead applies only to this misinterpretation of Marx's theory in terms of physical quantities. As we have seen above, both of Marx's aggregate equalities are always satisfied, by the nature of Marx's logical method. We also saw above that there is only one rate of profit in Marx's theory - the price rate of profit - which is determined prior to prices of production, and is then used to determine (in part) prices of production. It is thus obvious that values are not "redundant" in Marx's theory, but are instead indispensable for explaining the rate of profit and prices of production.

3. FOLEY'S NEW INTERPRETATION OF MARX'S THEORY

3.1 Different determinations of constant capital and variable capital

Duncan Foley's version of the "new interpretation" partially restores money to its central role in Marx's theory, but not entirely. Foley's "new interpretation" can be expressed by the following hybrid, eclectic version of the circulation of capital:

$$(3) \quad \begin{array}{c} M_v - C_{lp} \\ \dots P \dots C' - M' \\ C_{mp} \end{array}$$

We can see that this interpretation has **two different starting points**, not just one. For **variable capital**, the starting point is a given quantity of money capital advanced to purchase labor-power (M_v), which remains invariant in the transition from the macro theory of Volume 1 to the micro theory of Volume 3, as in my "macro-monetary" interpretation (as represented by circuit (1)). Algebraically, $V = \bar{V}$ in both Volume 1 and Volume 3. However, for **constant capital**, the starting point is a given quantity of means of production (C_{mp}), whose price changes from the values of these means of production in Volume 1 to their prices of production in Volume 3, as in the standard interpretation (and as represented by circuit (2)). Algebraically, $C = m\lambda A$ in Volume 1, and $C^* = p A$ in Volume 3, and $C \neq C^*$.

Therefore, I argue that there is a **key methodological inconsistency** in Foley's interpretation (and in the new interpretation in general) between the determination of constant capital and the determination of variable capital. Variable capital is taken as given in money terms, but constant capital is derived from given physical quantities. Foley does not provide a rationale for this inconsistent determination of constant capital and variable capital. I argue that, because constant capital and variable capital are particular forms of the general concept of capital, and because they are the two components of the initial money capital advanced ($M = C$

+ V), they should both be **determined in the same way**. Similarly, constant capital and variable capital are the two components of the cost price of commodities in Marx's theory of prices of production, suggesting again that they should be determined in the same way. Marx often wrote or expressed the equation for the determination of prices of production as the sum of the cost price plus the average profit ($k + rk$), thereby leaving no possibility for different determinations of the two components of the cost price, constant capital and variable capital. Nowhere in Marx's writings is there a suggestion that constant capital and variable capital are determined in different ways. I have argued above that there are strong reasons for assuming that constant capital and variable capital should be taken as given, as the two components of the money capital (M) or the cost price (k) that initiates the circulation of capital.

In one passage, Foley seems to suggest that Marx took as given the entire initial money capital invested in capitalist enterprises - both the constant capital and the variable capital - and not just the variable capital.

One striking difference between Marx's treatment of the problem and later treatments is that Marx describes the two economies solely in terms of the accounts of the capitalist firms; **he does not specify the actual production and distribution of use-values**. Later treatments, perhaps in the name of theoretical rigor, describe both economies in terms of the production and distribution of particular use-values, and *derive* the accounts of the capitalist firms from this assumed data on production and distribution. When one holds constant the production and distribution of use-values, it turns out that ... aggregate value added and aggregate profit cannot both be the same in the two [economies].

I want to suggest that Marx had **good theoretical reasons** for describing the two economies in terms of the accounts of the capitalist firms rather than in terms of the production and distribution of use-values. The social facts relevant to struggle and change in a capitalist society concern the production and distribution of value itself, and the actual production, distribution, and consumption of use-values that follow from these struggles take a secondary place. (1982, p. 44; bold emphasis added)

It seems to me that Foley's argument could be applied to constant capital as well as to variable capital. Marx did indeed have "good theoretical reasons" for analyzing capitalism in terms of flows of money capital, rather than flows of physical quantities. "The social facts relevant to struggle and change in a capitalist society" do indeed "concern the production and distribution of value itself", i.e. the production and distribution of quantities of money capital. This argument applies to both constant capital and variable capital. But Foley applies this argument only to variable capital, thus resulting in his inconsistent determination of constant capital and variable capital.

Foley's inconsistent determination of constant capital and variable capital leads him to the following **erroneous conclusions** regarding Marx's theory of prices of production, which are similar to the conclusions of the standard interpretation: (1) Marx made a partial error in his determination of prices of production in Volume 3. Contrary to the standard interpretation, Marx did not fail to transform variable capital, because the same variable capital is taken as given in money terms in both Volume 1 and Volume 3. However, Marx did fail to transform constant capital, because constant capital is derived from given means of production, first as the value and then as the price of production of these given means of production. (2) Because constant capital changes, the total price of commodities also changes from Volume 1 to Volume 3, so that the total price of production is not equal to the total value of commodities. (3) Also because constant capital changes, the rate of profit also changes from Volume 1 to Volume 3, i.e. the "price" rate of profit is not equal to the "value" rate of profit.

3.2 “Net price” equality

Even though the gross price-value equality is not satisfied, Foley assumes - and this is another key characteristic of the “new interpretation” - that the “value added” component of the total price of production of commodities is always equal to the “new value” component of the total value of commodities. In other words, the “net price” (price minus constant capital) does not change in the transformation of values into prices of production, even though the gross price does change.

I agree that the net price equality, as defined by Foley, is indeed always satisfied in Marx’s theory. However, I argue that the gross price-value equality is also always satisfied, because constant capital, like variable capital in the new interpretation, does not change in the transformation of values into prices of production. Similarly, I also argue that, because constant capital, like variable capital, does not change in the transformation, the rate of profit also does not change in the transformation. There is only one rate of profit in Marx’s theory, the price rate of profit, which is determined by the theory of the total surplus-value in Volume 1, and taken as given (predetermined) in the theory of prices of production of individual commodities in Volume 3.

In sum, the most important difference between Foley’s interpretation and my interpretation is the **determination of constant capital**. According to my interpretation, constant capital is determined in the same way as variable capital - both are taken as **given**, as the **actual** quantities of money capital advanced at the beginning of the circulation of capital to purchase means of production and labor-power. According to Foley’s interpretation, constant capital is determined differently from variable capital. Variable capital is taken as given, as the

actual quantity of money capital, as in my interpretation. However, constant capital is **derived** from given physical quantities of means of production, as in the standard interpretation.

Thus, I argue that Foley “only goes half way” in breaking away from the standard “physical quantities” interpretation of Marx’s theory. If Foley were to accept the “monetary” interpretation of constant capital, then all our other differences would disappear. We could then agree that: (1) Marx’s theory of prices of production in Volume 3 is logically complete and consistent (i.e. Marx did not commit a “logical error”, even a partial one, in the determination of prices of production); (2) the aggregate **gross** price-value equality is also satisfied simultaneously along with the aggregate net price-value equality and the aggregate profit-surplus value equality, as Marx argued; and (3) the rate of profit is determined prior to prices of production does not change as a result of the determination of prices of production.

4. DUMÉNIL’S NEW INTERPRETATION OF MARX’S THEORY ⁴

4.1 Variables defined in terms of labor-time

Duménil’s version of the “new interpretation” is very different from Foley’s. Foley’s emphasis on money and the circuit of money capital as the basic analytical framework of Marx’s theory is absent in Duménil’s interpretation. Indeed, money is missing altogether in Duménil’s interpretation, and therefore so is $\Delta\mathbf{M}$, the increment of money that is the defining characteristic of capitalist production. Duménil argues that **all** the key variables in Marx’s theory - constant capital, variable capital, surplus-value, and even the Volume 3 variables of cost price, price of production, and profit – are defined in units of **labor-time**, rather than money.

I argue that this is a fundamental misinterpretation of Marx’s theory and these basic concepts. We have seen above that the main theoretical framework, both in Volume 1 and in

Volume 3, is the circuit of money capital (circuit (1) above). Capital is defined in Chapter 4 of Volume 1 as “**money** that becomes **more money**”. The title of Part 2 of Volume 1 is “The transformation of **Money** into **Capital**”. Constant capital and variable capital are defined as the two components of the initial money capital, **M**, that begins the circulation of capital. Surplus-value is defined as the increment of money, $\Delta\mathbf{M}$, that emerges at the end of the circulation of capital. The main question of Volume 1 is the determination of the total increment of money ($\Delta\mathbf{M}$) in the capitalist economy as a whole. The main question of Volume 3 is the division of this total $\Delta\mathbf{M}$ into individual parts - industrial profit, commercial profit, interest, and rent. All of these components are clearly defined in terms of money, and therefore the total of which they are components must also be defined in terms of money. Prices of production are money-prices that equalizes rates of profit across industries. Prices of production are defined as the sum of the cost price and the average profit. Both of these components are clearly defined in terms of money (in Chapter 1 of Volume 3), and therefore their sum must also be defined in terms of money, as indeed it is in Chapter 9. To define all these key concepts in Marx’s theory in terms of labor-time is to miss the main phenomena that Marx’s theory is intended to explain - capitalism as a “**money-making**” economy. These quantities of money capital, like all quantities of money, are ultimately **determined by** quantities of labor-time. But the variables themselves are defined in units of money capital that circulate in the real capitalist economy.

Duménil argues that his interpretation is supported by the fact that Marx’s numerical examples in Chapter 9 of Volume 3 refer to labor-times and not to money (1986, pp. 15-16; and 1983-84, p. 440). But this is not true. Unfortunately, Marx did not explicitly state one way or the other in this chapter what the basic unit of the numbers in his examples are. (Duménil does not provide any specific references to passages in which Marx explicitly states that the basic unit

of the numbers in his examples is labor-time, because there are no such references.) But in the text of Chapter 9, Marx did explicitly define prices of production in terms of money-prices, not in terms of labor-time (as the name **prices** of production suggests). Price of production is defined as the sum of cost price plus the average profit, both of which are clearly defined in terms of money. Furthermore, in two earlier discussions of his theory of prices of production, Marx did explicitly state that the basic unit of the numbers in his examples is money (in English pounds in particular): in the *Manuscript of 1861-63* (Marx 1968, pp. 65-69) and in a letter to Engels in 1862 (Marx and Engels 1975, pp.120-22).

Duménil presents only one passage from Volume 3 to support his interpretation that the key variables of Marx's theory are defined in terms of labor-time. This passage is:

As for variable capital, the average daily wage is certainly always equal to the value product of the number of hours that the worker must work in order to produce its necessary means of subsistence; but this number of hours is itself distorted by the fact that the production prices of the necessary means of subsistence diverge from their values. (Marx 1981, p. 261)

Duménil then argues:

As a preliminary remark, Marx is referring here to a “wage” which is measured in labor-time. It is therefore clear [!] that all the amounts considered in this analysis are also measured in this unit: values, wages, prices of production. (Duménil, 1986, p. 52).

I argue that Duménil misinterprets this passage. This passage says that the wage is equal to the “**value product** of a certain number of hours”. Duménil interprets this “**value product**” in units of labor-time. If Duménil's interpretation were accepted, then this sentence would be redundant and nonsensical, i.e. it would mean “the **number of hours** that are the product of a certain **number of hours**.” However, I argue that the “value product” here refers to the **money**

value produced by a certain number of hours. In other words “value” here refers to the “monetary expression of value”, a shorthand that Marx used throughout the three volumes of *Capital*. As we have seen above, according to Marx’s labor theory of value, each hour of labor produces a certain amount of money value. For example, in Marx’s illustration of his theory of surplus-value in Chapter 7 of Volume 1, each hour produces a “value product” of 0.5 shillings. At this rate, it takes 6 hours for the worker to produce a “value product” equal to the money wage of 3 shillings.

Furthermore, even if Duménil’s interpretation of this one passage were accepted, in spite of the above strong argument to the contrary, this one passage in Volume 3 about wages would be a very slim basis for Duménil’s sweeping generalization that **all** of Marx’s key concepts in both Volume 1 and Volume 3 are defined in units of labor-time, especially with all the contrary evidence that I have presented above, starting with the central concept of capital as “**money** that becomes **more money**”.

4.2 Circuit of commodity capital / Circuit of labor-times

Duménil argues that Marx’s theory should not be interpreted in terms of the circuit of money capital, but should instead be interpreted in terms of the circuit of **commodity** capital (1986, pp. 25-26, 41, and 75), which he expresses as:

(4a) C - M - C ... P ... C

However, there are problems with this formulation. In the first place, it is not an accurate representation of Marx’s circuit of commodity capital, which is instead:

(4b) C’ - M’ - C ... P ... C’

In Duménil's formulation, the primes (') are missing on the first and last **C** (and on the **M**). These primes are important because they indicate that the **C'** refers to the **output** of capitalist production, not the **inputs** (**C**).

Marx's circuit of commodity capital **begins with C'**, the **price** of the **output** of the previous period, including the surplus-value; it does not begin with inputs, neither the money inputs (**M**) nor the physical inputs of means of production and means of subsistence (**C_{mp}** and **C_{ms}**). Therefore, this circuit cannot be used to analyze the determination of the prices of the outputs, and the surplus-value, from the inputs, because the prices of the output and the surplus-value are **taken as given**, as determined by the theory of value and surplus-value presented in Volume 1.

Marx expresses clearly in the following passages from Volume 2 that the starting point of the circuit of commodity capital is not the original capital advanced, but is instead the "already valorized capital" (**C'**), which includes the surplus-value produced.

What differentiates the third form from the two earlier ones is that it is only in this circuit that the **valorized capital value**, and **not** the original capital value that still has to be valorized, appears as the **starting point** of its own valorization. **C'** ... is here the **point of departure** ... (Marx 1978, p. 173; emphasis added)

The **starting point** [of the circuit of commodity capital] includes not only constant capital and variable capital, but also surplus-value. (Marx 1978, p. 468; emphasis added).

Since the starting point of the circuit of commodity capital includes surplus-value, this circuit cannot be used to analyze the production of surplus-value. For that purpose, Marx uses the circuit of money capital, **M ... (M + ΔM)**, as we have seen above.

The circuit of money capital is thus the most one-sided, hence most striking and characteristic form of appearance of the circuit of industrial capital, in which its aim and driving motive - the valorization of value, **money-making** and accumulation - appears in a form that leaps to the eye (buying in order to sell dearer). (Marx 1987, p. 140; emphasis added)

The purpose of the circuit of commodity capital is instead to analyze “what becomes” of the different components of the price of commodities (constant capital, variable capital, and surplus-value) in the subsequent phase of the exchange of commodities, after production, which includes the private consumption of individuals. Marx expresses these purposes of the circuit of commodity capital in the following passage that Duménil quotes, but misinterprets:

With the movement of C' ... C', ... it is necessary to demonstrate **what becomes** of each portion of the value of this overall product C'. The overall process of reproduction here includes the **consumption** process mediated by circulation, just as much as the reproduction of capital itself. (Marx 1978, p. 469; emphasis added)

These questions are important, but are secondary compared to the most important question of the production of surplus-value ($\Delta\mathbf{M}$).

We have seen above that Duménil argues that all the variables in Marx’s theory are defined in units of labor-time. Therefore, it seems to me that Duménil’s implicit analytical framework is in effect the following:

$$(4c) \quad \begin{array}{c} \mathbf{L}_{ms-p} \\ \mathbf{L}_{mp-v} \end{array} \quad \dots \mathbf{P} \quad \dots \mathbf{L}' \quad \quad \quad [\mathbf{L}' = \mathbf{L} + \Delta\mathbf{L}]$$

where \mathbf{L}_{ms-p} represents the labor-time contained in the means of subsistence “evaluated at prices of production” [it is not clear to me what this means], and \mathbf{L}_{mp-v} represents the labor-time contained in the means of production “evaluated at values”. It is striking that \mathbf{M} is missing altogether from this analytical framework, and therefore so is $\Delta\mathbf{M}$, the defining characteristic of capitalist production and the most important phenomenon to be explained in a theory of capitalism. Instead, all the variables are in units of **labor-time**, not only the explanatory variables, but also the variables to be explained.

4.3 Argument for different determinations of constant capital and variable capital

Duménil presents the following argument to support his interpretation that constant capital and variable capital are determined in different ways in Marx's theory:

In contrast to with what is often contended, Marx does not treat constant capital and variable capital identically. Indeed, it is true that the capitalists *buy* constant capital, and the price of production must be used to evaluate this transaction. But capitalists do not buy the consumption goods of workers, but *pay* them wages. (Duménil 1986, pp. 15-16)

First of all, it is not true that “capitalists *buy* constant capital”. Capitalists buy means of production, with a portion of the initial money capital that Marx calls constant capital, just like capitalists buy labor-power with the other portion of the initial money capital that Marx calls variable capital. Secondly, the wages that capitalists *pay* to workers are clearly quantities of money capital. Capitalists do not purchase labor-power with quantities of labor-time, which contradicts Duménil's general interpretation, discussed above, that all the variables in Marx's theory are defined in quantities of labor-time.

Further, aside from all that, Duménil's argument is a **non-sequitur**. The fact that capitalists buy means of production directly does not mean that constant capital must be derived from the price of given means of production, first as their value and then as their price of production. Capitalists just as surely *pay* money to purchase means of production as they *pay* money to workers to purchase labor-power. Constant capital could also be taken as given the sum of money capital paid by capitalists to purchase means of production, just as variable capital is taken as given as the sum of money capital paid by capitalists to purchase labor-power. Since both constant capital and variable capital are specific forms of the general concept of capital, and are the two components of the initial money capital, they should both be determined in the same

way; and, specifically, they should both be taken as given, as the actual quantities of the initial money capital that is the starting point of the circulation of money capital.

Duménil presents the following textual evidence to support his interpretation of the two different methods of determination of constant capital and variable capital (1986, pp. 16-17).

Duménil writes: “This fundamental difference is quite explicitly expressed in *Capital*.

Concerning constant capital, Marx writes”:

“The development given above also involves a modification in the determination of a commodity’s **cost price**. It was originally assumed that the cost price of a commodity equaled the value of the commodities consumed in its production. But for the buyer of a commodity, it is the price of production that constitutes its **cost price** and thus enters into forming the price of another commodity. (...) Our present investigation does not require us to go into further details on this point.” (Marx 1981, pp. 264-65; emphasis added)

Duménil continues: “However, concerning variable capital, the discussion is quite different ...” He then quotes the passage on p. 261 of Volume 3, discussed above on p. 30. This passage again is:

As for variable capital, the average daily wage is certainly always equal to the value product of the number of hours that the worker must work in order to produce its necessary means of subsistence; but this number of hours is itself distorted by the fact that the production prices of the necessary means of subsistence diverge from their values.” (Marx 1981, p. 261)

[Notice that these are two separate passages, four pages apart, and the latter passage comes before the former passage in the text.]

The first passage above is interpreted by Duménil to be only about constant capital. But this interpretation is incorrect. The passage is about the **cost price** of commodities, which includes both constant capital and variable capital (see especially Chapter 1 and Chapter 9 of Volume 3). Therefore, whatever interpretation of this passage that applies to constant capital also applies to variable capital. Either they are both taken as given as quantities of money

capital or they are both derived from given physical quantities. This passage about the cost price is certainly not an argument for different methods of determinations of constant capital and variable capital.

The second passage quoted by Duménil also does not support his interpretation that variable capital is determined differently from constant capital. The paragraph quoted by Duménil begins as follows:

Apart from the fact that the price of the product of capital B, for example, diverges from its value, because the surplus-value realized in B is greater or less than the profit added in the price of the products of B, the same situation also holds for the commodities that form the **constant part** of capital B, and indirectly, also its **variable capital**, as means of subsistence for the workers. As for the **constant part** of capital is concerned, it is itself equal to cost price plus surplus-value, i.e. now equal to cost price plus profit, and this profit can again be greater or less than the surplus-value whose place it has taken.
(Marx 1981, p. 261; emphasis added)

This passage then continues with the part quoted by Duménil (and above twice):

As for the **variable capital** ...

We can see that constant capital is discussed in this passage in a completely parallel fashion in the sentences immediately prior to the sentences about variable capital quoted by Duménil.

Marx is not suggesting in this paragraph that constant capital and variable capital are determined in different ways. Rather, he is saying that both the constant capital and the variable capital, as the two components of the cost price, are now seen to be equal to the price of production of the means of production and means of subsistence, rather than to the values of these goods, as originally assumed. However, as already discussed, this point does not affect the determination of the magnitudes of constant capital and variable capital. Both of these two components of the cost price are taken as “given preconditions”, as the sums of money capital advanced to purchase means of production and labor-power at the beginning of the circulation of capital.

4.4 Net price equality

Like Foley, Duménil redefines Marx's aggregate price-value equality in **net** terms, rather than **gross** terms. However, Duménil's precise definition of the aggregate price-value equality is different from Foley's. Foley's definition is that the "**value added**" component of the price of the **gross** output is the same for both values and prices of production. Duménil's definition, on the other hand, is that the **total** price of the **net** output is the same for both values and prices of production.

However, Duménil's formulation contradicts the basic logic of Marx's theory of prices of production. According to Marx's theory, the prices of production of individual commodities, and also of groups of individual commodities less than the total commodity product (e.g. the net output), can be equal to the values of these individual commodities or groups of commodities, **if and only if** those industries that produce these commodities have the **average composition of capital** (ratio of constant capital to variable capital). Otherwise, there must be some difference between values and the prices of production of these industries in order to equalize the rate of profit across industries. Therefore, the price of production of the net output will be equal to the value of the net output **if and only if** the net output sector of the economy is the average composition of capital. Since in general, this necessary condition will not be fulfilled, the price of production of the net output will in general be different from the value of the net output. To impose the assumption that the price of production of the net output will always be equal to the value of the net output, as an "invariance condition", is to contradict the basic logic of Marx's theory of prices of production.

Duménil acknowledges that Marx always stated the aggregate price-value equality in gross terms, and never in net terms, but he argues that Marx was confused in these passages, because he had not yet written Volume 2 of *Capital*, and in particular had not written Part 3 of Volume 2 on the reproduction schemes (1983-84, p. 449; 1986, 43). According to Duménil, the main point of the reproduction schemes was to clarify the distinction between the gross price and the net price of commodities. If Marx had written Volume 3 with this clarity in mind, we would have emphasized the net price-value equality, instead of the gross price-value equality.

I agree that the main point of the reproduction schemes was to clarify the distinction between the gross price and the net price of commodities. However, Marx's specific point was essentially the **opposite** of what Duménil suggests. The reproduction schemes are primarily a critique of what Marx called "Smith's dogma", according to which the entire gross price of commodities "can be entirely resolved into revenue," i.e. into wages plus profit plus rent, or into the value added component of the price of commodities, or the "net price" of commodities. Marx argued that Smith's dogma ignores the constant capital component of the price of commodities. If Smith's dogma were true, this would mean that capitalists would not be able to recover the constant capital consumed in production, and hence would also not be able to repurchase and replace the consumed means of production. Therefore, Marx's analysis of the reproduction schemes emphasizes that the reproduction of capital cannot be analyzed solely in terms of the value added component of the price of commodities, or the net price of commodities, but must instead be analyzed in terms of the gross price, including the constant capital component and the recovery of this component. (See Moseley 1998 for an extensive discussion of Marx's reproduction schemes and his critique of Smith's dogma).

This main point of the reproduction schemes was already clearly in Marx's mind when he wrote Volume 3 of *Capital* in 1864-65. Marx first developed these ideas during the early part of the *Manuscript of 1861-63*, while writing about Smith (in Sections 8-10 of what we know as Volume 1 of *Theories of Surplus-value*). Also, in a very interesting and important letter to Engels in July 1863, Marx presented a sketch of the reproduction schemes, in which Marx explicitly stated and emphasized that the main point of the reproduction schemes was to refute "Smith's dogma". Therefore, Marx's analysis of the reproduction schemes provided no reason for him to change his many statements in Volume 3 about the gross price-value equality to statements about the net price-value equality. If anything, this analysis of the reproduction schemes provides additional reason for continued emphasis on the gross price-value equality.

In summary, the differences between Duménil's interpretation and my interpretation are greater than my differences with Foley's interpretation. In addition to the key differences regarding the determination of constant capital and the redefinition of the aggregate price-value equality from gross to net terms, there is also the even more fundamental difference with regard to whether the key concepts of Marx's theory refer to units of money or units of labor-time. I have also argued that Duménil's interpretation of the key concepts of Marx's theory in terms of labor-time is a fundamental misinterpretation of Marx's theory and the phenomena which Marx's theory is intended to explain, including his theory of prices of production. I have also argued that Duménil's arguments and textual evidence for the different determinations of constant capital and variable capital and for the redefinition of the aggregate price-value equality are weak and unconvincing.

5. MOHUN'S NEW INTERPRETATION OF MARX'S THEORY

The final version of the “new interpretation” that I will briefly consider is by Simon Mohun (1993). Mohun’s interpretation is closer to Foley’s interpretation than to Duménil’s interpretation, in the sense that Mohun argues that Marx’s concepts of wages, value added, profit, and prices of production are defined in terms of **money**, and that Marx takes the **money wage** as given in the determination of surplus-value and prices of production (although, unlike Foley, Mohun seems to define constant capital, variable capital, and surplus-value in terms of labor-time).

I will not consider Mohun’s interpretation comprehensively, but will focus on one important aspect of it: the justification he provides for taking as given the money wage rather than the real wage, and thus for determining variable capital differently from constant capital. Mohun’s justification is based on the unique characteristics of the commodity **labor-power** that is purchased with the money wage.

Mohun argues that there are two options for defining the value of labor-power: (1) as the quantity of labor-time embodied in the **given real wage**, or (2) as the quantity of labor-time represented by the **given money wage**. If prices are assumed to be equal to their values, as in Volume 1, then these two definitions are the same. However, in the more general case where prices are not equal to their values, then these two definitions will not be the same, and one has to choose between them. Mohun argues that, in this more general case, the second definition of the value of labor-power should be adopted, i.e. the **money wage** should be taken as given.

Mohun’s argument for this second definition of the value of labor-power is that labor-power is a unique commodity, in that it is not produced by capitalist firms. Therefore, there is no equalization of profit rates involved in the determination of the price of labor-power, i.e. no transformation of value into price in the case of labor-power. The unique commodity labor-

power actually exchanges at its value, i.e. its price is proportional to its value. Therefore, the value of labor-power is measured by the actual money-wage paid to purchase labor-power, and not by the labor-time embodied in the means of subsistence.

Mohun argues further that the above argument does not apply to the means of production because they are produced by capitalist firms and their actual prices do involve the equalization of profit rates. Therefore, the value of the means of production is equal to the labor-time embodied in the means of production in them, and is in general not proportional to the actual money used to purchase them. Constant capital is derived from the given means of production, first as their value and then as their price of production, as in the standard interpretation.

It can be seen that Mohun's reason for taking the money wage as given, but not taking the money capital used to purchase the means of production as given, has to do with the unique characteristics of the commodity **labor-power**. The money wage is taken as given because labor-power, and only labor-power, actually exchanges at its value, which implies that the value of labor-power is measured by the actual money wage.

I argue, to the contrary, that Marx's reasons for determining constant capital and variable capital in the same way - taking both as given, as the actual money capital advanced to purchase the means of production and labor-power - have to do with the nature of the circulation of **money capital**, not with the nature of the commodity labor-power. The circulation of money capital is the advance of a definite quantity of money capital in order to recover more money capital, which is the most important phenomenon of capitalist economies and is the main focus of Marx's theory of capitalism. The circulation of money capital begins with **money**, a definite quantity of money capital advanced to purchase means of production and labor-power. This

starting point of the circulation of money capital is also the starting point, the initial givens, of Marx's theory of the circulation of capital.

Mohun's interpretation, like Duménil's interpretation, loses sight altogether of this central focus of Marx's theory, and Mohun focuses attention instead on the determination of the value of labor-power. From Mohun's perspective of the unique commodity labor-power, it might make sense that the value of labor-power is determined differently from the value of the means of production. However, from Marx's perspective of the circulation of money capital, it makes no sense that constant capital and variable capital are determined in different ways. Constant capital and variable capital are both components of the initial money capital, and both are advanced prior to production, and thus both are known prior to production, and therefore both are taken as given in Marx's theory. Again, there is no hint in any of Marx's writings that constant capital and variable capital are determined differently, and in particular there is no hint of Mohun's argument for such different determinations, based on the unique characteristics of the commodity labor-power.

Mohun's different analytical framework is indicated by the fact that his analysis focuses on the "circuit of labor-power", which he represents symbolically as (pp. 398-402):

(5) **C - M - C**

Mohun emphasizes the two acts of exchange in this circuit: (1) the sale of labor-power (**C - M**), and (2) the purchase of means of subsistence (**M - C**). The main point of Mohun's argument is that the first act of exchange is an exchange of equivalents (money wage = value of labor-power) and the second exchange is not (money-wage \neq value of means of subsistence).

In contrast, I have argued above that the analytical framework for Marx's theory is the circuit of **money capital**, which is represented symbolically by:

(1b) $M - C \dots P \dots (M + M)$

The title of Marx's book is *Capital*, not *Labor-Power*. The main point of Marx's theory is to explain how the initial given quantity of money capital (M) is transformed into **money capital** ($M + \Delta M$). The initial quantity of money capital is divided into constant capital and variable capital (i.e. $M = C + V$), which are determined in the same way, as the actual quantities of money capital advanced prior to production to purchase means of production and labor-power, in order to make more money.

6. CONCLUSION

The “new interpretation” of Marx's theory is an important advance in Marxian scholarship, especially in Foley's version. However, even Foley has only partially succeeded in breaking away from the standard “physical quantities” interpretation of Marx's theory. Foley rightly emphasizes the monetary nature of Marx's theory and this leads him to assume that variable capital is taken as given as the money wage and not derived from the given means of subsistence. However, Foley continues to assume that constant capital is derived from given physical quantities of means of production, as in the standard interpretation, and therefore ends up with inconsistent methods of determination of constant capital and variable capital, and erroneous conclusions.

Therefore, I argue that Foley “only goes halfway” in breaking away from the standard “physical quantities” interpretation of Marx's theory, and that he (and other proponents of the new interpretation) should “go all the way” to a consistent “monetary” interpretation of the determination of constant capital and variable capital in Marx's theory, as discussed in this paper. According to this interpretation, Marx **did not fail to transform the inputs** of constant

capital and variable capital from values to prices of production, because the **same quantities** of constant capital and variable capital are **taken as given** in both Volume 1 and Volume 3 - the **actual quantities** of money capital advanced to purchase means of production and labor-power in the real capitalist economy.

ENDNOTES

¹ The proportionality factor **m** has been called by Foley and others the “monetary expression of labor-time” or the “MELT”.

² See Marx’s equation on p. 265 of Volume 3.

³ This earlier draft of Volume 1 (the second draft, after the first draft in the *Grundrisse*) was published for the first time in German in the 1970 (in the authoritative 150 volume Marx Engels Gesamtausgabe, or MEGA), and in English for the first time in 1988, and it includes more methodological remarks than the later simplified version of Volume 1 with which we are familiar. Therefore, it is a very rich source for further study of Marx’s logical method, unfortunately, it has not yet received the attention it deserves.

⁴ Duménil’s book on the transformation problem was written 25 years ago, and his last paper on this subject (that I know about) was 20 years ago. I don’t know to what extent he may have changed his views since then. So, when I say “Duménil’s interpretation”, I mean Duménil’s interpretation in these writings 20-25 years ago.

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