Money has no Price: Marx's Theory of Money and the Transformation Problem

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According to the standard interpretation of the 'transformation problem' in Marx's theory, the money commodity (e.g., gold) is treated as essentially the same as all other commodities. If the first place, it is assumed that the money-commodity has a value-price (price proportional to labour-time)[2] and also has a price of production, which could be different from its value-price, just like all other commodities. Second, it is argued that, in the transformation of value-prices into prices of production, some surplus-value is transferred from the gold industry to all other industries in order to equalize the rate of profit. Finally, as a result of this transfer of surplus-value from the gold industry to all other industries, the prices of production of all other commodities increase, so that the total price of production of commodities is greater than their total value-price. In this chapter, Bortkiewicz and Sweezy will be considered as the representatives of the standard interpretation of Marx's theory of money and the transformation problem in particular (with the former the originator of the standard interpretation).

This chapter argues that this standard interpretation of the transformation is mistaken on all three of these important points, which concern the role of money and the transformation problem in Marx's theory. I argue that the money commodity has neither a value-price nor a price of production, so that a transformation of the former into the latter is not possible. Further,

1 Thanks very much to all the conference participants for helpful comments on my chapter, especially to Makoto Itoh and Claus Germer. Remaining errors are of course my own.

2 Marx called these prices that are proportional to labour-times (as he assumed in Volume I) simply 'values'. But 'value' is a complicated concept, which includes not only the form of appearance of value – prices – but also the substance and magnitude of value: abstract labour and socially necessary labour-time. Many interpreters of Marx think that 'value' refers only to labour-times, when in fact Marx usually means price. Therefore, I use the term 'value-price' (instead of the simpler 'value') to refer to prices that are proportional to labour-times, in order to emphasize that the aspect of value that I am primarily concerned with here is the *price* of commodities, as the necessary form of appearance of their value.

I argue that in the transformation of value-prices into prices of production, surplus-value is *not* transferred from the gold industry to other industries, but instead the profit received in the gold industry is always identically equal to the surplus-value produced in the gold industry. Finally, I conclude that, since there is no transfer of surplus-value from the gold industry to other industries, the prices of production of other commodities cannot possibly be affected by such a non-existent transfer, and the total price of production of commodities is always identically equal to the total value-price of commodities, as Marx himself concluded.

The first section presents my interpretation of the role of money in Marx's theory in general and in the transformation problem in particular, and then the second section critically examines the Bortkiewicz–Sweezy interpretation of Marx's theory of money and the transformation problem.

1 Marx's basic theory of money and the transformation problem

1.1 Money has no price

Marx's basic theory of money is presented in Part I of Volume I of *Capital*. The most important conclusion of Marx's theory of money in Part I, which is relevant to the role of money and the transformation problem, is that the money commodity (e.g., gold) itself *has no price*.[3] According to Marx's theory in Part I, the *price* of a given commodity is the outward, visible expression of the value of commodities (i.e., the socially necessary labour-time contained in commodities) in terms of a quantity of the money commodity (e.g., gold). It follows from this concept of price (e.g., a quantity of gold) that gold itself cannot have a price, because the socially necessary labour-time contained in gold cannot be expressed in terms of gold itself, but can only be expressed in terms of some *other* commodity. Marx emphasized from the very beginning of his theory of money (in the discussion of the 'simple form of value' in section 3 of chapter 1) that the commodity whose value is being expressed and the second commodity which serves as the measure of value of the first commodity are 'mutually exclusive' from each other (i.e., a commodity cannot serve as its own measure of value): 'The same commodity cannot, therefore, simultaneously appear in both forms in the same expression of value. These forms rather *exclude each other as polar opposites*' (1867: 140; emphasis added). And elsewhere:

> *[M]oney has no price*. In order to form a part of this relative form of value of the other commodities, it would have to be brought into relation with itself as its own equivalent.
>
> (Marx 1867: 189; emphasis added)

[3] Williams (1975: 23), and Yaffe (1976: 35) also emphasize this point.

> Gold has neither a *fixed* price *nor any* price at all, when it is a factor in the determination of prices and therefore functions as money of account. In order to have a price, in other words to be expressed in terms of a *specific* commodity functioning as the *universal* equivalent, this other commodity would have to play the same exclusive role in the process of circulation as gold. But two commodities which exclude all other commodities would exclude each other as well.
>
> (Marx 1859: 75)

> The *price* of the commodity which serves as a measure of value and hence as money, *does not exist at all*, because otherwise, apart from the commodity which serves as money I would need a second commodity to serve as money – double measure of value … *There can therefore be no talk of a rise or fall in the price of money*.
>
> (Marx and Engels 1861–3a: 426; emphasis added, except for emphasis on 'price')

We will see below that, in Marx's theory of prices of production in Volume III, since gold does not have a price, there is no price of gold that could be transformed from a value-price to a price of production.

1.2 Circulation of capital in the gold industry

Since gold has no price, the circuit of capital is different in the gold industry from all other industries. The value-product of the gold industry is not a commodity with a price, but rather a definite quantity of gold itself. Gold is not like all other commodities, which have to be sold in order to be converted into money. Instead, gold is *already money*, as a result of the production process itself, prior to circulation. Therefore, the circuit of capital in the gold industry is represented by the following unique, abbreviated formula:[4]

$$M - C \ldots P \ldots M'$$

Notice that the third phase of the circuit of capital in the gold industry is simply M', instead of the usual $C' - M'$. The price of the commodity-product (C') is missing, because gold has no price. The product of gold production is money itself (M'), not a commodity with a price that has to be converted into money.

Marx discussed this unique form of the circuit of capital in the gold industry in the following passages from Volume II of *Capital*.

[4] Howell (1975: 53), also emphasizes this unique form of the circulation in the gold industry.

> The formula for the production of gold, for example, would be $M - C \ldots P \ldots M'$, where M' figures as the commodity product in so far as P provides more gold that was advanced for the elements of production of gold in the first M, the money capital.
>
> (Marx 1884: 131)

> Let us firstly consider the circuit of turnover of the capital invested in the production of precious metals in the form $M – C \ldots P \ldots M'$. … Let us start by considering only the circulating part of the capital advanced as M, the starting-point of $M – C \ldots P \ldots M'$. In this case *a certain sum of money is advanced* and cast into circulation in payment for labour-power and in order to purchase materials of production. The money is not withdrawn again from circulation by the circuit of *this* capital, and then cast in afresh. The *product in its natural form is already money*, it does not need to be first transformed into money by exchange, by a process of circulation … The money form of the circulating capital, that consumed in labour-power and means of production, is replaced not by the sale of the product, but rather by the *natural form of the product itself*.
>
> (Marx 1884: 401–2; emphasis added)

We will see below that, because the value-product of the gold industry is a definite quantity of gold (M'), this quantity of gold remains the same in both the theory of value and surplus-value in Volume I and in the theory of the distribution of surplus-value and prices of production in Volume III.

1.3 Surplus-value in the gold industry

The surplus-value produced in the gold industry during a given circuit of capital (S_G) is equal to the difference between the quantity of gold produced at the end of that circuit (M'_G) and the initial quantity of money-capital advanced at the beginning of the circuit to purchase means of production and labour-power (M_G). Algebraically:

$$S_G = \Delta M_G = M'_G - M_G \qquad (12.1)$$

We have just seen that the value-product of the gold industry at the end of the circuit is not a commodity with a price, but is rather a *definite quantity of gold produced* (M'_G). In Marx's theory, this quantity of gold is *taken as given*, as the *actual* quantity of gold produced in the gold industry during a given circuit of capital.

Furthermore, I argue that the initial money-capital advanced at the beginning of the circuit (M_G) is also *taken as given*, as the *actual* quantity of money-capital advanced to purchase means of production and labour-power in the gold industry. This assumption is consistent with my general interpretation of Marx's method of determination of the initial money-capital (taken as given, as the actual money-capital advanced) in the theory of surplus-value in Volume I, as presented in Moseley (1993, 2000 and 2003). Similar interpretations of the determination of the initial money-capital in Marx's theory of surplus-value have been presented by Yaffe (1976), Mattick (1981), Carchedi (1984) and Ramos (1998–9).

It follows that, since the value-product of the gold industry (M'_G) is the actual quantity of gold produced, and the initial money-capital (M_G) is the actual quantity of money-capital advanced in the gold industry, the surplus-value in the gold industry ($S_G = \Delta M_G$) is equal to the difference between these two actual quantities (i.e., is equal to the *actual* surplus gold produced, over and above the actual initial money-capital advanced). Unlike all other industries, the surplus-value in the gold industry does not consist of a part of the price of the output (since gold has no price), but instead *consists of a definite quantity of surplus gold 'from the start'* (i.e., as the direct result of the production process itself, prior to circulation. Howell (1975: 53) also emphasized that 'the surplus-value contained in gold appears immediately in socially recognized form').

This important point is discussed in the following passages (the first from chapter 17 of Volume II on the circulation of surplus-value, and the second from an earlier draft of this chapter in the *Manuscript of 1861–63*):

> *The gold-producing capitalists possess their entire product in gold*, including the part of it which replaces constant capital, the part which replaces variable capital, and the part which consists of surplus-value. *One part of the society's surplus-value thus consists of gold*, and not of products that are turned into money only in the course of circulation. *It consists of gold from the start* and is cast into the circulation sphere in order to withdraw products from this.
>
> (Marx 1884: 410; emphasis added)

> [In the gold or silver industry], *surplus-value is directly in gold* or silver as a surplus of gold or silver.
>
> (Marx and Engels 1861–3b: 193; emphasis added. See also p. 191)

1.4 Profit in the gold industry: no 'sharing' of surplus-value

Volume III of *Capital* is about the *distribution of surplus-value*, or the division of the total surplus-value produced in a given circuit of capital into individual component parts: first the equalization of the profit rate across industries (Part II), and then the further division of surplus-value into industrial profit, commercial profit, interest, and rent (Parts IV–VI). The equalization of the profit rate across industries analysed in Part II involves the determination of the *prices of production* of commodities. The transformation of value-prices into prices of production redistributes the surplus-value produced in a given circuit across industries, in such a way as to equalize the rates of profit in all industries. The result of this redistribution of surplus-value is that the profit received in each industry is in general *not* equal to the surplus-value produced in that industry. In this way, there is a 'sharing' of surplus-value among capitalists, like 'hostile brothers [who] divide among themselves the loot of other people's labour' (1861–3a: 264), or like a form of 'capitalism communism', in which the profit received in each industry is proportional to the total capital invested in that industry, rather than equal to the surplus-value produced in that industry (Marx and Engels 1975: 193; see Moseley 1997 and 2002 for further discussions of Marx's theory of the distribution of surplus-value in Volume III).

However, according to Marx's theory, there is *no sharing of surplus-value between the gold industry and other industries*, because the profit received in the gold industry is *always identically equal* to the surplus-value produced in the gold industry. We have seen above that the surplus-value produced in the gold industry (S_G) is the actual quantity of surplus gold produced that is, it is equal to the difference (ΔM_G) between the actual quantity of gold produced (M'_G) and the actual money-capital advanced in the gold industry (M_G):

$$S_G = \Delta M_G = M'_G - M_G \tag{12.2}$$

Similarly, the profit received in the gold industry (Π_G) is also equal to this *same actual surplus quantity of gold produced* (ΔM_G): that is, it is equal to the same difference between the actual quantity of gold produced (M'_G) and the actual money-capital advanced in the gold industry (M_G):

$$\Pi_G = \Delta M_G = M'_G - M_G \tag{12.3}$$

Since gold has no price, it also has no price of production. There is no price of gold that could be transformed from a value-price to a price of production, in order to share surplus-value and equalize the rate of profit in the gold industry. Instead, as we have seen above, the value-product of the gold industry is a definite quantity of gold produced (M'_G), which is the same for the determination of both the surplus-value produced in the gold industry (equation 12.2) and the determination of the profit received in the gold industry (equation 12.3).

Similarly, the quantity of initial money-capital (M_G) is also *the same* in both of these equations – the *actual* quantity of money-capital advanced in the gold industry at the beginning of the circuit of capital – which is *taken as given* both in the determination of the surplus-value produced and in the determination of the profit received in the gold industry. Again, this assumption is consistent with my general interpretation of Marx's method of determination of the initial money-capital in the theory of surplus-value in Volume I and the theory of prices of production in Volume III (the *same* quantities are taken as given – the *actual* quantities of money-capital advanced – in both these stages of the theory), as presented in Moseley (1993, 1997 and 2003).

Since both the value-product in the gold industry (M'_G) and the initial money-capital advanced in the gold industry (M_G) are the same in both equation (12.2) and equation (12.3), it follows that *the profit received in the gold industry is always identically equal to the surplus-value produced* in the gold industry (i.e., $\Pi_G = S_G = \Delta M_G$). Thus, according to Marx's theory, *there is no 'sharing' of the surplus-value* produced within a given circuit of capital between the gold industry and all other industries. The surplus-value produced in the gold industry within a given period is a definite quantity of actual surplus gold produced, which cannot change into a different quantity of profit through the sharing of surplus-value with other industries.[5]

This conclusion, that there is no sharing of surplus-value between the gold industry and other industries in the single-period transformation of values into prices of production, does not imply that there is no equalization of the profit rate in the gold industry as the result of an actual multi-period process of adjustment, involving capital flows in and out of the gold industry, the opening and closing of marginal mines, and so on. For example, if the rate of profit in the least productive mines were higher than the average rate of profit, then less productive mines would be opened, and these less productive mines would have a lower rate of profit, because less surplus-value would be produced. This process would continue until the rate of profit in the least productive mines allowed only for the average rate of profit (and vice versa, if the rate of profit in the least productive mines were lower than the average rate of profit).[6]

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[5] Makoto Itoh (chapter 11 above) accepts that surplus-value in the gold industry is a definite quantity of gold produced in a given period, but he denies the conclusion that therefore the profit received in the gold industry cannot be different from the surplus-value produced in the gold industry. But this conclusion follows of logical necessity: a definite quantity of gold produced in a given period cannot change to a different quantity in this period.

Itoh argues that the quantity of surplus-value may change through a change in the input prices from values to prices of production. On the contrary, I argue that the logic is the opposite: since the quantity of surplus-value in the gold industry cannot change (because it is a definite quantity of gold produced), this implies that the input prices must be the same in the determination of both values and prices of production.

[6] Actually, there is usually not complete equalization of the rate of profit in the gold industry to the average rate of profit, because gold is a privately-owned natural resource, whose production must in general yield a rent for the owners of the gold mines. Therefore, the rate of profit in the gold industry must be greater than the average rate of profit for the economy as a whole. (Similar interpretations of Marx's

However, this actual multi-period process of equalization of the profit rate in the gold industry is different from the theoretical transformation of values into prices of production, which is assumed to take place within a single analytical period of production, with no capital flows, and with fixed quantities of inputs and outputs (i.e., is assumed to take place in a 'long period' of analysis). Even though there is a multi-period process through which the rate of profit is equalized, as described above, it is still nonetheless true that, in Marx's single-period theoretical transformation of values into prices of production, *there is no sharing of surplus-value* between the gold industry and other industries. Marx's single-period transformation analyses the end result of the multi-period process of equalization just described. The single-period transformation assumes that the economy is in 'long-period' equilibrium, with the same quantities of inputs and outputs for the determination of both values and prices of production.

Thus there can be an actual equalization of the rate of profit in the gold industry over multiple periods, but there is no equalization in the single period transformation of values into prices of production. The rate of profit in the gold industry can be equal to the average rate of profit, but this can be true only because the rate of profit *produced* in the gold industry is equal to the average rate of profit (through the multi-period process of adjustment described above), *not* because the rate of profit *received* in the gold industry is different from the rate of profit *produced* in the gold industry (through a theoretical single-period transformation of values into prices of production). The rate of profit *received* in the gold industry is always identically equal to the rate of profit *produced* in the gold industry.[7]

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theory of a higher than average rate of profit in the gold industry have been presented by Williams 1975 and Naples 1996.) But this point is not fundamental. Whether or not rent must be paid in the gold industry, there is still a tendency over multiple periods towards the equalization of the profit rate in the gold industry by the process described in the text, either to the average rate of profit or to the average rate of profit plus the average rent.

7 In the first draft of this chapter for the conference, I argued that there is no actual multi-period equalization of the profit rate in the gold industry, because at that time I was unaware of the process of equalization described in the text. The only possible process of equalization that I was aware of at that time was the one suggested by Bortkiewicz: that changes in the quantity of gold currently produced would result in a change in the prices of all other commodities.

I argued that Bortkiewicz's equalization mechanism contradicts Marx's theory of money and prices, and in particular Marx's theory of the relation between the quantity of money in circulation and the sum of the prices of commodities. Marx's theory assumes that the quantity of money in circulation *is determined by* the sum of prices, while Bortkiewicz's alleged equalization process assumes the opposite: that the quantity of money in circulation *determines* the sum of prices (as in the quantity theory of money, which Marx severely criticized).

1.5 Total price of production equal total value-price

I have argued previously that *both* of Marx's two aggregate equalities (total price of production = total value-price *and* total profit = total surplus-value) are *always identically true* by the nature of Marx's logical method (see Moseley 1993, 2000 and 2003). These equations are not conditional equalities, which may or may not be true, but rather follow from Marx's method of determination of price of production and profit.

This conclusion is not affected by the consideration here of the nature of money and role of money in the distribution of surplus-value across industries. Since the gold industry does not participate in the sharing of surplus-value, the prices of production of all other commodities cannot be affected by a non-existent sharing of surplus-value in the gold industry. Hence the total price of production of all other commodities is also not affected, and remains identically equal to the total value-price of all commodities. Since the aggregate price level does not change, neither does its inverse, the exchange-value of money. This point will become clearer after the discussion of Bortkiewicz and Sweezy's misinterpretation of Marx's theory in the next section.[8]

I still think that this specific argument is valid, and that the rate of profit in the gold industry is not equalized *in Bortkiewicz's way*. But now I realize – due in large part to discussions at the conference with Makoto Itoh and others – that there is another possible mechanism of equalization of the rate of profit in the gold industry that does not contradict Marx's theory of money and prices (through direct changes in surplus value produced in the marginal mines, as described in the text). I have since discovered that Mandel (1984) presented a similar interpretation of the actual equalization of the profit rate in the gold industry. However, Mandel conflates the actual equalization of the profit rate over multiple periods with the single-period theoretical equalization of the profit rate through the transformation of values into prices of production. These are two distinct processes. The latter analyses the end result of the former.

My main point is that, whether or not there is a multi-period equalization of the profit rate in the gold industry through the opening and closing of marginal mines, the rate of profit cannot be equalized in the single period transformation of values into prices of production, because this single-period theoretical transformation assumes a given quantity of mines in operation, and concludes that the quantity of surplus-value in the gold industry is a definite quantity of gold produced, not a part of a price, which could become a different magnitude in the transformation of values into prices of production.

[8] Itoh (chapter 11 above) argues that, even if total price of production is equal to total value, it is still true that the total price of surplus goods will not be equal to the total value of surplus goods. The latter inequality is true, but it is not Marx's second aggregate equality. Rather, Marx's second aggregate equality is: total profit = total surplus-value. This equality is always true, according to my interpretation of Marx's theory (as it is in the 'new interpretation' of Foley and Duménil) (please see Moseley 1997, 2000, 2003 for a demonstration of this second aggregate equality).

2 Bortkiewicz and Sweezy's misinterpretation of money in Marx's theory

The rest of the chapter critically examines Bortkiewicz and Sweezy's interpretation of the role of money in the transformation problem in Marx's theory. In general, Bortkiewicz and Sweezy do not understand the uniqueness of the money commodity in Marx's theory and treat the money commodity just like all other commodities. This is their fundamental mistake. It is assumed that the money commodity has both a value-price and a price of production, just like all other commodities, contrary to Marx's theory. It is also assumed that, in the single-period transformation of values into prices of production, the rate of profit in the gold industry is equalized through a sharing of surplus-value, just like all other industries. From these assumptions, Bortkiewicz and Sweezy conclude that the total price of production of commodities is greater than the total value-price of commodities. The following subsections examine these mistakes in turn.

2.1 Money has a price and a price of production

Bortkiewicz and Sweezy assume that the money acommodity (e.g., gold) has both a value-price and a price of production that equalizes the rate of profit, just like all other commodities.[9] The unit of measurement of the value-price of gold is a definite quantity of gold (e.g., one ounce of gold), just like the value-price of all other commodities. Thus, the value-price of 200 ounces of gold is – 200 ounces of gold! But this makes no sense, from the point of view of Marx's theory. The price of gold cannot be a quantity of gold because, according to Marx's theory, price is the measure of value for commodities, and the value of gold cannot be measured or expressed in terms of gold itself. The value of gold can only be measured or expressed in terms of some other commodity. Therefore, the Bortkiewicz–Sweezy interpretation starts off with a fundamentally incorrect concept of the 'price' of gold in terms of gold itself.[10]

Similarly, in the Bortkiewicz–Sweezy interpretation, gold also has a 'price of production', whose unit of measurement is also a definite quantity of gold, but whose magnitude *could be different* from the value-price of gold. But how is this possible? How is it possible for the price of production of 200 ounces of gold to be different from 200 ounces of gold? According to

[9] Bortkiewicz uses the term 'value' to mean 'price proportional to labour-time'. In order to make it clear that 'value' here means a price, I will continue to use the term 'value-price' to refer to price proportional to labour-time.

[10] Yaffe (1976: 35–37) and de Brunhoff (1976: 69–71) have also criticized Bortkiewicz and Sweezy for their failure to understand that the money commodity has no price. De Brunhoff said: 'If money is treated as a unit of account possessing a price, it loses its specificity' (p. 71).

Bortkiewicz and Sweezy, by changing the unit of measurement for the price of production of gold! For example, if the unit of measurement were 1/2 ounce of gold, then the price of production of 200 ounces of gold would be 400 half-ounces of gold! The magnitudes of the value-price and the price of production of 200 ounces of gold would be different, because the same 200 ounces of gold would be measured in different units (Bortkiewicz 1907: 12 and Sweezy 1942: 117).

Such a conception of the 'price of production' of gold is obviously totally foreign to Marx's theory of prices of production. In Marx's theory, the unit of measurement for both the value-price and the price of production of commodities is the same: a definite, given quantity of gold (e.g., 1 ounce of gold). Furthermore, such a conception of the price of production of gold also has no significance in reality. Even though the magnitude of Bortkiewicz and Sweezy's price of production of gold is different from the value-price of gold, the value-product of the gold industry – the quantity of gold produced (M'_G) – *remains exactly the same and cannot change* (200 ounces of gold), as Marx emphasized. This actual 200 ounces of gold is what matters in the real capitalist economy. This magnitude of gold produced is compared with the initial money capital advanced in the gold industry (M_G) in order to determine the surplus-value produced in the gold industry ($S_G = \Delta M_G$), and in order to determine the profit received in the gold industry ($\Pi_G = \Delta M_G$). Bortkiewicz's invention of something called a 'price of production' of gold, that could be measured in different units from the price of gold, has no significance whatsoever for the determination of the actual surplus-value produced and the actual profit received in the gold industry.

2.2 Sharing of surplus-value between the gold industry and other industries

The second and most important mistake made by Bortkiewicz and Sweezy is that they assume that, in the transformation of values into prices of production, the rate of profit is equalized through the *sharing of surplus-value* between the gold industry and all other industries. As a result of this sharing of surplus-value, the profit received in the gold industry is (in general) *not equal* to the surplus-value produced in the gold industry. More specifically, as we have seen, Bortkiewicz and Sweezy assume that the gold industry has a lower than average composition of capital, and thus has a higher than average 'value rate of profit'. Hence, in the equalization of the profit rate, some of the surplus-value (supposedly) produced in the gold industry is transferred to other industries with a higher composition of capital.

The mechanism through which this sharing of surplus-value between the gold industry and other industries is supposed to happen, according to Bortkiewicz and Sweezy, is that the *inputs* of constant capital and variable capital *change* (i.e., these inputs are different in the determination of prices of production from how they are in the determination of value-prices).

According to this interpretation, in the Volume I theory of value and surplus-value, constant capital and variable capital in the gold industry (and elsewhere) are assumed to be equal to the *value-prices* of the means of production and means of subsistence, respectively. Thus we can see that, according to this interpretation, constant capital and variable capital in Volume I are *not* equal to the *actual* quantities of money-capital advanced to purchase means of production and labour-power in the gold industry, but are instead to these *hypothetical* quantities of money-capital, which are equal to the value-prices of the means of production and means of subsistence (C_G^* and V_G^*, where the superscript * indicates these hypothetical quantities of money-capital equal to value-prices).

Furthermore, since constant capital and variable capital in the gold industry are hypothetical quantities, so also is the surplus-value in the gold industry that is determined by these hypothetical quantities. Surplus-value in the gold industry is determined by subtracting these hypothetical quantities of constant capital and variable capital (whose sum is M_G^*) from the value-price of gold, which is equal to the actual quantity of gold produced (M_G'). Algebraically:

$$S_G^* = M_G' - M_G^* \qquad (\text{where } M_G^* = C_G^* + V_G^*) \tag{12.4}$$

Thus we can see clearly that S_G^* is a hypothetical quantity of surplus-value because M_G^* is a hypothetical quantity of initial money-capital advanced.

In the Volume III theory of prices of production, according to this interpretation, the inputs of constant capital and variable are *redetermined* as equal to the *price of production* of the given quantities of means of production and means of subsistence, which are in general *not* equal to the value-prices of these goods. These revised quantities of constant capital and variable capital are equal to the *actual* quantities of money-capital advanced to purchase means of production and labour-power in the gold industry. Therefore, these *actual* quantities of C and V are *different* from the *hypothetical* quantities of constant capital and variable capital in Volume I (i.e., $C_G \neq C_G^*$, $V_G \neq V_G^*$, and $M_G \neq M_G^*$). In Bortkeiwicz and Sweezy's famous numerical example, $C_G^* = 50$ and $C_G = 64$, $V_G^* = 90$, and $V_G = 96$.

Since $M_G \neq M_G^*$, it follows from equations (12.3) and (12.4) that $\Pi_G \neq S_G^*$. In other words, *the profit received in the gold industry is not equal to the surplus-value produced* in the gold industry, according to this interpretation. There is 'sharing' of hypothetical quantities of surplus-value between the gold industry and other industries, because the inputs of constant capital and variable capital change. In Bortkiewicz and Sweezy's numerical example, $S_G^* = 60$ and $\Pi_G = 40$.

All this is clearly contrary to Marx's theory. We have seen above that, in Marx's theory, the inputs of constant capital and variable capital *do not change* in the transformation of values into prices of production. Instead, the quantities of constant capital and variable capital are *taken as given*, and furthermore the *same quantities* of constant capital and variable capital are taken as given in the determination of both the surplus-value produced in the gold industry and the profit received in the gold industry: the *actual* quantities of money-capital advanced to purchase means of production and labour-power in the gold industry (M_G).

We have also seen above that the value-product of the gold industry is also the same in the determination of both the surplus-value produced in the gold industry and the profit received in the gold industry: the actual quantity of gold produced (M'_G). Therefore, it follows, as we have seen above, that the surplus-value produced in the gold industry is *always identically equal* to the profit received in the gold industry: that is, $\Pi_G = S_G = M'_G - M_G$. According to Marx's theory, there is *no 'sharing'* of the surplus-value between the gold industry and other industries in the single period transformation of values into prices of production. The surplus-value produced in the gold industry within a given period is the actual quantity of surplus gold produced, which cannot change into a different quantity through the sharing of surplus-value with other industries. It is not a hypothetical quantity of surplus-value (S^*_G) which changes into the actual quantity of profit (Π_G), as in the Bortkiewicz–Sweezy interpretation.

2.3 Total price of production not equal to total value-price

We can now understand why Bortkiewicz and Sweezy reach the erroneous conclusion that the total price of production of commodities is greater than the total value-price of commodities. As we have seen, Bortkiewicz and Sweezy assume that the composition of capital in the gold industry is below average, and thus the 'value' rate of profit in the gold industry is above average. According to their interpretation, in order to equalize the rate of profit in the gold industry, surplus-value is transferred from the gold industry to all other industries (with a higher composition of capital). This transfer of surplus-value from the gold industry to other industries is accomplished by means of an increase in the prices of these other commodities. Therefore, the total price of production of commodities is greater than the total value-price of commodities, because of this alleged transfer of surplus-value from the gold industry to other industries.

However, we have seen above that, in Marx's theory, there is no sharing between the gold industry and all other industries. Surplus-value in the gold industry is a definite quantity of actual surplus gold produced, which has neither a value-price nor a price of production, and which therefore cannot be shared with other industries. Therefore, there can be no change in the prices of production of other commodities as a result of this non-existent transfer of surplus-value in the gold industry.

Consequently, Bortkiewicz and Sweezy's conclusion that the total price of production of commodities is greater than the total value-price of commodities *does not apply to Marx's theory*, but instead applies only to Bortkiewicz and Sweezy's misinterpretation of Marx's theory. According to Marx's own logic, the total price of production of commodities is always equal to the total value-price of commodities, and the total profit is always equal to the total surplus-value. Neither of these two aggregate equalities is affected by the sharing of surplus-value in the gold industry because, as we have seen, there is no sharing of surplus-value in the gold industry. Both these two aggregate equalities are always true, by the nature of Marx's logical method. They are not conditional equalities which may or may not be true, depending on the composition of capital in the gold industry, or the units of measurement for value-prices and prices of production.

Therefore, I conclude that the standard interpretation of Marx's theory of money and the transformation problem, as represented by Bortkiewicz and Sweezy, is a complete and fundamental misinterpretation, which leads to erroneous conclusions.

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