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A critique of Shaikh's two interpretations of Marx's 'transformation problem'

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It is argued in this paper that Shaikh has presented two different interpretations of the transformation problem in his works. In his influential 1977 paper, he presented an "iterative" interpretation in which there is a transfer of value between departments in the economy; and in a series of papers in the 1980s and in his recent book, he presented a different interpretation in which there is a transfer of value between firms in Department 3 and capitalist households. An important common feature of these two different interpretations is that total profit is not equal to total surplus-value. The two interpretations present different explanations of this divergence, which are examined in detail in this paper. It is argued that there is no textual evidence whatsoever to support Shaikh's second interpretation. A few comparisons will also be made to my "macro-monetary" interpretation of Marx theory according to which there is no transformation problem in Marx's theory and total profit is always equal to total surplus-value.

Key words: Marx, Transformation problem, Iterative method, Surplus product, Steuart
JEL classifications: B14, B24, B51

1. Introduction

This paper examines Anwar Shaikh's interpretation of the alleged 'transformation problem' in Marx's theory, as presented in previous papers and in his recent book (Shaikh, 2016). His recent book is monumental and is about much more than the transformation problem, but this alleged problem continues to be an important controversy in Marxian scholarship, and that is the issue that I wish to engage in dialogue with Shaikh.[1] It is argued that Shaikh has presented two different interpretations of the transformation problem in his works. In his influential 1997 paper, he presented an 'iterative' interpretation, according to which values are transformed into prices of production by transfers of value between departments of the economy with unequal compositions of capital. However, in a series of papers in the 1980s and in his recent book, he presented a 'Department 3 / capitalist households' interpretation, according to which values are transformed into prices of production by transfers of value between

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[1] I have found many parts of Shaikh's book very interesting and helpful, especially the criticisms of mainstream macroeconomics and microeconomics.

firms in Department 3 (that produce capitalist consumer goods) and capitalist households. An important common feature of these two different interpretations is that total profit is not equal to total surplus-value. The two interpretations present different explanations of this divergence, which are examined in detail in this paper. It is argued that there is no textual evidence whatsoever to support Shaikh's second interpretation.

2. Shaikh's interpretation of the 'transformation problem' in previous papers

2.1 1977 paper

Shaikh was one of the first authors to defend Marx's theory of prices of production against the standard Bortkiewicz-Sweezy criticism in a series of papers from 1977 to 1984, and I appreciate very much these early efforts, even though I disagree with them (Shaikh 1977, 1981, 1982, 1984). In his original and influential 1977 paper, Shaikh argued that Marx's presentation of his theory of prices of production in Part 2 of Volume 3 of *Capital* is *not incorrect*, but instead is only *incomplete*. It is only the first step of a multi-step *iterative process*, which needs to be completed, and which Shaikh proceeded to do, and the end results of this iterative process are long-run equilibrium prices of production and the associated rate of profit. Shaikh argued that his iterative method is not an alternative to Marx's method, but is instead a repeated application of Marx's method beyond the first period. He agreed with the widespread criticism that Marx did not transform the inputs of constant capital and variable capital, but he argued that these inputs can be transformed by an iterative extension of what Marx did do.

In this 1977 paper, Shaikh's interpretation is presented in terms of the well-known Bortkiewicz-Sweezy model—a 'dual system' interpretation ('value system' and 'price system') with a three-department reproduction scheme. There are two main differences between Shaikh's interpretation and the Bortkiewicz-Sweezy model, which turn out to be not very significant. In the first place, Shaikh assumes a different invariance postulate: that total price of production = total value, rather than total profit = total surplus-value. However, this difference affects only the absolute magnitudes of the prices, and does not affect relative prices or the rate of profit. And secondly, Shaikh's method of solving the system of simultaneous equations is an iterative method rather than a simultaneous method. However, as just noted, Shaikh's iterative method comes to the same quantitative conclusions as the Bortkiewicz-Sweezy simultaneous method except for a proportionality factor, as Shaikh himself emphasises (he calls the Bortkiewicz-Sweezy solution the 'correct solution').

Shaikh's interpretation is illustrated in this paper by a detailed numerical example which is summarised in table 4 on p. 132. Department I has a higher than average composition of capital (2.5) and Departments II and III have lower than average compositions of capital (0.8 and 0.6, respectively). Therefore, the equalisation of the profit rate has the result that the price of production of Department I is higher than its value and the prices of production in Departments II and III are lower than their values. Thus in effect value is transferred from Departments II and III to Department I (i.e. from departments with a lower than average composition of capital to a department with a higher than average composition of capital). As Shaikh put it: 'The above change of form has the effect of *redistributing surplus-Value from one sphere to another*' (p. 126, emphasis added). Shaikh assumes that the total price = total value (£1750) and thus (according to his interpretation), total profit (£350) ≠ total surplus-value (£400).

Many critics have argued that the failure to satisfy both aggregate equalities is an indication that of Marx's labour theory of value is logically inconsistent.

Shaikh did not discuss this important negative result in this paper, but simply stated in his concluding remarks that 'the relation [i.e. the inequality] between the mass of surplus-value and its transformed money form (total money profits under prices of production) *still needs to be better specified*' (p. 134, emphasis and bracket added). However, there is a well-known explanation of the difference between total profit and total surplus-value provided by the Bortkiewicz-Sweezy interpretation, including implicitly in Shaikh's iterative version. According to this standard interpretation, surplus-value and profit are determined by the equilibrium conditions for Department 3: total surplus-value (S) = *value* of surplus goods in Department 3 (V3) and total profit (π) = *price of production* of surplus goods in Department 3 (P3). Therefore, the difference between total profit and total surplus-value is explained in this standard interpretation by the fact that P3 ≠ V3; and in particular (in Shaikh's example) that P3 (£350) < V3 (£400), which in turn is due to the fact that the composition of capital in Department 3 is less than the average composition of capital for the economy as a whole.

Thus, we can see that, according to Shaikh's interpretation in this first paper, the difference between total profit and total surplus-value is explained implicitly (as in the standard interpretation) by a *lower composition of capital in Department 3 (the surplus goods department) compared to the average composition of capital* and the resulting transfer of value from Department 3 to other departments in order to equalise the rate of profit. If the composition of capital in Department 3 were instead *higher* than the average (instead of lower), then there would be a transfer of value in the opposite direction—*from* other departments *to* Department 3 (rather than vice versa), and the price of production of the surplus product would be *greater* (not less) than the value of the surplus product and total profit would be *greater* (not less) than total surplus-value.

It should also be noted that Shaikh's iterative interpretation of the determination of the rate of profit and prices of production *does not actually depend on the labour theory of value*. Even though direct prices proportional to labour values are the starting point for his iterative derivation of prices of production, the initial magnitudes in this iterative method could be *anything*, that is, they could be *any arbitrary* set of numbers, and the end results would be the *same* prices of production (except for a proportionality factor) and the *same* rate of profit. Indeed, one could arbitrarily assign initial prices that are the *opposite* of Marx's value-prices (we could call them 'anti-values') in the sense that industries with a higher than average composition of capital have a higher rate of profit (rather than lower than average rate of profit as in Marx's theory), and vice versa for industries with a lower than average composition of capital. The end result of the iteration process would be the same rate of profit and same relative prices as if one started with value-prices. Prices of production and the rate of profit in the iterative interpretation depend instead on the physical quantities of inputs and outputs that remain the same in all the iterations. The insignificance of the initial magnitudes is one of the characteristics of using this iterative method to solve a system of homogenous simultaneous equations. The iterative method is the method used by computers (e.g. Excel) to solve homogenous simultaneous equations. The computer 'guesses' at the initial values, and then calculates successive approximations of the solutions iteratively until the solution is found.

Thus, Shaikh's iterative interpretation is not a very promising defense of Marx's theory, nor a promising path for the further development of Marx's theory. Shaikh's interpretation is essentially same as the Bortkiewicz-Sweezy interpretation; it is not a different interpretation of the logical structure of Marx's theory, but is only a different method of solving the same system of simultaneous equations.

2.2 1980s papers

In Shaikh's papers in the early 1980s (1981, 1982 and 1984), he focused on the question of *why the total profit is not equal to the total surplus-value* that he had noted at the end of his 1977 paper as an important unanswered question for future research. In his 1981 paper, he posed the question as follows: 'The question is: given that circulation neither creates nor destroys value … how is that profits can differ from surplus-value?' (p. 283). In these papers, he did not mention the standard explanation of this difference provided by the Bortkiewicz-Sweezy interpretation and implicitly in his iterative version presented in his 1977 paper—that total profit ≠ total surplus-value because the price of production of Department 3 ≠ value of Department 3, which in turn is because the composition of capital in Department 3 is not equal to the average composition for the economy as a whole. Nothing is said in these papers about unequal compositions of capital in the three departments (now called branches) and nothing is said about the transfer of value *between branches* with unequal compositions of capital in order to equalise the rate of profit and cause total profit to diverge from total surplus-value and determine prices of production. This silence about his 1977 paper is surprising and disappointing.

Instead, the divergence of total profit from total surplus-value is explained in these papers in a completely different way—by a *transfer of value between firms in branch 3 and capitalist households* through the *sale* of capitalist consumer goods at prices that differ from their values. Each of the three branches is analyzed 'singly' and a price different from value is assumed in one of the branches and the prices of the other two branches are held constant and assumed to be equal to their values. It is not specified whether these prices that differ from values in individual branches are prices of production; we will see below that these assumed prices cannot be prices of production.

For branch 1, sales of means of production are to other capitalist firms, so that (assuming no fixed capital) a gain or loss by firms in branch 1 is exactly offset by a loss or gain by other firms in all three branches, so that the total profit remains the same (total profit = total surplus-value).

A similar conclusion applies to branch 2; it is argued that wages goods are sold directly to workers and indirectly to other capitalist firms, so that a gain or loss by firms in branch 2 are again exactly offset by a loss or gain by other firms in all three branches, so that the total profit again remains the same (total profit = total surplus-value).

However, in branch 3 (assuming simple reproduction), capitalist consumer goods are sold to capitalist households and thus a gain or loss by firms in branch 3 is not offset by other branches and thus the total profit changes and total profit ≠ total surplus-value. Thus, the divergence of total profit from total surplus-value is explained by a *transfer of value between firms in branch 3 and capitalist households through exchange* of capitalist consumer goods. For example, if firms in branch 3 sell their products at prices *below* their value, then (according to Shaikh), there is a transfer of value from firms in branch 3 to capitalist households and a loss of profit for firms in branch 3.

Thus, we can see that the explanation of the divergence between total profit and total surplus-value in these papers is *entirely different from the standard explanation of this divergence* that is implied in Shaikh's (1977) paper—due to a transfer of value between branch 3 and other branches in the economy because the composition of capital in branch 3 is lower than the average composition. The standard explanation—and Shaikh's implied explanation in his 1977 paper—has nothing to do with a transfer of value between firms in branch 3 and capitalist households.

Furthermore, since it is assumed in these later papers that firms in branches 1 and 2 sell their products at their *values*, these branches neither gain nor lose value or surplus-value. Therefore, the entire deviation of total profit from total surplus-value falls on branch 3. As a result, there is no equalisation of the profit rate across all branches and thus there is *no explanation* of the determination of prices of production with equal rates of profit in all branches. This different explanation of the divergence of total profit from total surplus-value presented in these papers has no connection with Shaikh's iterative interpretation of prices of production with equal rates of profit presented in his 1977 paper.

In addition, there is a serious weakness in this explanation of the divergence between total profit and total surplus-value—there is *no explanation of the magnitude of P3*, and not even an explanation of why P3 < V3 (instead of >). The inequality between P3 and V3 is just assumed and not explained. In the standard explanation of the divergence between total profit and total surplus-value [implied in Shaikh's (1977) paper], there is an explanation of the magnitudes of P3 and V3 and of why P3 < V3 – because the composition of capital in branch 3 is less than the average composition of capital. If the composition of capital in branch 3 were instead *greater* than the average composition, then total profit would be *greater* than total surplus-value (rather than less).

In these papers, Shaikh also dropped the assumption of simple reproduction and argued that the divergence between total profit and total surplus-value depends not only on the deviation of the prices of capitalist consumer goods from their values, but also on the *percentage of the total surplus-value that is spent on consumer goods* (as opposed to investment goods) and also on the rate of growth (see Shaikh, 1984, equation (1) on p. 56).

3. Shaikh's interpretation of the 'transformation problem' in his recent book

In Chapter 6 of his recent book ('Capital and Profit'), Shaikh elaborates on his previous argument in his 1980s papers that the reason for the divergence between total profit and total surplus-value in the transformation of values into prices of production is a *transfer of value between firms and capitalist households* through the sale of capitalist consumer goods at their prices of production that differ from their values. There is not much explicit discussion of the transformation problem, but the main point of the chapter is that the total profit of capitalist firms can differ from the total surplus-value as a result of value transferred between capitalist firms and capitalist households, and this key point is applied to the transformation problem in sections III and IV. Therefore, the same criticisms of this interpretation made above also apply to his book.

3.1 Section I ('Introduction')

Shaikh's logical framework in Chapter 6 is a *physical* model in terms of physical quantities of inputs and outputs, similar to Sraffa's theory and fundamentally different from Marx's logical framework of the *circuit of money capital* (see Moseley, 2016A, 2016B, Chapters 1 and 4). The logic of Shaikh's theory of the aggregate profit can be summarised as follows: first the quantity of each surplus product ($Q^{S}{}_{i}$) in physical terms is taken as given (or determined by the difference between the net product and the real wage); then the unit price of each of the surplus products ($P^{S}{}_{i}$) is taken as given (or determined in some way); and then the aggregate [money] profit (*Π*) is determined by the sum of the products of the unit price of each surplus product multiplied by the quantity of that surplus product:

$$\Pi = \Sigma P^S{}_i Q^S{}_i \tag{2}$$

I argue that Shaikh's theory of profit as the 'price of the surplus product' as expressed in this equation is fundamentally different from Marx's theory of the total surplus-value as determined by the total surplus labour, as summarised by the equation:

$$S = m\ (SL) \tag{3}$$

where S is surplus-value, SL is surplus labour, and m is the money value produced per hour of labour (which is commonly called the MELT) (this equation is derived in Chapter 2 of Moseley, 2016A, 2016B). According to Marx's labour theory of value and surplus-value, surplus-value is produced by *all workers* in *all industries* not just by workers producing surplus goods, and the magnitude of surplus-value is determined by the magnitude of the *surplus labour of all workers in all industries*, not just by the (past and current) labour employed in the production of surplus goods. And this magnitude of surplus labour does not change as a result of the transformation of values into prices of production. This difference is of course fundamental and leads to different conclusions discussed below.

3.2 Section II ('Two Sources of Aggregate Profit')

Shaikh argues in this section that there are two sources of aggregate profit in Marx's theory: profit from *production* and profit from *trade* (or transfer through exchange). Profit from production clearly increases the aggregate profit and the total value in circulation; profit from trade increases the profit of individual capitalists, but it does not increase the total value in circulation. However, Shaikh's main point in this section (similar to his 1980s papers) is that *trade may increase the aggregate profit of firms* by a transfer of value from *capitalist households* to *firms is sector 3* through the purchase and sale of capitalist consumer goods at prices greater than their values, even though there is no increase in the total value in circulation (including the circuits of revenue as well as the circuits of capital).

3.2.1 Marx on Steuart in Theories of Surplus-Value

The main textual evidence presented by Shaikh to support this highly speculative interpretation is Marx's three-page discussion of Sir James Steuart in Chapter 1 of *Theories of Surplus-Value* ('Steuart's intriguing claim that there are two sources of aggregate profit'; Marx, 1963, p. 209) However, a review of Marx's discussion reveals that it does not support Shaikh's interpretation.

Shaikh emphasises Steuart's concepts of *positive profit* and *relative profit*, and argues that positive profit refers to profit originating in *production* and relative profit refers to profit originating in *exchange* or *trading*; and he argues that this was Marx's interpretation of Steuart's concepts and that Marx's incorporated (or planned to incorporate) Steuart's distinction in his own theory.

In order to understand Steuart's concepts of positive and relative profit, it is necessary first of all to remember that Steuart was a mercantilist economist with a mercantilist theory of price and profit, according to which *all profit originates in exchange* by the sale of commodities above their value. Marx began Chapter 1 as follows:

Before the Physiocrats, surplus-value – that is, profit in the form of profit, was explained **purely from *exchange***, the sale of the commodity above its value. Sir James Steuart on the whole **did not get beyond this restricted view**… (Marx, 1963, p. 41; *italicized* emphasis in the original; **bold** emphasis added; these conventions also apply to quotations below)

Steuart himself succinctly stated his mercantilist theory of price and profit in Chapter IV of his *Principles of Political Oeconomy* as follows:

In the price of a good, I consider two things are really existing, and **quite different from one another**; to wit, the **real value** of the commodity, and the **profit upon alienation**. (Steuart, 1966, p. 159)

Steuart continued in this chapter to elaborate that the 'real value' of the commodity is its costs of production (labour costs plus material cost), *not including profit*.[2] Thus, for Steuart, profit *comes only from alienation*.

Marx quoted this summary of Steuart's theory and paraphrased it as follows:

The price of goods therefore comprises two elements that are **completely different from each other**; firstly their *real value*, secondly, the *profit upon alienation*, the profit realized through their transfer to another person, their sale. (Marx, 1963, p. 42)

Thus, Steuart's positive profit cannot be profit originating in production because, according to Steuart's mercantilist theory, *there is no profit originating in production*; profit originates solely from exchange (i.e. 'profit upon alienation'). Marx of course completely rejected Steuart's mercantilist theory and Marx's labour theory of value is in this respect the *opposite* of mercantilist theory: all profit originates in production and no profit originates in exchange.

Therefore, Marx's discussion of Steuart's theory of profit in *Theories of Surplus-Value* provides *no textual evidence whatsoever* to support Shaikh's argument that Marx interpreted Steuart's concepts of positive and relative profit as profit from production and profit from exchange, respectively, and that Marx adopted (or planned to adopt) these concepts in his own theory.

3.2.2 Stolen TV

In a sudden shift to a much lower level of abstraction, Shaikh then illustrates the possible increase of the aggregate profit of firms through trade with households with a peculiar example of 'your favorite large screen TV' which is worth \$500 and is stolen (pp. 209–10). The thief sells your stolen TV to a shopkeeper for \$200 who in turn sells it for \$500. Shaikh concludes that the aggregate profit of firms has increased by \$300! Various other cases are also discussed that result in increases in the aggregate profit of firms by different amounts. But this example has nothing to do with Marx's concept of profit, which depends on surplus labour in production and which does not include profit from stolen goods.

3.2.3 Merchant capital

In the last paragraph of section II, Shaikh argues that relative profit (from exchange) also plays a central role in the profit of merchants and the interest of moneylenders

[2] Steuart repeated this succinct summary of his mercantilist theory of price in Chapter X: 'I have, in the fourth chapter, observed how necessary a thing it is to distinguish the two constituent parts of every price; the value, and the profit' (p. 189). Thus 'value' for Steuart has a different meaning than value for Marx; 'value' for Steuart does not include profit and 'value' for Marx does include profit.

(two forms of the distribution of surplus-value), and he quotes Marx's statement in Chapter 5 of Volume 1 that merchants' profit and moneylenders' interest come from exchange. Marx did indeed acknowledge that merchants' profit and moneylenders' interest come from exchange and thus they appear to contradict the general law that no value in created in exchange. However, Marx promised in Chapter 5 to explain this apparent contradiction in a later stage of his theory; which he did in Part 4 of Volume 3, in which Marx explained merchant profit in an entirely different way—as a *deduction* from the *total surplus-value produced by productive capital* (more precisely produced by the productive labour employed by productive capital). That is, the source of merchant profit is a transfer of surplus-value *from productive (or industrial) capital to merchant capital* through the difference between wholesale prices and prices of production, not a transfer of value from households to merchant capitalists through the difference values and prices of production. Marx's theory of merchant profit in Volume 3 is clearly based on the presupposition that the total surplus-value produced by productive capital has already been determined in Volumes 1 and 2 and this total surplus-value is not affected by the appropriation of a part of it by merchant capital (see Moseley, 2016A, 2016B, pp. 95–98).

Marx earlier wrote a first draft of his theory of merchant profit (as a transfer of surplus-value from industrial capital to merchant capital) in a section of the *Manuscript of 1861–63* that was published for the first time in English in 1991 (Marx and Engels, 1991, pp. 9–68 and 154–70). And there is further similar textual evidence in an important letter Marx wrote to Engels in April 1868, soon after the publication of Volume 1 and six years after writing the three pages on Steuart (Marx and Engels, 1975, pp. 191–95).

After discussing merchant capital, Shaikh states:

> Marx unfortunately did not live to publish anything further on these subjects. In particular, the material we do have on the distribution of surplus-value in Volume 3 of *Capital* was assembled by Engels long after Marx's death from his various notes and unfinished manuscripts. (p. 211)

Fortunately, an English translation of Marx's original Volume 3 manuscript (*The Economic Manuscript of 1864–65*) has recently been published (Marx, 2016), which I edited and wrote the Introduction (Moseley, 2016B). From this recently published manuscript, we can see in particular that Engels' Part 4 of Volume 3 on merchant (or commercial) profit is almost exactly the same, paragraph by paragraph, as Marx's original manuscript. This is one of the parts in Engels' volume with the *least changes* and thus we can be confident that this was Marx's theory of merchant profit (as a deduction from the total surplus-value produced by productive capital), not Engels' theory.

At the end of this long section, Shaikh related his theory of the divergence between total profit and total surplus-value (by the transfer of value between capitalist firms and capitalist households) to his interpretation of the transformation problem:

> The vast literature of Marx's theory of profit seems to have failed to notice that profit on alienation must play a central role in Marx's 'transformation problem', since the latter involves transfers of surplus value brought about the prices which deviate from labor values – unequal exchange in the sense of Marx. (p. 211)

Yes, Marx's theory of prices of production 'involves transfers of surplus-value brought about the prices which deviate from labor values'; but these transfers of surplus-value are *between industries* in the economy with unequal compositions of capital, not between firms in Department III and capitalist households. Such a 'mercantilist' theory of prices of production is never mentioned in Marx's writings on prices of production.

3.3 Section III ('Production, Labor-Time, and Profit')

Section III of Chapter 6 argues that the aggregate profit from production depends on the prices of the surplus products and thus the aggregate profit will change if these prices change. More precisely, the aggregate profit is determined by equation (2) discussed above: $\Pi = \Sigma P^S_i\, Q^S_i$. As noted above, I argue that Shaikh's theory of profit as expressed in this equation is fundamentally different from Marx's theory of the total surplus-value (or total profit) as determined by the total surplus labour, as expressed in equation (3): $S = m\ (SL)$.

The title of subsection III.1 is 'No aggregate profit without surplus labor' and the title of subsection III.2 is 'Positive profits require surplus labor'. These titles sound similar to Marx's labour theory of value and surplus-value, but there is a crucial difference between them—the precise meaning of 'surplus labor'. In Marx's labour theory of *value*, surplus labour means 'produces surplus-*value*' in *monetary* terms (i.e. ΔM). In Shaikh's interpretation, on the other hand, surplus labour means 'produces surplus *product*' in *physical* terms. The difference between these two definitions of surplus labour is clearly illustrated by the hypothetical case of 'full automation'—an economy without labour but is assumed to produce a surplus product—which has been discussed in the literature (Dmitreiv, 1974, pp. 61–65; Steedman 1985). According to Shaikh's interpretation, if there is a positive surplus product, then there will be a positive profit, as equation (2) makes clear. According to Marx's theory, on the other hand, if there is no labour and thus no surplus labour, then there will be no profit, even though there is a surplus product, as equation (3) makes clear.

3.3.1 In section III.4 ('The Puzzle of Effects of Relative Prices on Aggregate Profit')

Shaikh presents a detailed numerical example to illustrate the *effects* of changes in the prices of the surplus products (especially the difference between values and prices of production) on the aggregate profit. He assumes three sets of prices: values (direct prices), prices of production (competitive prices), and monopoly prices. He does not explain how prices of production are determined, but he does mention that they are 'Bortkiewicz-Sraffa prices' (which are the same as the prices of production determined by Shaikh's iterative method in his 1977 paper), and we saw above that these prices of production are determined by *transfers of value between departments* of the economy with unequal compositions of capital in order to equalise the rate of profit.

The example in section III.4 shows that different prices of the surplus products result in a divergence between total competitive profit (associated with prices of production) and total direct profit (associated with values), which Shaikh presents as a 'puzzle'. In the numerical example, the price of production of the surplus product is less than the value of the surplus product; therefore the aggregate competitive profit is less than the aggregate direct profit and one of Marx's two aggregate equalities is not satisfied as in the standard criticism of Marx's theory.

However, this alleged inequality in Marx's theory follows from Shaikh's *different theory* of the aggregate profit [equation (2): $\Pi = \Sigma P^S_i\, Q^S_i$]; it does not apply to Marx's theory of the total profit [equation (3): $\Pi = S = m\ SL$]. According to Marx's theory, the transformation of values into prices of production does not affect SL and thus does not affect total profit. Total profit in Marx's theory does not depend on the price of production of the surplus product, but instead depends on the total surplus labour in all sectors of the economy (and is always equal to the total surplus-value).

3.4 Section IV ('Aggregate Profits and Transfers of Value: A General Solution to the Universal "Transformation Problem"')

The title of section IV is ambitious, but the section itself is disappointing. The first three pages present another peculiar example of computer monitors that are stolen, one from a household (similar to the earlier example in section II of a stolen TV) and one from a business. Various cases are considered in order to determine whether (and to what extent) the total profit of firms increases as a result of the theft and resale of the monitors. Again, this example has no relevance to Marx's labour theory of value and profit, which does not include profit on fencing stolen goods.

Section IV.1 ('Transfers of Value via Changes in Relative Prices') returns to the numerical example in section III.4 (just discussed) and attempts to explain the 'puzzle' of the divergence between aggregate competitive profit and aggregate direct profit in that example. His explanation is similar to his earlier explanation in his 1980s papers—that the divergence between aggregate competitive profit and aggregate direct profit is explained by the *transfer of value between firms and capitalist households*—but also with a difference: part of the surplus-value is used to purchase iron as a fixed capital good rather than as a circulating capital good, which results in a transfer of value from current profit to future profit for all branches.

However, we can see from table 6.9 in section III.4 that the Bortkiewicz-Sweezy prices of production of corn and iron are instead determined in his example by *a transfer of value from the iron sector to the corn sector*, because the iron sector has a lower composition of capital than the corn sector, not because of transfers of value from households to firms nor from current profit to future profit. In table 6.9, the composition of capital (Money Cost of Material Inputs / Money Wage Bill) in the corn sector is 6.9 and the composition of capital in the iron sector is 4.6. Thus, there is a transfer of value from the iron sector (lower composition of capital) to the corn sector (higher composition of capital) and the price of production of iron is lower than its value and the price of production of corn is higher than its value. And because of the specific composition of the surplus product (60 units of corn and 15 units of iron), the net effect is a decrease in the price of the surplus product and thus a decrease in the aggregate competitive profit. Therefore, the inequality between aggregate competitive profit and aggregate direct profit in this example is due to a transfer of value from a sector with a lower composition of capital (iron) to a sector with a higher composition of capital (corn), not due to a transfer of value from capitalist households to firms nor to a transfer from current profit to future profit. If the composition of capital in the corn sector was *lower* (rather than higher) than the composition of capital in the iron sector, and if the composition of the surplus product was the same, then the price of corn would fall and the price of iron would increase, and the aggregate competitive profit would be *different* and could even be *lower* (not higher) than the aggregate direct profit, which Shaikh would presumably 'explain' by a transfer of value from firms to capitalist households (rather than the other way around). Clearly, the determining factor in the divergence between aggregate competitive profit and aggregate direct profit in Shaikh's example is unequal *compositions of capital in the different sectors*, which causes a transfer of value between sectors in order to equalise the rate of profit, not the transfer of value between firms and capitalist households nor between current profit and future profit.

The last paragraph of section IV.1 lists the following pieces of textual evidence that Shaikh claims support his interpretation that aggregate profit might increase as a result of a transfer of value through exchange with capitalist households: Marx's 'adoption [!] of Steuart's distinction between profit on transfer and profit on production' (bracket added); Marx's 'general rules for transfers of value' in Chapter 4 of Volume 1 of *Capital* (I presume that Shaikh means Chapter 5 which he discussed earlier in section II and I discussed above); the reproduction schemes in Part 3 of Volume 2; and *perhaps* Marx's unpublished manuscripts which *might* contain further evidence to support this interpretation.

I have already discussed above Marx's comments on Steuart in *Theories of Surplus-Value* and Chapter 5 of Volume 1 of *Capital*. I do not see how the reproduction schemes in Volume 2 could possibly support Shaikh's interpretation. The reproduction schemes assume that prices are equal to values, so they are not relevant to the transformation problem. Shaikh emphasises the circuit of revenue and Marx does discuss revenue in section 3 of Chapter 19 and section 10 of Chapter 20, but both of these sections are about variable capital only and whether or not variable capital paid to workers to purchase their labour-power should be considered 'revenue' in the hands of workers (as some classical economists argued). Marx argued 'no' because variable capital is really a source of surplus-value for capitalists, not workers. Certainly nothing is said (or remotely hinted) in these sections about a possible transfer of value between firms and capitalist households due to unequal exchange of capitalist consumer goods.

And with respect to Marx's unpublished manuscripts, I think we can say with a great deal of confidence that Marx was *not* thinking along the lines of Shaikh's interpretation. All of Marx's economic manuscripts have now been published (in German) in section II of the MEGA (*Marx Engels Gesamtausgabe*) (the last volume was II/4.3—*The Economic Manuscript of 1867–68*—which was published in 2012) and there is no evidence that I know of that Marx thought that the aggregate profit of firms might increase as a result of a transfer of value from capitalist households to firms. This interpretation is pure speculation without any explicit textual evidence and with plenty of contradictory textual evidence, especially with respect to the prior determination of the total surplus-value and the source of merchant profit (as a deduction from the total surplus-value produced by productive capital, rather than a transfer of value from households).

4. Conclusion

Therefore, I conclude that Shaikh's 'Department 3 – capitalist households' interpretation of the transformation problem as presented in his recent book is not much of an improvement over his 1980s papers. There are some improvements, but the basic interpretation remains the same and continues to be unsatisfactory and contrary to his original iterative interpretation. A more explicit theory of aggregate profit is presented ('two sources of aggregate profit': production and trade), but this theory is different from Marx's theory, according to which aggregate profit depends only on surplus labour in production (and the MELT), and aggregate profit is not affected by trade. His interpretation of the divergence of the aggregate competitive profit from the aggregate direct profit is spelled out in greater detail and clarity, but he still assumes that this divergence is the result of a transfer of value between firms in Department 3 and capitalist households; and this explanation is contrary both to the standard Bortkiewicz-Sweezy explanation of this divergence implied in his 1977 paper (and in sections III and VII of his book) based on his 'iterative' method and is also certainly contrary to

Marx's theory, according to which *there is no divergence between aggregate profit and aggregate surplus-value* to be explained. More textual evidence is presented to support his interpretation, but upon reexamination *none* of this textual evidence actually supports his interpretation. And there is very substantial textual evidence to the contrary from all the drafts of *Capital* which is presented in Chapter 3 of my book to support my 'macro' interpretation of Marx's theory, according to which the total surplus-value is determined prior to prices of production and is presupposed in the determination of the rate of profit and prices of production and thus is not affected by the determination of prices of production; that is, there is *no divergence* between total profit and total surplus-value.

Shaikh suggests in five different places in Chapter 6 (pp. 211, 226, 232 and 239 twice) that further textual evidence to support his 'Department 3 – capitalist households' interpretation *might exist* in Marx's unpublished manuscripts of Volumes 2 and 3 that Engels did not publish. But all of Marx's manuscripts have now been published in the MEGA and we can say with certainty that no such textual evidence exists.

In closing, I would like to suggest that there is an alternative to Shaikh's interpretation that I have presented in a series of papers and culminating in my 2016 book *Money and Totality: A Macro-Monetary Interpretation of Marx's Logic in Capital and the End of the 'Transformation Problem'*, in which there is no divergence between total profit and total surplus-value (the two aggregate equalities are always satisfied) and there is no transformation problem in Marx's Theory. Chapters 3 and 4 of my book present 180 pages of textual evidence from all the drafts of *Capital* to support this macro-monetary interpretation of Marx's theory.

A CJE referee asked: what is the relevance of this debate for understanding contemporary capitalism? In response, I would say: Marx's theory of surplus-value explains that the exploitation of workers is the essential nature of capitalism—that is, that surplus-value is produced by the surplus labour of workers—and this remains as true today as it was in the nineteenth century. The 'transformation problem' has been the main criticism of Marx's theory of surplus-value ever since Bortkiewicz and has been the main reason given by critics for rejecting Marx's theory. I argue that Shaikh misinterprets Marx's theory of prices of production in two different ways and this misinterpretation weakens Marx's theory and leaves it vulnerable to its opponents. I think my paper and my book contribute to a deeper understanding of Marx's theory and the transformation problem and thus contribute to a deeper understanding of the essential exploitative nature of contemporary capitalism.

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