Note: A dissenting note on the transformation problem

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What is the Problem?

The so-called transformation problem of values into prices and of surplus value into profit has been one of the most controversial topics of Marxist political economy. The divergence of prices of production from values was seen as the Achilles heel of the labour theory of value even before the publication of Volume III of *Capital.*[1] Subsequently, it has invariably proved to be the grounds on which bourgeois economics has dismissed Marxism, preoccupied as this economics is with the precise calculation of prices, for which a *labour* theory of value is irrelevant given the role played by other factors of production (and demand). Even within Marxism, there has been, associated with the Sraffian school, a dismissal of the labour theory of value on the grounds of the transformation problem.

Much ink has been spent on this problem despite its lack of immediate application to economic or political issues. It has proved the ground on which deeper conceptual matters have been raised and occasionally resolved. These have particularly concerned the notion of value and its place in Marx's thought and in any valid analysis of capitalist society.[2] The purpose of this paper is to argue that, whatever the merits of these debates, they have misrepresented Marx's own contribution to the subject. This is an astonishing claim, given the attention paid to Marx's exposition, but it is one that is easily summarised. Discussion of the transformation problem has examined the implications for prices of differing compositions of capital across sectors of the economy. This has, however, invariably focused upon differences in the *value* composition of capital, whereas Marx's analysis is concerned almost exclusively with the *organic* composition.

This error in interpreting Marx is not a simple misreading of 'value' wherever 'organic' appears. It is a failure to recognise that there is any distinction between the value and organic compositions so that the organic composition is treated as if it were the value composition. It is essential then to outline Marx's notion of the composition of capital. He distinguishes between the technical, organic and value compositions and does so within a few pages of embarking upon the transformation problem. The technical composition reflects the differing rates of physical means of production to living labour. When this is assessed in value terms the organic composition results:

> A definite number of labourers is required to produce a definite quantity of products in, say, one day, and – what is self-evident – thereby to consume productively, i.e., to set in motion a definite quantity of means of production, machinery, raw materials, etc. . . .This proportion forms the technical composition of capital and is the real basis of its organic composition. III p. 145.

Marx proceeds to explain that the value differs from the organic composition in that the same technical process may employ raw materials of different values. Then the technical and organic compositions are the same but the value compositions differ across the sectors:

> For instance, certain work in copper and iron may require the same ratio of labour-power to mass of means of production. But since copper is more expensive than iron, the value relation between variable and constant capital is different in each case, and hence also the value-composition of the two capitals . . . . The value composition of capital, in as much as it is determined by, and reflects, its technical composition, is called the organic composition of capital.

Engels appends a footnote pointing out that these distinctions were inserted into the third edition of volume I of *Capital*. There and elsewhere in *Theories of Surplus Value*, Marx's distinction is seen to go further. For whilst the distinction between value and organic composition is clear enough where the same material process is involved in production but with materials of different values (copper and iron to make plate, silver and gold to make jewellery), the same is not true of different production processes such as construction and agriculture. Marx further distinguishes the organic and value compositions in a dynamic context in which, as capital is accumulated, the increasing use of raw materials etc. in one sector as opposed to another is the basis of comparing technical and organic compositions whereas the value composition allows, in addition, for the changing values brought about by such technical changes.[3] This ties the organic composition to changes in the production process and the value composition to the resulting formation of values after the intervention of exchange. For example, an increasing organic composition of steel, resulting in increasing productivity, will tend to reduce the value composition in all steel using sectors but have no direct effect on their organic compositions.

Because Marx discusses the transformation problem in terms of the organic composition he is concerned with the following problem: what is the effect on prices of differences across sectors in the quantities of raw materials worked up into commodities irrespective of the values of those raw materials? The transformation problem as traditionally concerned would wish to take account of differences in the values of raw materials. Usually, following on from this, account is also taken of the differences in the prices of raw materials (which differ from the differing values).

Given Marx's problem, there are two sensible ways of proceeding, both of which he adopts. The first is to assess advanced capital at its value rather than at its cost. Then, if one capital works up four times more raw materials than another it will have an organic composition of four times. A simple example illustrates this together with the consequential formation of the rate of profit and prices of production

Sector	c	v	s	p*
I	80	20	20	150
II	50	50	50	150
III	20	80	80	150
Total	150	150	150	

* Prices of production are based on c + v marked up by the rate of profit which is formed by dividing aggregate s by aggegate c + v.

Alternatively, it can be presumed that constant and variable capital have already been assessed at cost prices so that advances are made in money form. In this instance, the table above remains the same but the quantities are expressed in pounds or whatever. In other words, money magnitudes directly represent magnitudes of labour and raw materials during the course of the production process. Outside production, in exchange, the prior purchasing price of inputs and the subsequent selling price of outputs do not represent labour-time directly.

Marx recognises this divergence between value and price of inputs in a number of places (p. 161, p. 164, p. 173/4, p. 207 and also in TSV III p. 167). In the second of these references, he simply observes that 'our present analysis does not necessitate a closer examination of this point'. There are two reasons that can be put forward for this. The first is that qualitatively, prices and rates of profit prior to production must have been formed already:

> The prices which obtain as the average of the various rates of profit in the different spheres of production added to the cost prices of the different spheres of production, constitute the *prices of production*. They have, as their prerequisite the existence of a general rate of profit. p. 157.

Quantitatively, Marx is aware that differing value compositions have the same effect upon prices as differing organic compositions (and turnover mines) – see p. 144–5 – so that a separate consideration of this would not appear to be urgent.

Observations and implications

The most frequent criticism made against Marx's treatment of the transformation problem is that he got it wrong and in order to get it right value theory has to be abandoned or is irrelevant. Hopefully, I have shown that Marx did not get wrong the problem that *he* posed, although it differs from the one which he is presumed to have failed to solve. It is not surprising that the solution to one problem is inappropriate as the solution to another. It is worth exploring the difference between the two problems further.

Marx did not transform the value of inputs, presuming that this had already been done, since profits and prices of previous production are the preconditions of continuing production. It follows that the prices of production and rate of profit resulting from Marx's transformation can differ from the cost prices (and rate of profit) which are their antecedents. This will reflect the changing conditions of production intrinsic in any analysis based on the organic composition. It is for this reason that price of production is such an apt name, since it is the price resulting from differences in production processes. Cost price represents value considerations also (reflecting differences in value composition and turnover time) and is different both conceptually and quantitatively from price of production. Presumably, price of production must have been a carefully chosen terminology by Marx. In the *Theories of Surplus Value*, written prior to volume III of *Capital*, Marx never uses the term price of production, but uses various other terms including cost price! Whilst this is thought to reflect the lack of standard terminology amongst his contemporaries, the usage finally decided upon for *Capital* does not appear to be accidental.

In contrast to Marx his critics and many supporters, transform both output prices simultaneously. This reflects the rejection of a given set of prices and rate of profit prior to production. Rather input and output prices are determined simultaneously and as equal to each other. For this problem, there is no need for a distinction between the organic and value compositions and the latter alone suffices, better expressed in price and not value terms. The absence of the organic composition is marked by an equilibrium analysis whereas this is not essential to Marx's problem. Further, for Marx, the equality in aggregate between surplus value and profit and between value and price is immediate and accounted for in absolute quantities of labour time, whereas this cannot be so for his critics, giving rise to the normalisation problem in determining absolute rather than relative prices.

The interpretation of Marx's transformation offered here, integrates this part of his analysis into what follows and what has gone before in *Capital*. In volume I of *Capital*, Marx analyses the production of (relative) surplus value by the use of machinery and this is reflected in a rising organic composition, the variability of which is the starting point for his transformation. Volume II of *Capital* analyses the exchange between sectors which is the basis upon which reproduction rests. The first part of Volume III examines profit as the form of surplus value in exchange and the second part deals with the transformation problem. Part III of Volume III turns to the law of the tendency of the rate of profit to fall. It does so by relying upon the rising *organic* composition for the law as such and upon the formation of the value composition for counteracting tendencies.[4] For Marx, it is the internal contradiction between the law as such and counteracting influences which is of significance. A further use of the organic composition is made by Marx in his treatment of absolute rent, an analysis which is crucially dependent upon the relationship between changing productivity and price formation.[5]

By contrast, the traditional view of the transformation problem can take value and surplus value as given without analysing how it is produced or how it is exchanged. Just as this treatment extinguishes the distinction between the organic and value compositions by use of an equilibrium analysis, so discussion of falling profitability becomes an exercise in comparative statics where the tensions between (surplus) value production and circulation are eliminated.[6] Within this framework, absolute rent is also impossible other than as a monopoly rent with no systematic connection to the organic composition.

Finally, a new light is shed upon the historical transformation problem, Marx's idea that for an undeveloped or pre-capitalist economy, commodities exchange at their values.[7] It has generally been presumed that Marx had in mind a zero rate of profit, equal value compositions of capital or impediments to competitive exchange across sectors. Given the association of such economies with little or no development in the use of machinery little change is to be expected in the organic composition. On the interpretation suggested here, continued exchange at value is an immediate result.

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Notes

1. See Engels's postscript to Volume III.
2. For an assessment of the debate, see Fine and Harris (1979) and for a colloquium of competing views, see Steedman *et al.* (1981).
3. For a more extended treatment of the distinctions between the compositions of capital and for reference to Marx's discussion of them, see Fine and Harris (1979) and Fine (1979).
4. For this interpretation, see Fine and Harris (1979) and Weeks (1982).
5. See Fine (1979) and Fine (1982).
6. See Fine (1982).
7. See the debate between Fine (1980) and Catephores (1980) for example.

References

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