Karl Marx and the formation of the average rate of profit

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Since von Bortkiewicz it has frequently been assumed that Marx's solution to the 'transformation problem' is faulty. In this article we shall try to show: (a) that Marx's solution was correct; (b) that it leads to no inconsistencies in his theory of value; (c) that even in spite of this solution, von Bortkiewicz misunderstood the problem. The point of departure is the following table:

	Capitals	Amount of *c* used up	*p*	Rate of surplus value	Cost	Rate of profit	Value
I	80c + 20v	50	20	100%	70	20%	90
II	70c + 30v	51	30	100%	81	30%	111
III	60c + 40v	51	40	100%	91	40%	131
IV	85c + 15v	40	15	100%	55	15%	70
V	95c + 5v	10	5	100%	15	5%	20

We have five capitals, which correspond to the total invested in five distinct spheres or branches of production. This is taken as a simplified model of the capitalist economy with five industrial products in place of the thousands that are there in reality. The capitals are composed of '*c*' (constant capital, or that part of capital invested in raw materials, machinery, plant and other means of production) and *v*, or that part of capital invested in the acquisition of labour power. One part of constant capital (in the column on the amount of *c* used up) includes within it the value of the commodities produced; including the raw materials and other things used, and the depreciation of the premises and equipment. This part is included in the cost-price. Different amounts of *v* are proportional to the different quantities of man-hours used, on average, in each branch; as a result of being based on the assumption of an average wage in society. The rate of surplus value, as a result (in other words surplus value divided by variable capital) is equal throughout all the branches: 100%. Surplus value (*p*) is thus of equal quantity to the variable capital in each branch; the capitalists pay for exactly one half of the days worked by the proletariat in this example.

The exchange in these circumstances can be verified only in pre-capitalist markets, when the buyers and sellers were peasants and artisans. The goal of production was the well-being of the petty-commodity producer, and not the realization of capital. There were no true markets in capital; on the contrary, the institutional tern prevented the circulation of capital by a whole number of means (corporations, guilds, closed cities, controlled prices). In our scheme, the formation of an average wage already shows us that these conditions have been abolished, facilitating the free movement of labour power, and giving births to a modern proletariat. As a corollary it necessarily produced also the formation of the modern bourgeoisie. The purpose of production for the market could no longer be the wealth (or the enjoyment) of the owner without it also expanding his capital. This self-expansion is measured as the rate of profit: surplus value as a percentage of invested capital.

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At this point we observe that each branch produces a different rate of profit. This has nothing to do with the efficiency of each capital since it occurs within each branch of industry: the productivity in each case is the average of the socially necessary labour to produce a given commodity. The diversity of the average rates of profit in the different branches is a consequence of the diversity of the organic compositions of capital invested in each branch, in other words of the different proportions between the part invested in constant capital (dead labour) and variable capital (living labour, the producer of surplus value). In its turn, the diversity of organic compositions reflect the difference in the technical conditions of production in each branch. This may be due to purely quantitative differences in the means of production employed or to qualitative differences: there is no necessary relationship between the manufacture of wheat flour, for instance, and transistor radios.

However 'commodities do not exchange simply as commodities, but as products of capital'; this is a necessary condition for the *capitalist* market. To the capitalist in the exchange there is no point in the full realisation of the *value* of the commodity without the full 'valorization' or realisation of his capital, expressed in the rate of profit. The conditions of production have become objectified, and separated from the personality of the owner. In addition the modern institutions of credit and banking have greatly encouraged the movement of capital, so that it leaves the branches with high organic compositions (in which the rate of profit is lower) to the branches with low organic compositions (and higher rates of profit).

This movement of capital leads necessarily to a new equilibrium situation, in which the commodities from branches with a low organic composition (and a plethora of capital) are sold at less than their values, reducing the rate of profit to the social average; and the commodities from the branches with high organic compositions are sold at more than their values, increasing their rates of profit until they reach the social average. The movement of capital deriving from these differences ceases therefore when all the commodities are sold at prices such that the rates of profit obtained by the capitals that produce them are equal. Here we are concerned with *one* of the numerous compensatory phenomena which occurs in the circulation of capital that Marx isolates and calls the 'equalisation of the rate of profit', the prices produced in these; circumstances being called 'prices of production'.

Having averaged the rate of profit, the capitalists tend to calculate their prices of production directly through the addition of the average profit to their costs, as a 'return to capital', erasing the traces of the origin of the operation. A similar thing happens with other compensatory phenomena, like commercial and banking profits, ground-rent, the 'price' of technological innovations, etc. Value appears here in Bourgeois economics as a sum of the prices of distinct 'factors' of production: the return to capital (i.e. profit) appears to be proportional to the magnitude of the capital, in the same manner as the price of labour power (i.e. wages) is proportional to the quantity of work. But if in the second case this expresses a real equalisation of the rate of surplus-value, in the first it derives from a fictitious equalisation from diverse rates of profit as a result of commercial activity. Marx expressed this thesis mathematically in the following table:

	Capitals	Amount of *c* used up	*p*	Cost	Rate of profit	*g*	Price of production
I	80c + 20v	50	20	70	22%	22	92
II	70c + 30v	51	30	81	22%	22	103
III	60c + 40v	51	40	91	22%	22	113
IV	85c + 15v	40	15	55	22%	22	77
V	95c + 5v	10	5	15	22%	22	37
	390c+ 110v	202	110	312	22%	110	422

The commodities from branches I, IV and V are sold for more than their value, and those from branches II and III for less than their value, so that the rates of profit in all the branches equalise themselves to the social average of 22% (the fact that the magnitudes of profit are also equal is accidental, and it derives from the example constructed by Marx which is simplified for calculation to make all the capitals invested equal to 100). The cost price is obtained by adding the variable capital to the amount of constant capital consumed; the price of production by adding to the cost price. This is how the process appears in the minds of the capitalists and their 'organic intellectuals', though in reality it is the other way about. Marx's table shows clearly that changes in prices determine a redistribution in the same mass of surplus value between the various capitalists in proportion to their capitals invested. This brings the bourgeoisie together as a united class: they are like shareholders in one huge public company, in Marx's image.

Of course it will not be relevant here to demand answers to questions this analysis does not address itself to: no mathematical formulation holds outside the area of its theoretical content. In this case it is concerned with the determination of prices that makes possible the redistribution of surplus value in accordance with the magnitudes of the capitals invested. It is *not* concerned with establishing the relationship between the labour contained in commodities and their prices. It is because of this (notwithstanding the superficial views of many authors to the contrary) that in Marx's table there is no magnitude expressed in units of labour. The units are of forms of money: we can suppose them to be of thousands of millions of dollars for example. For Marx, magnitudes of value are proportional to the labour socially necessary to produce them, and prices, as the measure in which they differ from value deviate from these proportions. As this concerns the redistribution of surplus-value (the mass of which always stays the same) the deviations cancel themselves out in aggregate, where the total prices of commodities are directly proportional to the labour socially necessary for their production. To be able to quantify this proportion we would have to include a new datum, the productivity of socially necessary labour, and this is quite irrelevant to the objective of Marx's thesis examined above.

Von Bortkiewicz suggested that Marx's table was 'incomplete', seeing that values have been transformed into prices of production in each branch of production but were not added in to them. He suggested that all the terms required transforming, including the inputs that in the previous cycle produced the inputs to the present stage of production. We believe that this notion came from a 'Ricardian' reading that von Bortkiewicz gave to Marx (many contemporary social democrats saw Marx as a 'socialist commentary' on Ricardo, and not as a critic), which leads him to confuse the equalisation of the rate of profit with the relation between the labour-content of commodities and their price. In this view, the transformation would be a matter of 'translation' and not a concrete process: the logic of the demand for

'translation' extends to all terms of the equation, and not only the final result. At the moment however, we are interested in Marx's 'transformation', and not that of Ricardo/von Bortkiewicz.

In Marx's transformation the same table serves either on the assumption that exchange is based on values or that it is based on prices of production. As Marx put it in *Capital*: 'since the total value of commodities regulates the total surplus-value and this, in its turn the magnitude of average profit and, this the general rate of profit – as a general law, so to speak, as a law that tends to place itself over all the fluctuations – we can arrive at the conclusion that it is the law of value itself that regulates prices of production'.

This assertion can certainly also be formalised mathematically. But:

a. It will not be relevant to use systems of simultaneous equations. Even supposing that constant and variable capital need to be 'transformed' into prices of production, this transformation could not be the same as that involving the commodities that they create. When they were acquired these products did not yet exist, for it is precisely the capitalists who bought the means of production and the labour power to produce them. To determine cost prices of commodities by their sale prices is a 'solution' which recalls that of Baron Munchausen, who descended from the moon several times tying one end of a rope to another, and in order to do this he had to untie them first of all. The transformation of values into prices of production in Marx must be understood as a 'determinate abstraction', as a concrete historical process understood through thinking, but not as a conceptual operation.

b. Nor is it possible to use a simple reproduction schema (i.e. one where the surplus value is all consumed, and value does not change from cycle to cycle), since this contradicts the assumption of the equalisation of the rate of profit. As we have seen, this equalisation is a consequence of the way in which commodities appear, not now as simple values, but as means for the realisation of the capitals that produce them. This implies expanded accumulation and not simple accumulation. Simple accumulation corresponds to the conditions of the pre-capitalist market, in which the object of production could be surplus-value embodied in luxury goods or in hoarding. Only in expanded accumulation is the object of production the realisation of capital, and it is only conceivable in conditions where values transform themselves into prices of production.

To construct a new table we immediately encounter a difficulty: the one unique qualitative distinction that we know from the five branches presented by Marx is that they produce commodities distinct in their use-values. To determine demand, and not only supply, we must understand some other properties of these commodities: if they serve as means of production, as consumption goods, or as both things, in what proportions adequate goods enter the 'consumption basket' of the workers, and in what proportions the production of each commodity requires other commodities, given existing technology. Here any structure of the demand (supposing the system to be 'closed' and the 5 branches open) will serve our purposes. To simplify our calculations (eliminating the problem of the different speeds of circulation of capital in the different parts of constant capital) we will assume that constant capital is entirely consumed in each cycle, and that therefore the 'cost-price' is equal to the sum of $c + v$, and therefore to the invested capital.

1. Expanded reproduction, assuming exchange on the basis of values

	c	*v*	CP	*p*	Value	Quantity of physical units	Price per unit
I	80.00	20.00	100.00	20.00	120.00	1,200	0.10
II	70.00	30.00	100.00	30.00	130.00	1,300	0.10
III	60.00	40.00	100.00	40.00	140.00	1,400	0.10
IV	85.00	15.00	100.00	15.00	115.00	115	1.00
V	95.00	5.00	100.00	5.00	105.00	10.5	10.00
	390.00	110.00	500.00	110.00	610.00	rate of profit = 22%	

Notes: *c* = constant capital; *v* = variable capital; CP = cost of production; *p* = surplus value; values are in, say, thousands of millions of dollars; physical quantities are in various physical units – e.g. thousands of tons; rate of profit = *p*/CP × 100%.

At this point the productive process is ended, and the capitals are found embodied in the commodities of type I, II &c. They must now find owners of money who will buy them, to complete the process of the realisation of capital. Since this is possible in the closed system we will not discuss it here. We refer the reader to the corresponding part in Vol. II of *Capital*. Instead, what interests us now, demand is technically formed in the following way (the example is completely arbitrary and any other would serve as well):

Workers' consumption basket: 1,200 units of I and 142 units of II.

Means of production necessary in each branch:	
I =	526 II and 4.5 V
II =	745 III and 1.09V
III =	182 II and 55 IV
IV =	546 III and 4.91 V
V =	60 IV, 450 II and 109 III.

These quantities cover the replacement of *c* and *v*, and the greater portion of the demand of *c* and *v* is derived from the reinvestment of the surplus value. It is assumed that the working population is unlimited at the end of this stage of capitalist development, and that the technology does not change. Valorizing the demand for consumption goods on the part of the workers (1,200 × 0.10 + 142 × 0.10 = 142.2) we observe that the increment is exactly 22%.

A similar change occurs in the case of the means of production used in each branch.

	c	*v*	CP	*p*	Value	Quantity of physical units	Price per unit
I	97.60	24.40	122.00	23.40	146.40	1,464	0.10
II	85.40	36.60	122.00	36.60	158.60	1,586	0.10
III	73.20	48.80	122.00	48.80	170.80	1,708	0.10
IV	103.70	18.30	122.00	18.30	140.30	140.3	1.00
V	115.90	6.10	122.00	6.10	128.10	12.81	10.00
	475.80	134.20	610.00	134.20	744.20	rate of profit = 22%	

To establish the new demand in physical terms it is enough to increase all of the quantities 22%. The small differences in the valuing are due to the method of approximating to the two decimal places that we have used; to eliminate them it would be enough to use fractions (something out of the reach of my pocket calculator).

	v	CP	*p*	Value	Physical units	Price per unit
I	29.77	148.84	29.77	179.61	1,786.1	0.10
II	44.65	148.84	44.65	193.49	1,934.9	0.10
III	59.54	148.84	59.54	208.38	2,083.8	0.10
IV	22.32	148.84	22.32	171.16	171.16	1.00
V	7.44	148.S4	7.44	156.28	15.63	10.00
	163.72	744.20	163.72	907.92	rate of profit = 22%	

2. Expanded reproduction, assuming exchange on the basis of prices of production

All of the conditions of reproduction are the same, and only relative prices vary. In reality, however, this would provoke substitutions of one raw material or fuel for another one, or changes in the technology used &c. To isolate the phenomenon that we are concerned with here, we assume that the technical structure of production remains the same; in any case this is the only assumption that permits the construction of a table of reproduction in a closed system. We assume for the same reason that the wage varies strictly in accordance with variations in the cost of living of the worker, remaining identical to the real wage, measured in terms of physical consumption.

	c	*v*	CP	*r*	*pp*	Physical units	Price per unit	Variation %
I	80.00	20.00	100.00	22.00	122.00	1,200	0.1017	+ 1.17%
II	70.00	30.00	100.00	22.00	122.00	1,300	0.0139	– 6.15%
III	60.00	40.00	100.00	22.00	122.00	1,400	0.0871	– 12.86%
IV	85.00	15.00	100.00	22.00	122.00	115	1.0609	+ 6.09%
V	95.00	5.00	100.00	22.00	122.00	10.5	11.6190	+ 16.19%
	390.00	110.00	500.00	110.00	610.00	rate of profit = 22%		
I	101.65	24.60	126.25	27.77	154.02	1,464	0.1052	+ 3.48%
II	77.59	36.91	114.50	25.19	139.69	1,586	0.0881	– 6.15%
III	75.43	49.21	124.64	27.42	152.06	1,708	0.0890	+ 2.16%
IV	104.63	18.45	123.08	27.08	150.16	140.3	1.0703	+ 0.89%
V	115.38	6.15	121.53	26.74	148.27	12.81	11.5746	– 0.38%
	474.68	135.32	610.00	134.20	744.20	rate of profit = 22%		
I	120.07	30.78	150.85	33.19	184.04	1,786	0.103	– 2.06%
II	96.31	46.17	142.48	31.34	173.82	1,935	0.089	+ 1 .99%
III	91.37	61.56	152.93	33.64	186.57	2,084	0.089	+ 0.57%
IV	128.63	23.08	151.71	33.38	185.09	171.2	1.081	+ 1.03%
V	138	7.69	146.23	32.17	178.40	15.63	11.415	– 1.375%
	574.92	169.28	744.20	163.72	907.92	rate of profit = 22%		

Notes: *r* = profit, *pp* = price of production; variation % = percentage variation of the prices in each branch in relation to the earlier cycle of reproduction. In the first cycle the point of reference is the exchange of values, that is assumed to be the starting point of the process.

The modifications in the prices will continue for a certain number of cycles (between 12 and 18 approximately) until they reach a new equilibrium, with the transformations coming from the equalisation of the rate of profit established there. This is reflected, distortedly, in the systems of simultaneous equations of von Bortkiewicz and his followers, but here the confusion between the object and character of the transformation completely obscures the significance of the changes that are produced. The comparison between our two series permits us to establish the following: the sum of the values and of the prices of production on the one hand and that of the surplus value and the profit on the other, remain identical cycle after cycle, in spite of the changes in the prices of the commodities. This is enough to demonstrate that 'the total value of the commodities regulates the total surplus value, and this in turn the magnitude of the average profit, and therefore of the average rate of profit'.

The only significant change between our two tables refers to the relation between variable capital and constant capital on the one hand, and of the variable capital and the surplus value on the other, i.e. the respective organic compositions and the rate of surplus value. It is due to the fact that the commodities that enter into variable capital are products of capitals that have on average an organic composition greater than that of the capitals that produce the commodities that enter into constant capital. In this way the equalisation of the rate of profit has been realised through a transfer of value from the second to the first. That is, the average price of the commodities bought with workers' wages is higher than its value, while the average price of the commodities acquired as the means of production is lower than their value. This circumstance, if we assume prices of production to be different from values, is completely natural and inevitable.

There are three possible cases: (a) the one we have shown, i.e. that the average organic composition of the capitals that produce the goods that the workers consume is higher than the average organic composition of the capitals that produce the goods that are consumed as means of production; (b) that the average organic composition of the first is lower than that of the second; (c) that although the organic compositions of each branch vary, the structure of the demand is such that the average of the organic composition of the capitals that produce the commodities that go to the two sectors is equal. In the first case the organic composition and the rate of surplus value will go down (in our example, from 78% to 77.25% and from 160% to 96.72%). In the second case they will go up, and in the third they will remain the same.

The transformation of values into prices of production is a real, material process; and in Marx's analysis no logical error is involved. Far from attempting to explain individual prices, Marx's transformation is concerned instead only with the identity of total value and the sum of the prices of production, and total surplus value with total profit. This is because for Marx the organic composition is not a mechanical projection of the technical composition of capitals, but the consequence of this and also of the prices of the means of production. If the prices of wheat go down the organic composition of the flour industry will go down too, although the quantity of raw material processed by each workers will remain the same. With regards to variable capital there is no necessary relation between the paid part and the unpaid part of the working day: the wages can go up, the productivity of the work remaining the same or the other way about.

In this case the change is due to the transference of 5.56 billion dollars from constant to variable capital; the rise in the cost of living forces the capitalist to pay higher wages, but this extra cost is exactly compensated by the lowering of the average price of the means of

production, because the origin of the change in the prices is a transference of value within the same branches. In this way the cost of production is identical and equal to the surplus value. A larger part of this latter will have to be invested in wages, but a proportionately smaller part will have to be invested in the means of production, as a result the expanded accumulation will not be hindered. The same happens the other way about if the price of wheat goes up.

In Marx's tables it does not matter that the rate of surplus value changes from one cycle to the next. What does matter is that this rate is equal in all branches in any given cycle, because this is a precondition for the equalisation of the rate of profit. In our scheme this condition is maintained:

	CC	*v*	CP	*p*	Market values	*r*	*pp*	Rate of surplus value
I	120.07	30.78	150.85	29.77	180.62	33.19	184.04	96.72
II	96.31	46.17	142.48	44.65	187.13	31.34	173.82	96.72
III	91.37	61.56	152.93	59.54	212.47	33.64	186.57	96.72
IV	128.63	23.08	151.71	22.32	174.03	33.38	185.09	96.72
V	138.54	7.69	146.23	7.44	153.67	32.17	178.40	96.72

It therefore follows that: (a) Marx's mathematical formulation is fully adequate to deal with this situation, no new elements are needed; (b) the basic assumptions of the scheme are maintained (equal rate of average surplus value in all the branches, total value equal to the sum of the prices of production, total surplus value equal to the total profit), prices of production remain linked to values; there is therefore no contradiction with Marx's theory of value. This does not 'prove' Marx's theory of value to be true of course. It simply shows that there are no grounds for doubting it on the basis of the so-called transformation 'problem'. Any actual proof would require very different grounds; (c) the criticism of von Bortkiewicz (i.e. that Marx's transformation is incomplete) lacks any ground. Marginalists and neo-Ricardians therefore, cannot restrict themselves to demonstrating the various logical fallacies of von Bortkiewicz's 'solution': they must measure their forces against Marx's own theoretical analysis which they have too prematurely dismissed.

Concluding note on the assumption of equal average organic compositions in Sectors I and II

Marx, in *Capital* (volume II), was concerned with reproduction, still based on the assumption of value exchange. He was not interested therefore in the relation between average organic composition in the production of means of production (Sector I) and in the production of means of consumption (Sector II). We have seen above that there are three possible cases: (a) that Sector I has an average organic composition greater than that of Sector II; (b) that Sector II has an average organic composition greater than that of Sector I; (c) that the differences between the branches will balance out on average in the Sectors giving equal average organic compositions.

There are reasons to assume that the real situation approaches that of the third case, as a tendency, and that therefore the transferences of value between the branches will cancel at the level of the aggregate Sectors. If this is true, it means that prices tend to oscillate around levels such that, although being greater or lesser than the value of one commodity or

another, their aggregate prices per sector coincide approximately with that of values, maintaining therefore the direct correspondence with the social labour that has been assigned to them on the basis of the reproduction schemes. This not a necessary condition for reproduction, and that is why we separate its analysis from the rest of this article.

Von Bortkiewicz (for reasons that we will not examine here, and that differ fundamentally from the theoretical body of Marx's) presents a scheme with three Sectors: I, producing means of production, of higher organic composition than average; II, producing consumption goods purchased by the worker's wage; III, producing 'luxury goods', acquired with the surplus value, of organic composition equal to the social average. Marx by contrast, in his schemes of reproduction, differentiates between two sectors: I, producing the means of production and II, producing the means of consumption. Even if we leave aside the important theoretical difference that this shows, it is immediately obvious how artificial von Bortkiewicz's assumption is. In reality there is no barrier between the consumption of the proletariat and the bourgeoisie, nor any link between the consumption of these latter and surplus value. Most surplus value is reinvested, and this is the main thrust of capitalist production; and of the remainder that is not reinvested, one part through taxation is destined for the reproduction of the bourgeois state with its millions of non-productive workers, that consume commodities identical to those of other workers. From the remaining surplus value, the greater part goes to other non-productive workers (employees in administration, rather than production, personal servants of all types) whose consumption is again identical to that of productive workers.

Finally, there is the direct family consumption of the bourgeois class. Here we find: (a) the biggest strata of the bourgeoisie – small traders and manufacturers – whose level of consumption differs little from that of the workers, and in some cases is even lower; (b) the medium bourgeoisie that gives itself some luxury consumption; and (c) the big bourgeoisie, the modern aristocracy with their yachts, private aeroplanes, palaces, and their collections of works of art. Only in the two latter strata do we find that (alongside the consumption of ordinary commodities) a market of luxury articles is formed. But these commodities are not characterised by being produced by capitals of organic composition greater than that of ordinary commodities; on the contrary: their high price is determined in the majority of cases by the fact that it involves a lot of craft work. Hand-made shoes, tailored shirts, custom-built cars, antiques and works of art and jewellery (whose value is related more to hoarding than to consumption); in short an organic composition distinctly low in comparison with the average of consumption goods, and not very significant to the total means of consumption. It is thus reasonable to assume that the consumption goods acquired by the proletariat and the bourgeoisie (or by employees and servants hired by the bourgeoisie) are of approximately equal organic composition on average.

There remains now the relation between the organic compositions of the capitals that produce the means of consumption and those that make the means of production. Sweezy puts as an example of Sector I the production of electricity, and an example of Sector II the clothing industry. The first of very high organic composition, almost all automated; the second, of low organic composition based on intensive manual labour. But: (a) an important part of electric energy is destined for consumption, private and public; in the same way, the clothing industry also produces commodities that enter into constant capital (uniforms and working clothes, as an example); and (b) the above examples are therefore composite and in no way typical of the Sector from which they are said to have come from.

From the point of view of the organic composition of the capitals that produce them, we can differentiate the *means of production*, very roughly into three groups: (1) crude metals, basic chemicals, fuels and semi-manufactures; (2) other fixed capital; and (3) organic raw materials and ancillary products.

1. This group corresponds to industries of very high organic compositions, such as metallurgy, smelting, petrochemicals.

2. Other fixed capital comes in a wide range of organic compositions. In engineering for instance, there are both highly automated mass production industries (e.g. motors), and also tiny sweat-shops and low-volume craft-oriented manufacture. Here there is also the construction industry which is characterised by its particularly low organic composition. In conjunction their organic compositions probably approximate to the social average.

3. The raw materials for this group are produced by the agricultural branches, which generally have the lowest organic compositions in capitalist society. Against popular belief, agriculture does not in general produce consumption goods, but raw materials destined to produce means of consumption. The workers do not buy cotton, but blue jeans; the housewives do not buy wheat but bread; it is the manufacturers who buy the cotton, the wheat, the grapes, the coffee beans. It is part of constant capital just like petroleum or steel.

Therefore when we aggregate these three groups of the means production, on the basis of existing technology their organic composition will more or less tend towards the social average. The question of the organic composition of the industries that produce the means of consumption is simpler. They tend to cluster around the average. The branches concerned with food cover a spectrum from the low to the average; the same happens with clothing, while consumer durables, furniture, and vehicles go from the medium to the high. In this way it is reasonable to suppose that the average organic compositions of the industries that produced the commodities of Sectors I and II tend towards the average.

But this is not all; commodities that serve indifferently as means of production and means of consumption are surprisingly numerous: sugar is bought by the consumers and by the manufacturers of sweets, as with detergents, fuels for motors, &c. Furthermore; families of products are formed (as in the case of the petrochemical industry) in which some are sold at below the cost of production (for instance in an attempt to break into a competitive market), and others sell at above their prices of production (taking advantage of situations – not necessarily of monopoly), in such a way that the global cost corresponds to the cost of production and the profit to the average profit.

With the data from Marx's table, and keeping the above remarks in mind, it is possible to show that the average organic compositions for all of the branches are different. Our assumption above was that workers consume commodities from branches I and II. The organic composition of sector II cannot therefore be higher than that of the highest branch that composes it or lower than the lowest. In this case it would therefore vary between the limits of 230% and 400%. The same also applies for Sector I. Here we find that, given the above figures, the organic composition of Sector I could be between 150% and 1,900%, *whatever* the proportion of branch I to branch II in Sector II. Hence whatever these proportions actually are, there could also be found a set of proportions of the branches in Sector I which was such as to have the *same* organic composition as those in Sector II (whether this will be *technically* possible is of course another matter. But one which goes beyond the formal properties of this calculation.)