

CORRECTING AND SUMMING UP THE 'DOUBLE-SOLUTION' TO THE TRANSFORMATION PROBLEM.

Marxism is the sole scientific (objective) investigation of the capitalist mode of production. It stands or falls, not by explaining the mundane, but by describing the most complex relations that drive this chaotic economic system through which humanity must necessarily pass. At the pinnacle of complexity stands the transformation problem focusing on how market prices are indirectly formed from values. If Marx presented his investigation as a Critique rather than as an enquiry, he did so to demonstrate that capitalism was a crisis-prone mode therefore historically limited, one which needed to be criticized rather than applauded or endorsed, and by styling it as a Critique he acknowledged that economy always exists as political economy in the realm of class based society immersed in exploitation and state oppression.

There have been many attacks on Das Kapital, but none as searing as on Chapter 9 in Volume 3, home to the Transformation Problem. I find nothing wrong with this chapter except one of editing. Engels should have placed it after Chapter 10 which deals with the earlier emergence of market values, as Marx himself points out. Market values compose market prices before the industrial revolution while prices of production compose market prices afterwards. (William Jefferies).

What is market value.

The first transformation problem is the one, where historically, individual values are transformed into social values for the same item (use value), when sold in the same locality, and only once commodity production has become generalized thereby unleashing competition. Seems simple enough but contained in this transformation lies all the confusion and arguments regarding embodied value versus reproduced value. Consider this quote from Marx found in Volume 3 page 238 (Penguin Edition) and quoted by me in my original article on the transformation problem. *"The value of any commodity – and thus also of the commodities of which capital consists of – is determined not by the necessary labour time that it itself contains, but by the socially necessary labour-time required for its reproduction"*. This statement which I originally endorsed is in fact not strictly true as we will see and is in fact corrected by Marx in Chapter 10. The correction would be as follows, *"the value of any individual commodity.....is not determined by the necessary labour time it itself contains, nor by the socially necessary labour time-required for its reproduction, but by the changing interaction between the two based on the balance of production"*.

This debate has bedeviled Marxist who have counterposed these two forms of value. But dialectics is not about static polar opposites, but of processes whereby the one pole is transformed into the other. How at first the original pole dominates only to give way to the current pole later because of its advantages to profit, or in short, how the old passes over to the new.

To measure this process of change we have to weigh up this change as it occurs. Weighting is not a difficult mathematical concept. It simply means in this case that if the weight of production is still centered on the original cost of production (higher cost) the market value and hence market price will be closer to this cost of production. Later, as the weight of production expands in the newer and lower cost firms, it will increasingly drag down the market value and hence market price with it. At some point quantity turns into quality when the lower (newer) values dominate driving selling prices below the cost prices of the original producers and wiping them out (bankrupting them). Only then is the market price for the sector

or industry solely influenced by the new reproduced value. Within material production, the data shows this can take more than a decade depending on industries and market conditions, which Marx deals within Chapter 10. It is only in the sphere of immaterial production that this process is reduced to a few years.

The final confusion is between abstract value and market value. Abstract value is ideal, market value is real. The clue lies in the word abstract. In Volumes 1 & 2 Marx has abstracted away all the specific differences between capitals and labour to examine the capitalist social relation in its pure form, the only way in which the fundamental structure and the general relations can be made to reveal themselves and be described. Simply put, abstract value is based on simple averages. For example there are 100 firms whose combined capital is 1,000. The average capital is therefore 10 regardless of the fact that out of the hundred, not one may have a capital of exactly 10. Thus 10, the simple average is an abstract quantity. The same could be said for value. In this case the output of value from the 100 companies is 2,000 yielding the simple average per company of 20 which may not coincide with the actual output of any of them.

Market value restores two specific qualities to abstract value rendering it concrete. Firstly, Marx identifies that producers within an industry differ in terms of their productivity. Some are higher cost producers while other producers are lower cost when measured by labour time. Secondly, that the volume of their output also differs. Thus what has been introduced, is the real world reality that the value and volume of individual outputs, typically differ. This specific reality is captured in the table below. For simplicity we assume only three producers, A, B & C.

Table 1.

Company	Item cost	Item volume	Total output	
(1)	(2)	(3)	(4)	(5)
A	50	200	10,000	
B	75	80	6,000	
C	100	40	4,000	
Simple average Cost	(225/3) = 75			
Total Output			20,000	
Weighted Cost		320		20,000/320 = 62.5

Each of the three companies has a different individual cost of production ranging from 50 to 100 with a simple average of 75. A is the most efficient in terms of labour time and C the least, with B being average. Their volume of production also differs, the greatest weight of production is found in A, so despite having the lowest item cost of production, its much higher volume of production means its total output is the highest of the three. This shows how important it is to consider both sides of production, cost and volume.

What happens if we multiply the volume of output with the simple average cost? We arrive at a total of 75×320 or 24,000. But how can this be? The total expenditure of labour amounts to only 20,000 in this period (column 4) There is an excess of 4,000. How to solve this? If we were instead to multiply 62.5 by 320, we would arrive at the correct figure of 20,000. Why the difference? The first multiplication considers only one of the two variables, item-cost, while ignoring the second variable, item-volume. It is only when we take both into account by using the weighted average - weighted for volume and value - that the correct answer is found.

In the above example the weighted average of 62.5 resides below the simple average of 75 because the bulk of production is centered on the most efficient producer. If we were to turn this round as is done in our second example, the weighted average would exceed the simple average thus:

Table 2.

Company	Item cost	Item volume	Total output	
(1)	(2)	(3)	(4)	(5)
A	50	40	2,000	
B	75	80	6,000	
C	100	200	20,000	
Average Cost	(225/3) = 75			
Total Output			28,000	
Weighted Cost		320		28,000/320 = 87.5

We note the average item cost has not changed nor has the volume. But because production is now based on the least efficient producer, C, the total expenditure of labour time has risen from 20,000 to 28,000 because the individual expenditure of labour time is now greater in C than A. Consequently the weighted cost has risen to 87.5 to stand above 75. Multiplying 75 by 320 yields 24,000 which now underestimates the total expenditure of labour time instead of overestimating it as previously. However, using 87.5 the yield rises to 28,000. This allows us to formulate the following general law: **only the weighted average labour time expended in producing a specific commodity when multiplied by the volume produced, can yield the total labour time expended in producing that use-value.** The simple average cannot unless it coincides with the weighted average, which in real life is rare. If market prices equal market values, then all the labour expended will have been paid for, though to be sure the capitalists will pocket most of it.

Once we arrive at market values, which are dynamic and which change continuously as the balance of production changes, we no longer need to concern ourselves with the distinction between embodied or reproduced value, because market values are the synthesis of the two at any given time. This is important, because only market values can be transformed into prices of production. Individual values cannot, they can only be transformed into market values as described above.

This is the reason Marx defines market value as the concrete manifestation of *social value* throughout Volume 3, or what is the same thing, the weighted average labour time needed to produce a use value represents the actual cost of producing that commodity. “...the different individual values must be equalized to give a single **social** value, the market value presented above, and this requires competition amongst the producers of the same type of commodity...” (page 281, Marx’s emphasis)

The transformation problem.

Had Engels placed Volume 10 before 9, it would have been clear that what Marx was doing in the Chapter titled ‘Formation of a General Rate of Profit’ was transforming market values into the *price of commodities*. The 5 Capitals in his table amounting to 100 each are taken at their market value as described in Table 3 below drawn from Chapter 9. We note the redistribution of surplus value amounting to 26 in column 7 needed to equalize the five rates of profit at 22% which causes the prices of commodity to deviate from their original market values (column 5 versus column 3).

Table 3.

Capitals	Surplus value	Value of commodities	Cost price of commodities	Price of commodities	Rate of profit	Divergence price vs value
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i) $80c+20v=100$	20	90	70	92	22%	+2
ii) $70c + 30v=100$	30	111	81	103	22%	-8
iii) $60c + 40v=100$	40	131	91	113	22%	-18
iv) $85c + 15v=100$	15	70	55	77	22%	+7
v) $95c + 5v=100$	5	20	15	37	22%	+17
$390c+110v=500$	110	422	312	422	22%	+26-26=0

(page 256, Volume 3 Penguin Edition)

In the Chapter Marx deliberately uses the term prices of commodities and not prices of production, primarily because production has not been repriced. And he also provides the following caution which has been cited many times: *"It is necessary to bear in mind this modified significance of the cost price, and therefore to bear in mind too that if the cost price of a commodity is equated with the value of the means of production used up in producing it, it is always possible to go wrong."* (pg. 265)

However the acid test of what Marx is doing is revealed in the process of forming the commodity price in the first place. This process is effected by profits being unproductively consumed by their owners and never returned back to production, or as Marx says, they are not thrown back into production. At the end of the period of production, these profits exit production to play no more role in the process of production. This is best explained in Table 4.

Table 4.

Capitals	Price of Commodity	Plus unconsumed capital	Equals total worth	Less profit withdrawn	Equals original capital
(1)	(2)	(3)	(4)	(5)	(6)
(i)	92	30	122	22	100
(ii)	103	19	122	22	100
(iii)	113	9	122	22	100
(iv)	77	45	122	22	100
(v)	37	85	122	22	100
	422	188	610	110	500

Here lies the proof for Chapter 9. At the point of sale each capital would be worth 122 (column 4). This would comprise the new commodity price as found in column 2 plus the unconsumed element of capital as found in column 3. After each capitalist claims their share of the 110 profits or 22 per Capital, these profits are reduced to zero restoring the net worth of each Capital back to 100. 100 is of course the starting point as found in Table 3 (yellow highlighted). Now we could repeat this process ad infinitum, but the result will always be the same, we start and always end with 100 once the 110 of profit is withdrawn to be unproductively consumed by the capitalists.

This proves that Marx was not providing a complete explanation of how market values are transformed into prices of production. What he was providing was something much more limited, an example to show by how much and in what direction surplus value needs to be transferred to achieve an average rate of

profit based on a set of differentiated compositions of capital. No more no less. He was demonstrating that surplus value had to migrate from below average composition capitals to above composition capitals, no more no less. And he was showing that this redistribution was finite, no more no less.

Which is why we need a double-solution.

If we are to move beyond commodity price another transfer of value is required. In my previous explanation I mistakenly saw this step as the step from market value to prices of production. However, the second step, not taken by Marx, is from his price of commodity to actual prices of production.

Here we confront an important question, how big will the second step be? The clue is in the first transfer. We know that if the price of commodity was actually an output price, then the circulating (input) price would deviate from the circulating market values by 26. But there is a twist, if the second transfer is 26 that will alter the price of capital in such a way that the average rate of profit would no longer apply. Therefore what competition would effect is to split the 26 into two streams, one to reprice capital and one to adjust profits such that the average rate of profit continues to apply.

It was this splitting of the stream, never undertaken before in over a century, which provides the complete solution, thereby turning commodity prices into prices of production. Again the question is posed, on what basis is this stream split? In table 3 we note that the social product of 610 is split into two, 500 represents capital and 110 represents surplus value or aggregate profits. In aliquot terms the 610 is split into 82% capital and 18% profit. This ratio informs the split of the stream of surplus value of 26. Table 5 provides the two streams and their allocation.

Table 5.

Capitals. (Chapter 9 notations)	Redistribution of surplus value	Allocated to reprice capital (82%)	Allocated to adjust Profit (18%)
(1)	(2)	(3)	(4)
i	+2	1.6	0.4
ii	-8	-6.6	-1.4
iii	-18	-14.8	-3.2
iv	+7	5.7	1.3
v	+17	13.9	3.1
	=26	21.2	4.8

Now we have everything needed to factor for prices of production. This is a two-step function. Firstly the stream of surplus value absorbed by capital converts in from capital-at-value to capital-at-price. This removes the incongruities found in the original tables in Chapter 9 between inputs and outputs.

Table 6.

capital	Capital at market value	Surplus value distributed	Repriced capital
(1)	(2)	(3)	(4)
i	100	1.6	101.6
ii	100	-6.6	93.4
iii	100	-14.6	85.4
iv	100	5.7	105.7
v	100	13.9	113.9
totals	500	+21.2-21.2=0	500

We note that following the pricing of capital, these capitals are no longer uniform. They differ. Therefore 22 in profits would no longer achieve an average rate of profit. Profits have to be adjusted using the second part of the stream of 4.8.

Table 7.

capitals	Priced capital	Adjusted profit	Rate of Profit	+ Cost price*	= Price of production (column 3 + 5)	(Chapter 9) Price of commodities
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i	102	22.4 (+0.4)	22%	72	94.4	92
ii	93	20.5 (-1.5)	22%	74	94.5	103
iii	85	18.7 (-3.3)	22%	76	94.7	113
iv	106	23.3 (+1.3)	22%	61	84.3	77
v	114	25.1 (+3.1)	22%	29	54.1	37
totals	500	110 (4.8)	22%	312	422	422

* See table for an explanation of how the cost price is arrived at.

Together the two streams of 21.2 and 4.8 make up the second transfer of 26. This is confirmed by the table below which shows the deviation between prices of production and prices of commodities.

Table 8.

Price of production	Less Price of commodities	Difference (rounded off)
(6)	(7)	(8)
94.4	92	2
94.5	103	-8
94.7	113	-18
84.3	77	7
54.1	37	17
422	422	+26 – 26 = 0

We now have a final proof. The prices of production should transfer sufficient value, so that when the capitalists withdraw their profits, capitals remain at their new prices. Thus the combined 52 transfer of value, not 26, ensures the removal of all incongruities.

Table 9.

capital	Prices of production	Less profit	= cost price (see Note 1.)	+ unconsumed capital	= Total capital
(1)	(2)	(3)	(4)	(5)	(6)
i	94.4	22.4	72	30	102
ii	94.5	20.5	74	19	93
iii	94.7	18.7	76	9	85
iv	84.3	23.3	61	45	106
v	54.1	25.1	29	85	114
Totals	422	110	312	188	500

I call the prices of production found in column 2 above, 'ideal prices of production'. Prices which satisfy the requirement to balance the two transfers. It can be argued that an additional step is needed because clearly the unconsumed part of capital has not been repriced. Let us take capital (iii) for example. Originally the unconsumed part was 9 over a 100 or 9%. Now it is 9 over 85 or 10.5%. I do not consider this a big issue and in my other papers I have in fact adjusted these unconsumed elements which have in turn altered cost prices and therefore prices of production. It does not affect the double-solution at all because it does not alter the total price per capital only the elements within it.

It thus does not alter the relationship between the market value of each capital and their price based on their differing compositions.

Table 10.

Capital	At market value	At prices of production*
(1)		
i	100	102
ii	100	93
iii	100	85
iv	100	106
v	100	114
Totals	500	500

(* rounded up)

(Note 1.) Determining cost price

In order to proceed, a number of points have to be reviewed. The circulating social product of 422 is composed of capital of 312 and profit of 110. This profit is withdrawn from circulation by the capitalists and unproductively consumed. (It is lost to society.) This leaves only 312 which will re-enter production to be added back to the 188 of capital unconsumed which remains in the pot of each of the 5 Capitals. This 312 replenishes the original capital making up 500 (simple reproduction) and so it alone is responsible for repricing the 5 Capitals.

Not only does the 312 replenish the total of 500 but the change in the distribution between each of the five Capitals replenishes each capital differentially. When the five Capitals sell their commodities they receive money. Because of uneven exchange some will receive more money, and some will receive less. Those that receive more money will add this to their existing capital which will be swelled and those that receive less money than before will see their capital shrink.

The key is that the cost price must add or subtract sufficient money so as to maintain each capital at their appreciated or depreciated levels as set out in Table 3. This will occur over repeated cycles until the conditions of production change. This pricing of cost price initially will be based on the redistribution of the 21.2 in surplus value as part of the second step in the double solution. All of this is shown in Table 11 below. Column 2 is the original $c + v$ cost at market value found in Chapter 9. The third column is the transfer of value based on splitting the original 26 into two streams with 82% directed at capital.

Table 11.

Capitals. (Chapter 9 notations)	Original cost price at market value	Allocated to reprice capital (82% of 26)	Adjusted cost price (* rounded up)
(1)	(2)	(3)	(4)
i	70	1.6	72
ii	81	-6.6	74
iii	91	-14.8	76
iv	55	5.7	61
v	15	13.9	29
Totals	312	21.2	312

The conundrum resolved.

The total movement in prices as shown in Table 12 below amounting to 52, is taken from the article titled *EMPERICAL SUPPORT FOR THE "DOUBLE-SOLUTION" TO THE TRANSFORMATION PROBLEM*. <http://theplanningmotive.com/2022/02/21/emperical-support-for-the-double-solution-to-the-transformation-problem/> Column 2 is the aliquot shares per capital of the aggregate 500 after the double transfer of value. After deducting the Total Redistribution as found in column 5 the original aliquot shares found in the first Table in Chapter 9 is restored.

Table 12.

capitals	Final aliquot shares	(minus) First redistribution	(minus) Second redistribution	Total Redistribution	= Original aliquot shares (Chapter 9)	Price movements
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i	20.4%	+0.3%	+0.4%	0.7%	=19.7%	+4.3
ii	18.6%	-1.3%	-1.4%	-2.7%	=21.3%	-16.5
iii	17.0%	-3.0%	-2.9%*	-5.9%	=22.9%	-36.0
iv	21.2%	+1.1%	+1.2%	+2.3%	=18.9%	+14.0
v	22.8%	+2.8%	+2.8%	+5.6%	=17.2%	+34.2
totals	100%	0%	0%	0%	=100%	+52 -52 =0*

(* rounded off)

Thus the total price movements comprise $26 \times 2 = 52$. There has been no alteration in the rate of profit at this point because these prices of production have yet to modify the output of each capital. When this has been done as found in my article titled: *HARMONISING THE TRANSFORMATION OF PRICES WITH REPRODUCTION or making Marx's Labour Theory of Value bullet-proof* we find the actual alteration to the mass of surplus value and thus an alteration in the rate of profit itself. What that article showed is that the second part of the double solution pricing capital, requires surplus value itself to be capitalised, thus reducing the realised surplus value as profit and with it the all-important rate of profit. <https://theplanningmotivedotcom.files.wordpress.com/2021/10/harmonising-transformation-with-reproduction-1.pdf> However, as that article shows, the capitalists are not rendered poorer because their gains to capital more than offset their losses in profits.

Moving from capital which is priced to its underlying market value.

Here we begin with capitals which are fully priced allowing us to work backwards, to distill the underlying market values which relate to these three capitals all uniformly priced at 100. We note that while their compositions differ, they all share a priced (rather than a market value) rate of exploitation of 100%. Furthermore, we may designate Capital (i) as Department 1 for means of production, Capital (ii) as Department 2a articles of consumption for workers and Capital (iii) as Department 2b for luxury goods.

Table 13 below provides the breakdown of production. To achieve a uniform rate of profit, 30 in surplus value has been previously redistributed (Table 14) to achieve an average rate of profit of 50% or 50. The total in column 3 Table 13 is the total social product at the end of the period of production comprising 300 capital and 150 profit yielding 450 in their price form. This is equal to the aggregate prices of production (sales revenue) plus the unconsumed capital which also makes up 450.

Table 13.

Capital	Variable & constant capital	+ Profit = total prices	Price of production (circulating commodities)	+ Unconsumed capital	= Total prices
1.	2.	3.	4.	5.	6.
i)	$80c + 20v = 100C$	$+ 50p = 150$	$20c + 20v + 50p = 90$	$+ 60$	$= 150$
ii)	$42c + 58v = 100C$	$+ 50p = 150$	$30c + 58v + 50p = 138$	$+ 12$	$= 150$
iii)	$28c + 72v = 100C$	$+ 50p = 150$	$20c + 72v + 50p = 142$	$+ 8$	$= 150$
Totals	$150c + 150v = 300C$	$+ 150p = 450$	$70c + 150v + 150p = 370$	$+ 80$	$= 450$

Table 14.

Capital	Internal profit*	Realised Profit	Difference to be reversed out
1.	2.	3.	4.
i)	20	50	+30
ii)	58	50	-8
iii)	72	50	-22
Totals	150	150	+30 - 30 = 0

(* a rate of exploitation of 100% measured in prices is assumed)

It is this 30 in previously redistributed value which is the key to how we convert these prices back into market values. This involves rewinding the second aspect of the double solution, the one which prices capital. In our example above we do not have to split the stream of surplus value amounting to 30 because we have a uniform rate of profit to begin with and we are working backwards. Thus the intention is to treat all 30 as capital and assume that this adjustment reverses the previous distribution of capital between the sectors which caused prices and market values to deviate.

We recall that Capitals ii) and iii) would have donated 30 to Capital i). This donation reduced the resulting price of Capitals ii) & iii). Conversely, Capital i) which received the 30, increased the price of its capital. By reversing these distributions the opposite will happen. The market values of Capitals ii) and iii) will rise above their prices of capital while the market value of Capital i) will fall below it. In the case of Capitals ii) and iii) their market value will exceed 100 and in the case of Capital i) its market value will fall below 100, as seen in Table 15 below. The replacing of this 30 in value is done preserving the $c : v$ ratio of 1 : 1 or 150 : 150 as found in Table 13. By way of example, the loss of 30 by Capital i) reduces the price of its capital from 100 to a market value of 70, together with the proportionate reduction of its c by 24 from $80c$ to $56c$ and in the case of its v by 6 to $14v$ ($24c + 6v$ making up the complete 30 reduction).

Table 15.

Capital	Variable & constant capital	+ surplus value = total value	Circulating value	+ Unconsumed capital	= Total market value
1.	2.	3.	4.	5.	6.
i)	$56c + 14v = 70C$	$+ 14s = 84$	$14c + 14v + 14p = 42$	$+ 42$	$= 84$
ii)	$56c + 60.5v = 116.5C$	$+ 60.5s = 177$	$40c + 60.5v + 60.5p = 161$	$+ 16$	$= 177$
iii)	$38c + 75.5v = 113.5C$	$+ 75.5s = 189$	$27c + 75.5v + 75.5p = 178$	$+ 11$	$= 189$
Totals	$150c + 150v = 300C$	$+ 150p = 450$	$81c + 150v + 150p = 381$	$+ 69$	$= 450$

All that is left to consider is the deviation between total prices and total values. Anything in the vicinity of 60 will do. The answer supplied by Table 16 is 66, rather than 60.

Table 16.

Capital	Variable & constant capital (Table 12)	+ Profit = total prices (Table 12)	+ surplus value = total market value (Table 13)	Difference (column 3 – 4)	Difference (Table 17 below)
1.	2.	3.	4.	5.	6.
i)	$80c + 20v = 100C$	$+ 50p = 150$	$70C + 14s = 84$	$150 - 84 = +66$	$150 - 90 = +60$
ii)	$42c + 58v = 100C$	$+ 50p = 150$	$116.5C + 60.5s = 177$	$177 - 150 = -27$	$175 - 150 = -25$
iii)	$28c + 72v = 100C$	$+ 50p = 150$	$113.5C + 75.5s = 189$	$189 - 150 = -39$	$185 - 150 = -35$
Totals	$150c + 150v = 300C$	$+ 150p = 450$	$300C + 150p = 450$	$-66 + 66 = 0$	$-60 + 60 = 0$

The difference of 6 is interesting. How to account for it? Measured in terms of prices, the rate of exploitation at first is 100% (Table 14) which we carried over to market value (Table 15). This assumption does not necessarily hold after the transformation into values. It is unlikely the rate of exploitation of 100% measured by price will equal 100% measured by value. The redistribution of value to above-composition-capitals, in this case Capital (i), tends to push the price of labour power above its value there. This being so, a 100% rate of exploitation based on price would translate into an above 100% rate of exploitation based on market value because v is now a smaller number (6 smaller). Whenever a denominator is reduced this way, everything else being equal, it pushes up the rate of exploitation. Conversely for Capitals ii) and iii) when measured in terms of market value, the market value of v now stands above its earlier price of labour power. In this case the denominator is larger making the ratio smaller. The likely situation is found in Table 17 below, where the real rate of exploitation in i) rises to 143% (20/14) while it falls to 95.5% for both ii) & iii). The rate of exploitation is therefore no longer a uniform 100%. This reduces the difference in column 5, Table 16, from 66 to 60 bringing everything into alignment. We can therefore be satisfied that the extent of the deviation under discussion, requires 30×2 to be redistributed, not only 30. (It is also permissible to assume that the value of surplus value correlates to its priced element because surplus value is revenue which when withdrawn and unproductively consumed, cannot play a role in the pricing of capital.)

Table 17.

Capital	Variable & constant capital	+ surplus value = total value*	Circulating value	+ Unconsumed capital	= Total market value
1.	2.	3. Table 16 column 6	4.	5. (Table 15 column 2)	6.
i)	$56c + 14v = 70C$	$+ 20s = 90$	$14c + 14v + 20s = 48$	$+ 42 (56 - 14)$	$= 90 (-60)$
ii)	$56c + 60.5v = 116.5C$	$+ 58s = 175$	$40c + 60.5v + 58s = 159$	$+ 16 (56 - 40)$	$= 175 (+25)$
iii)	$38c + 75.5v = 113.5C$	$+ 72s = 185$	$27c + 75.5v + 72s = 174$	$+ 11 (38 - 27)$	$= 185 (+35)$
Totals	$150c + 150v = 300C$	$+ 150p = 450$	$81c + 150v + 150p = 381$	$+ 69$	$= 450$

Being able to convert prices back into their underlying values is just as important as converting values into prices of production. To demonstrate the link between values and prices requires proving both sides of the movement. At all times and in all cases – commodities - these products of labour which circulate as the property of capital, always exhibit the dual identity of value and price, that being so, what has to be accounted for, is the extent to which price and value divert from each other at any given moment in time.

We are finally in a position to connect market values to prices and vice versa (Table 17.) We notice they are mirror opposites. In above average composition capitals (column 6), Prices (P) sits above market value (V) and in below average compositions P sits below V.

Table 17.

Capitals	CAPITAL AT MARKET VALUE	PRICED CAPITAL		PRICED CAPITAL	CAPITAL AT MARKET VALUE	Average composition of capital
(1)	(2)	(3)		(4)	(5)	(6)
	<i>Example 1.</i>			<i>Example 2</i>	<i>Table 17 column 2</i>	
i	100V	102P		100P	70V	above
ii	100V	93P		100P	116.5V	below
iii	100V	85P		100P	113.5V	below
iv	100V	106P				above
v	100V	114P				above
	500V	500P		300P	300C	

By using this methodology based on sound assumptions, the emergence of price from value becomes explicable and can be modelled at scale.

Conclusion.

All other methods including the TSSI method begin with price. Surely, this is wrong and ducks the issue. The concern at hand, is as it always has been, is to convert value into price at the level of the commodity, not to convert price into price sequentially, nor to use aggregate values and aggregate prices where differences between prices and values are not found. Nothing less will suffice to fend off our critics. Using the *dual-solution* with its split second stream, we can now ignore Eugen Ritter von Böhm-Bawerk's assault on Chapter 9 as well as the correction provided by Ladislaus von Bortkiewicz. I will never tire of saying that the only difference between my solution and Marx's, is that while we were both on the same train, Marx alighted at an earlier station while I proceeded to the terminus.

I have said previously that my solution appears to be complete, only to have to return to it. Admittedly, the conversion of values into prices does throw up unforeseen problems. But this time it is more likely the solution is ready. More importantly, the core methodology has survived the test of time. For the first time in a century a viable solution has been provided underpinning the law of value. Let us be clear; without explaining how prices emerge from values, it is impossible to defend the law of value.

In its full and expanded definition, the *Transformation Problem* can be expressed thus: *Prices of production must yield average rates of profit, not on the original capital but on the newly priced capital.* Hence the requirement for a double-solution.

The capitalist class of course are oblivious to market values, nor does it concern them as they focus on their hunt for profit. But it is the ghost in the mansion haunting prices, because price cannot deny value nor escape its gravity, or as I put it in my original article:

As price prances around the dance floor, the vulgar economist becomes intoxicated by the developing dance. Transfixed by the dancer, the low-cut dress, the tight trousers, the manicured hair, the clean-shaven face, the colour of it all, they are mesmerised. Dazzled and bewitched, he or she does not ask why the dance is taking place where it is, why the dance floor is the size it is and how the dancers appeared in the first place. The dance is all that matters, the undulating and unstoppable dance of master or mistress price. As for the dance floor that confines price, the floor of value on which it dances, that is of no concern to those who worship the appearance of things and are satisfied by the gratification it affords. This then is the world of commodity fetishism, which sees commodities not as emerging out of the social division of labour, but merely takes the results of this division - a multitude of different products whose individual usefulness dominates perception.

But unlike the vulgar economist, whose craft is the investigation of the superficial, we are vitally concerned with the relationship between the dancer and the dance floor, the connected movement between prices and values...

Brian Green, March 2022.