SOLVING WORKING CAPITAL FROM THE INPUT AS WELL AS THE OUTPUT SIDE.

Readers who follow my posts know that I place great store in the turnover formula, and, I am not shy to call it the Rosetta Stone allowing for more detailed and finer interpretations of the System of National Accounts. One of these breakthroughs is being able to determine the amount of working capital in an industry. As the formula below shows this would be impossible without turnover which forms the indispensable denominator. Working capital here is synonymous with Marx's and Engels' understanding of circulating capital or C.M…P…C^{+}.M^{+}. From money to money, the primary circuit.

In the two years since I established the formula for working capital in terms of the SNA, I have not set out to prove the formula from the opposite end.

The first formula for working capital is described as:

(1) $\dfrac{\text{annual gross output less annual net surplus}}{\text{annual turnovers}} = \dfrac{\text{cost of annual gross output}}{\text{annual turnovers}} = \text{working capital}$

Gross output is the value of total sales and is made up of intermediate sales plus final sales. It represents the total value in circulation at any time and not only the value being newly added. In other words, it is the sum of past and present labour in circulation where past labour includes that fraction of depreciation (of the fixed means of production) passed on in the current cycle as well as inputs from previous cycles of production such as raw and auxiliary materials. Clearly this circulating value contains the element of surplus value. As surplus value is unpaid labour it costs the capitalist nothing. Therefore, to arrive at the cost of this gross output, what the capitalists pay for out of their capital, surplus value or the net surplus needs to be deducted.

All of this can be seen in the accompanying spreadsheet "solving working capital from both directions" taken from the BEA's Interactive Tables found in GDP-by-industry.

More intuitively the opposite way of calculating working capital seems to be more logical. Circulating capital is after all the sum of inputs plus wages. This being so we should be able to arrive at the same answer as the first formula. And indeed, this is the case but only if we add in depreciation because **c** here is the sum of inputs plus depreciation. {in formula (1) depreciation is already included in gross output hence the name gross not net output.} Inputs stand for intermediates sales.

(2) $\dfrac{\text{Inputs + depreciation + compensation}}{\text{annual turnovers}} = \text{working capital}$

As we note in the accompanying spreadsheet the results found on lines 13 and 25 match. Each line represents the alternative way of calculating working capital. They match because Marx was quite right to describe market prices as c + v + s or in its modern setting, as:

(Intermediate sales + depreciation) + workers compensation + net surplus.

I prefer to use formula (1) because it is cleaner and because it approaches the circulation of capital from the output side.

Brian Green, 9th May 2020 (or week 7 of the lockdown)