MY "INTRIGUING" TALK AT HISTORICAL MATERIALISM.

I would like to thank Michael Roberts for the opportunity to publicly present the turnover formula. In discussion I compared the turnover formula to the Hubble Telescope. When it was first launched the Hubble telescope aperture was out of alignment. Although the telescope could see millions of light years into the galaxy everything was blurry. Once it was corrected everything became clear and sharp and the beauty of the universe was revealed. And so it is with the turnover formula. Until we could distil turnover from the System of National Accounts (hereafter the SNA) we could not convert annual wages into variable capital. As variable capital is integral to any analysis, its absence meant that the rate of surplus value, the composition of capital and the rate of profit remained blurry. Their outlines could be discerned but without any degree of clarity. In addition, the merciless "dance of capital" could not be revealed.

The talk was based around 13 slides which can be found on the following link. https://wordpress.com/post/theplanningmotive.com/712

The formula lay hidden for 60 years. It emerged not because of my efforts but because the system of national accounts has its origins in Volume 2 of Das Kapital making it possible. In following the methodology set out by Marx a definite relation exists between gross output (the value of total sales) and gross value added (the value of the final sale) the two main series in the SNA. It is the final sale and its aggregation that yields everything which is prominent in the system of national accounts such as GDP, National Income, the amount of profit and of wages. For this reason, Marxists have tended to concentrate of gross value added to the exclusion of gross output.

For any reader not aware of the relation between gross output and gross value added please turn to slide 12. Here is a simple table of four producers each adding 10 in value. In this example Gross Output amounts to 100 comprising 60 in intermediate sales (inputs) and 40 in the final sale. The yellow highlight is Marx's discovery and it represents the core of the SNA. It shows that when the café owner sells the bread for 40 it comprises the value added by all the four producers. In sum, as gross output is equal to the value of intermediate sales and final sales, the greater the amount of intermediate sales the bigger will be the difference between the gross output and gross value added. This implies more sales and therefore a faster rate of turnover within a given period say a year.

Now it may be asked why the same amount of value is added for each producer. This assumption is based not on an individual example such as the one presented, but on the fact that the SNA deals with aggregated totals, or what is the same thing, the combined value of hundreds of millions of sales. Given this huge number, this grand scale, individual prices no longer count, as by their number the average value of sales are smoothed out. To give a final cosmic analogy used in the talk, it is comparable to looking at the background cosmic radiation, which is uniform no matter which part of the sky is examined.

Slide 1 contains the formula. It was always anticipated that the response would be: "*no, no, no, maybe, why didn't I think about it, it's so obvious"*. That perfectly describes the jerky movement of scientific enquiry. Whatever the case, the formula also described in slide 2, allows us to investigate capitalism in a new way. I would humbly suggest that it is no longer necessary to substitute the rate of exploitation for the rate of surplus value, base the composition of capital on fixed capital divided by annual wages and finally to base the rate of profit on fixed capital only or on fixed capital plus annual wages.

Marx's formulas are precise:

c/v = the composition of capital
s/v = the rate of surplus value
s/(c+v) = the rate of profit.

What links all these formulas is v which is found in all three. But v cannot be determined without turnover. Before proceeding a point of clarification. Circulating capital can be described either by its length (its period) or by how many times it circulates in a calendar year (its rate of circulation). Take US manufacturing in 2017. The period of circulation was 83 days. This yielded a rate of turnover of 4.4 over the course of 2017. In other words, over the course of 365 days, 83 days turns over 4.4 times.

What does this 83-day period mean? It means that in the course of 83 days, the capitalist employer will have purchased the factors of production (Labour power, materials, components etc) making production possible. Then there will be a period of production followed by a period of sale, the time between selling and being paid for the goods recently produced. Marx described the circuit thus:

> $M.C…P…C^{+}.M^{+}$. It begins with money being paid out and it ends with money returning. The + sign represents the capitalist reality of more money coming in than was originally paid out.

The formula is based on sales. It thus captures the beginning and end of the circuit because one capitalist's purchase is another capitalist's sale and vice versa, and, a properly documented sale always represents the reverse movement of money and commodities.

Moving on to proofs in slide 4. (Slide 3 was a duplicated slide so ignore) When I first presented the formula to Bill Jeffries, like all good scientists, he instructed me to find a way of independently proving it, which I did. I believe that Michael Roberts only allowed me to present alongside him because of the proofs I presented him beforehand. These proofs are to be found in the various articles found on this website. All the manually extracted data which form these proofs are within 90% of the rates obtained by the formula and are mostly within 95%.

And here lies the criticism. Even without the formula it was possible to determine the rate of turnover which comprises the production period and the circulation period. Inventory circulation, with which the capitalists are obsessed, provides a rough estimate of the production period, and data on aggregated credit given and received provides a rough estimate of the circulation period. Hence it was always within the grasp of Marxists to determine turnover preventing it from being swept under the carpet and forgotten.

Of course, the formula is only as good as the data on which it is based. As long as the various statistical bureaus observe Marx's dictum about not duplicating sales or omitting sales, the data is accurate. The corollary is equally true. The presence of duplicated sales, or the absence of sales, results in peculiar readings by the formula. It is thus best to apply the formula to those sectors of the economy, like manufacturing, where duplicated or absent sales are at a minimum. In fact, aberrant readings by the formula is indicative of errors in the data.

Graphs 5 and 6 explains how gross output can be turned into circulating capital. Gross output or the value of all sales represents both the paid and unpaid element of output. It is equal to c + v + s. Capital however refers to only the paid element or c + v. Thus, in order to obtain the cost of gross output we need to subtract s from c + v + s. This s represents the net surplus which can be found by subtracting annual compensation from annual national income.

Slide 12. Now it may be argued that the cost of annual gross output is best determined from the other side, for is it not the case that circulating capital is the sum of inputs (intermediate sales) + wages. It is. However, as slide 12 shows it does not matter, it yields the same number. I prefer doing it the earlier way because it really exposes the relation between paid and unpaid labour. Gross output is like a giant pond where the confusing ripples created by the movement of commodities cancel each other out, revealing the true nature of capital and output and exposing the element of unpaid labour.

Slides 7 and 8 turn to the calculation of variable capital. Hitherto annual compensation has been used as a surrogate for variable capital. Annual compensation is not variable capital. In the case of manufacturing where the rate of turnover is 4.4 variable capital is about 23% the size of annual wages. (23% x 4.4 = 100% = annual compensation). It follows that using annual compensation to calculate the rate of surplus value or the composition of capital will be wrong by a factor of 4.4.

Slide 9. Finally, to the all-important rate of profit which constitutes the adrenal system of capitalism. Over the entire world economy there is no difference between measuring the rate of profit either as

s/(c + v) or s/fc + cc) where circulating capital is substituted for variable capital.

However, at an industry level there is a difference. s/(fc + cc) is more accurate, particularly in today's modern economy. Take the issue of outsourcing. When corporations or industries like manufacturing outsource whole departments because it is cheaper, they employ fewer people particularly in their offices. This reduces v or the total wages they pay. Taken in isolation this results in the rate of enterprise profit rising because the expenditure on capital has fallen. Or has it? While there is a fall in v, there is a rise in inputs (cc) because services are now bought in to substitute for functions that originally were in-house. Thus s/(fc + cc) more accurately reflects this process and reveals that while the rate of profit has risen, it has risen by less than the amount yielded by s/(c + v). Finally on this point, the rise of immaterial inputs due to the growth of machine learning which impacts circulating capital, makes the formula s/(fc + cc) even more vital.

Slides 10 and 11 provide the missing link between the movement of profits and investments. This missing link has made it more difficult to validate the connection between profits an d investment. Its absence could even provide the answer to why so many theorists view the relationship between profits and investment upside down. In other words, they assume that it is investment that drives profits rather than the other way around.

Circulating profit proves the connection between profits and investment and vindicates Michael's steadfast support for this connection. The FED considers that the business cycle is really the inventory cycle. When inventories fall relative to sales, production increases, and, when they rise, production falls. Recessions are merely an inventory correction, a slowdown in production to clear excess inventories.

However, the FED cannot explain why an inventory cycle exists in the first place. And here the turnover of capital is vital. Its slowdown marks the termination of the business cycle. In a graph in my critique of Paul Mason on this site I present the long-term movement in retail turnover. It shows conclusively that turnover accelerates towards the peak of the cycle only to fall as the cycle ends, and that this is repeated over and again.

The explanation why the rate of turnover changes lies in our understanding of the difference between the relative and absolute fall in the rate of profit. A relative fall occurs not because profits are falling, but because capital tends to rise faster during the business cycle. An absolute fall occurs when profits are in fact falling and that marks the precipice over which the economy tumbles into recession.

The increase in the relative fall Is uneven. It is concentrated in those industries where the composition of capital has risen fastest. In these industries, often heavy industry, investment is reduced (which can also create a bottleneck in the supply of materials driving up prices). If this investment is not compensated for in the rest of the economy, which tends not to be the case, then overall investment falls or the rate of investment decelerates.

This changes market conditions. There is a fall in demand. What took a few weeks to sell now takes a month. What was sold at full price now requires a discount. The result is an extension of the circulating period plus insufficient money coming in. This requires an injection of additional working (circulating) capital, primarily to extend the period of credit. But often this is not enough or not obtainable and the chain of credit begins to shatter.

When the rate of circulation slows down or what is the same thing, the period expands, and less money comes in, there is a fall in the mass of profits. What began as a fall in the relative rate of profit is transformed into an absolute fall in the rate of profit and the recession proper commences, because confronted by falling profits, capitalists go on an investment strike.

This transition is often called a realization problem where less profit is realised because fewer commodities that have been produced are sold and at a lower price. In fact, this realisation problem is a turnover problem, because it is the elongation of the period of circulation that is the primary cause for the fall in realised profits. But because turnover could not be seen until now, its effect was not monitored. In my next posting made possible by the BEA's November 1st release of annual figures for GDP-by-industry, there is a startling graph which shows the relation of circulating capital to fixed capital during the course of the cycle. It shows the vital role played by the increase and decrease in circulating capital during the course of the cycle, where the former gives rise to crises and the latter helps resolve it.

This then was the synopsis of my presentation to which Michael has referred in his posting https://wordpress.com/read/feeds/313842/posts/2064080422 I was a privilege presenting a paper on turnover at this lively venue.