**The rate of profit and circulating capital**

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**I. A summary**

It is a widespread opinion among Marxists engaging in the measurement of the average rate of profit (ARP) that circulating constant capital (basically, raw materials and semi-finished products) cannot be added to the denominator because of the difficulty of assessing the number of turnover times.[[1]](#footnote-1)

The argument is that the statistics on circulating capital are stocks of the capital invested, made up of each turnover *times* the number of turnovers in one year. But supposedly, Marx held that the denominator of the profit rates should register the capital invested in *one* turnover. So to find that capital, one should calculate the number of turnovers and divide the stock of capital invested by that number.

Attempts have been made to assess the number of yearly turnovers both of circulating and of variable capital in order to find the capital invested in one turnover.[[2]](#footnote-2) But this appears problematic, if not impossible.[[3]](#footnote-3) So most analysts exclude circulating capital and also variable capital for this reason.[[4]](#footnote-4) They use only fixed constant capital as the denominator for the ARP.

Our argument here is that these efforts are misdirected. The number of turnovers is irrelevant because the denominator of the ARP should record the circulating capital invested in one period (year) rather than the capital invested in one turnover. So we need not divide the total yearly capital by the number of turnovers.

In section II, we submit our arguments for this view. In section III, we back it up with textual evidence that this was also Marx’s view. In section IV, we extend the argument to capitalist competition. In section V, we show that US official statistics are compatible with our and Marx’s view. In section VI, we consider whether the addition of circulating capital to the denominator of the ARP invalidates our past empirical estimates; and in section VII, we draw more general conclusions.

**II. The turnover of circulating capital**

Let us begin with some fundamental notions. A turnover period is composed of a production period and a realization period (PRP, for short).[[5]](#footnote-5) Circulating capital here means constant circulating capital and variable capital. The money invested at the beginning of the turnover is recovered by the capitalist at the end of that period.

Suppose the statistics show that a value equivalent to $600 has been invested in variable capital in one year. In our view, this is a stock measure, the yearly total capital invested in labour power. To measure the ARP, we need *not* know how much variable capital has been invested for how many times (turnovers). It can be a value of $50 invested each time for twelve turnovers or a value of $600 invested once for the whole year (if the turnover lasts the whole year). A value equivalent to $600 is what the statistics report and this is what should go into the denominator of the ARP. This is our view. The contrary view holds that a capitalist investing $50 each turnover for twelve turnovers invests a capital of $50 for the whole year.

Our argument is that each time a circulating capital of $50 is invested and realized at the end of the turnover, the same sum of money and thus a capital of the same quantity are invested*, but not the same capital.* Rather than the same capital of $50 being invested 12 times, 12 different capitals of the same quantity ($50) are invested successively 12 times. A total capital of $600 is thus invested in 12 aliquot parts.[[6]](#footnote-6)

To quote Marx: “The labour which was active yesterday is not the same that is active today” (1967, p. 309). The labour power set in motion today by some labourers is not the same labour power that has been set in motion yesterday (even if, perhaps, by the same labourers). The labour power set in motion yesterday has consumed yesterday’s means of consumption and has been used yesterday. So it cannot be the same labour power purchased today, consuming today’s means of consumption and being used today. The $50 invested today represents a different labour power and thus is a different variable capital than yesterday’s variable capital. To hold the contrary view, that *the money spent today represents yesterday’s labour power* and thus is yesterday’s variable capital, means implicitly to cancel time, to accept a simultaneist view. This is a point on which those Marxists of a temporalist persuasion should reflect.

Let’s take three cases. *First*, an individual capitalist investing $50 in each of the twelve turnovers recovers that sum at the end of each turnover. Each turnover that capitalist invests the same amount of *money*, $50, which represents the same quantity of value. But she purchases a different labour power and thus invests in a *different circulating capital each time*. Over the whole year, she invests $600 and if the surplus value is $600, the rate of profit is 100%.

In the *second* case, 12 capitalists invest $50 each, each capitalist investing for one month and realizing that value at the end of that month. At the end of each turnover, the capitalist who has invested $50 realizes a surplus value of $50 and thus a rate of profit of 100%. However, together they do not realize a rate of profit of 100x12=1200% because together they invest $600 and realize a surplus value of $600. As far as the economy is concerned, the rate of profit is 100%.

A *third* possibility is that that capitalist invests $600 for the whole year and realizes a surplus value of $600. Also, in this case, the rate of profit is 100%.

*In all three cases,* the rate of profit is the same*.* The rate of profit is independent of the number of turnovers of circulating capital because the total capital invested in one year and the total surplus value are the same, irrespective of whether that capital is thrown into production all at once or in different instalments. Moreover, this conclusion does not require constancy in the organic composition of capital or the rate of surplus value. All we need to know in order to compute the denominator of the average annual rate of profit is the total capital invested in circulating capital in one year, irrespective of the number of turnovers. And this is indeed the information we obtain from the official statistics. We shall return to this point in section IV below.

Let us represent our argument graphically. In the graphic below, we abstract from constant circulating capital and focus only on the new value created. But what follows holds also for constant circulating capital. We show two turnover periods that produce a commodity whose value is $8, based on eight hours of labour time x MELT of $1 an hour. A part of the money accrued from production in the first period can be used to pay for the variable capital ($4) required in the second turnover period.

The simultaneist economists might think that the capitalist’s rate of profit is 200% because they think that the *same* variable capital represents the *same* labour power in every turnover. But the capitalist knows better. She knows that she sells her product at $8+$8 = $16 and has invested $4x$4 = S8. So both for the capitalist and for Marx the rate of profit is ($16-$8)/$8 = 100%.



**III. Marx’s view**

Our view on circulating capital is what Marx says. We have already quoted Marx in the previous section. In the same work, Marx considers the example of a capital of 500 being invested in variable capital ten times in a year:

In actual fact therefore a capital of 5,000, and not of 500, is expended successively in wages during the ten periods of turnover of 5 weeks each (op. cit. p. 309) … The variable capital of 500 advanced during the second period of turnover *is not the identical capital* of 500 that had been advanced during the first period of turnover [our emphasis, G.C. and M.R.]. That has been consumed, spent in wages but it is *replaced* [emphasis by Marx] by new variable capital of 500, which was produced in the first period of turnover in the form of commodities, and reconverted into money (pp. 309-310)… Therefore what is accomplished by the ten-fold turnover of the advanced variable capital of 500 is not that *this capital* [our emphasis, G.C. and M.R.] *can be productively consumed ten times* … Rather, ten times 500 of variable capital is employed in the 50 weeks and the capital of 500 …must be replaced at the end of the 5 weeks by a newly produced capital of 500 (p.310)… its *value* is replaced by new value, hence renewed, but the *form* of its value (in this case the absolute form of value, its money-form) is not renewed" (p.311, emphasis by Marx).

There is no doubt that, for Marx, a value of 5,000 and not of 500 should enter the denominator of the rate of profit.

A few pages earlier Marx seems to contradict himself: “Not ten capitals of 500 are advanced, but *one* capital of 500 is advanced ten times at successive intervals” (op.cit. p.307). But there is no contradiction. Here Marx wants to stress the difference between investing 500 in one time or 50 in ten different times and that he refers to the same *quantity* of value. This is not the *same value* because each time *new* circulating capital must be purchased and employed. So, in the denominator for the ARP, circulating capital should be multiplied by the number of turnovers, just as with the surplus value created in one turnover. So in the example above, Marx says that a value of 5,000 and not of 500 should enter the denominator of the rate of profit.

**IV. The turnover and many capitals**

We have argued that, since the statistics for the computation of the rate of profit show the total, yearly capital invested and the total profits irrespective of the number of turnovers, the number of turnovers is irrelevant. However, this should not be construed as if the individual capitalists had no interest in reducing the turnover time, i.e. in increasing the number of turnovers. We shall argue that a change in the turnover time affects the *distribution* of the total surplus value but leaves that total unchanged. And it is the total that we need to compute the average rate of profit.

Since a turnover is made up of both the production time and the realization time, we should inquire into the effects of reducing each of these two elements. The easiest way is to hypothesize the reduction in the time of realization, keeping the production time unchanged, and then to hypothesize the opposite case.

*a) Reduction in the realization time with production time unchanged*

Suppose for the sake of simplicity that the realization time is zero, as in the case of production on demand. Then the capital invested for realisation is deducted from the denominator of the rate of profit and the rate of profit rises. For example, suppose 1000c+1000v+500R+500s where 500c refer to constant circulating capital and R stands for the capital invested for the realization of the output. The rate of profit is 500s/2500 = 20%. If the realization time is zero, then there is no need to invest 500R and we obtain 1000c+1000v+500s. The rate of profit is now 500/2000 = 25% >20%.[[7]](#footnote-7)

*b) Reduction in the production time with realization time unchanged*

This hypothesis implies a technological innovation. The reduction in the production time means that the same capital is turned over more often so that the output of the innovators increases over the same period of time.

Let us assume the simplest case, i.e. the same organic composition and the same rate of exploitation. Then the rate of profit computed on the surplus value *generated* by the innovator relative to the capital invested is unchanged. But the rate of profit of the innovator rises due to the redistribution of the surplus value generated by all capitals because the price of all similar commodities tends to equalize. The innovator realizes a higher rate of profit not because she produces more surplus value with the same quantity of capital but because it produces a greater output due to her higher productivity relative to the other capitals.

Suppose two capitals. Initially, both invest the same value and realize the same surplus value

A 1000c+1000v+500R+500s

B 1000c+1000v+500R+500s

Each realizes a rate of profit of 500s/2500 = 20% and each produces 200 commodities.

Suppose now B innovates and invests the same capital but in two turnovers. The total output of B’s two turnovers is 250. Now

A 1000c+1000v+500R+500s;

output 200

and

B1 500c+500v+250s; output 125

B2 500c+500v+250s; output 125.

B1 plus B2 invest 500R

B’s total output 250

The unit price is 6000/450 = 13.3333. Then,

A realizes 200x13.3333 = 2666.7 and a rate of profit of (2666.7-2500)/2500 = 6.7% < 20% and

B realizes 250x13.3333 = 3333.3 and a rate of profit of (3333.3-2500)/2500 = 33.3% > 20%.

The above explains the motive for the innovator to increase the number of turnovers: it increases the innovator’s rate of profit through redistribution.

This is a point of clarification. What counts for our purposes is that the statistics tell us the total capital invested and the total profits irrespective of the number of turnovers and of the redistribution of those profitds. If both A and B had invested in one turnover each, the statistics would have shown 1000s and 5000(c+v). If A had invested in one turnover and B in two, the statistics would have shown the same figures.

**V. The official statistics for circulating capital**

US official statistics are consonant with Marx’s view. For variable capital, Chapter 10 of the BEA NIPA Handbook says: “Compensation measures the *total* income—both wages and salaries and supplements to wages and salaries—earned by employees in return for contributing to production *during an accounting period*” [our emphasis, G.C. and M.R.].[[8]](#footnote-8) So at the end of the year, we have the total variable capital invested.

The above holds also for circulating constant capital. Suppose the statistics show that in one year a value of $400 has been invested as circulating capital. This value can be the result of a value of $40 invested 10 times or of $400 invested only once. But we need not know which of these two (or any other) alternatives applies. The statistics do not show the value invested in one turnover. Rather they show the value invested in the whole year and thus the product of whatever value has been invested times whatever number of turnovers. So knowing the numbers of turnovers is irrelevant for our purposes and dividing the total capital invested by the number of turnovers would be mistaken.

The BEA NIPA uses the CIPI (Change in Private Inventories) measure. “CIPI is the NIPA measure of the flow (or change) in the stock of inventories held by private business over a specified period. The stock of inventories is the value of the goods owned by private business *at the end of a specified period*, whether the goods were produced or acquired in that period or in previous periods” (NIPA handbook, chapter 7, our emphasis, G.C. and M.R.).

So, in estimating the US ARP, the figures to be considered for circulating capital should be the yearly total figures, as reported by the BEA statistics. Dividing by the number of turnovers, even if we knew the number of turnovers, would be mistaken.

**VI. Circulating capital and the ARP**

How does the inclusion of circulating capital affect our previous estimates of the US ARP? Chart 1 shows the results for the sectors producing material goods (a proxy for the productive corporate sector) in real terms. As would be expected, the addition of circulating capital to the denominator decreases the level of the ARP. But the important result is two-fold.

*First,* the two lines (the ARP with, and the ARP without, the addition of circulating capital) track each other extremely closely. The addition of circulating capital modifies the inclination of the trend line. But the trend is downwards for both lines.

*Second*, the troughs and peaks practically coincide. What is important is not so much that, say, in 1986 that the ARP falls to 3.12% (with circulating capital) rather than to 3.86% (without circulating capital). The important point is that 1986 is the trough year in both assessments. Our previous estimates are not invalidated in spite of the inevitable numerical adjustment.[[9]](#footnote-9)

**Chart 1**. The ARP in the sectors producing material goods, with and without circulating capital

The above graph looks only at the productive sector (as defined) of the capitalist economy. But we can also compare the ARP for the whole of corporate sector (financial and non-financial). The corporate sector ARP in Chart 2 also includes circulating capital (inventories) and is in real terms as with Chart 1.[[10]](#footnote-10)

**Chart 2**. US corporate and productive sector ARPs (%) with circulating capital 

The results match those for the ARP in the productive sectors. Both the trends and the turning points are the same, even if the changes are less sharp for the corporate sector measure.

**VII. Conclusions**

Our previous estimates of the ARP, whether for the productive capitalist sector, or for the whole corporate sector are not invalidated by including circulating capital. Consequently, our conclusions on the development of the US economy in the period since 1948 to date are still robust.[[11]](#footnote-11)

More generally we find that:

1. There is no reason to exclude the measure of annual employee compensation from the US ARP on theoretical grounds because of the issue of turnover. It is a yearly, stock quantity and, as such, it is a Marxist measure of variable capital. This measure can and should enter the denominator of the ARP.

2. We can also measure reasonably accurately annual circulating constant capital and can include it in our measures of US ARP.

So the inclusion of circulating capital is both theoretically and empirically unproblematic. Indeed, it results in a less imprecise measure of the ARP. Above all, including circulating capital helps validate better Marx’s fundamental law of political economy, the tendency of the average rate of profit to fall. Further research on profitability, accumulation and crises need not be hindered any longer by a non-existent ‘problem’ of measuring circulating capital because of a misreading of Marx’s view on the turnover of capital.

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1. See for example Kliman (2011, p80-2) and Jones (2012, p28-30). [↑](#footnote-ref-1)
2. See Roberts (2011) [↑](#footnote-ref-2)
3. In the past, the present authors have also held this opinion. [↑](#footnote-ref-3)
4. The exclusion of variable capital leads to a measure of the profit rate cleansed of the very element that generates profits. The economic meaning of such a procedure is questionable. [↑](#footnote-ref-4)
5. Marx and the literature refer to circulation rather than realization to refer to the time needed to sell the product. We prefer the term realization in order to avoid possible confusions between circulation *period* and circulating *capital*. To focus on the turnover of the circulating capital, Marx disregards constant fixed capital. [↑](#footnote-ref-5)
6. Compare this point with Kliman (2011, p.80): “Imagine that the company that employs her advances $500 at the start of some week, but it recovers the whole $500 by the end of week when it sells the products she produces. It can then hire her at the start of next week by advancing the *same* $500 … thus only $500, not $26,000, is advanced during the year in order to hire her”. We hold that at the end of the year, a value of $26,000, not of $500, has been invested. [↑](#footnote-ref-6)
7. Moreover, the capital thus saved (500R) can be reinvested productively. Since the effect on production and thus on the rate of profit depend on many assumptions, this point is not further pursued here. [↑](#footnote-ref-7)
8. <http://www.bea.gov/national/pdf/methodology/ch10%202012.pdf>. “The NIPA measures include not just wages and salaries but also noncash benefits such as employer contributions to pension funds, to health insurance, and to social insurance programs. Thus, the NIPA measures of compensation are particularly useful in analyses of labor’s share in the functional distribution of income” (ibid.). [↑](#footnote-ref-8)
9. The correlation coefficient between the two measures of the ARP is 0.99. BEA statistics report that “The items held in inventory may be in the form of goods ready for sale (finished goods), of goods undergoing production (work in process), or of goods acquired for use in the production process (materials and supplies) (ibid.)”. Only the latter two items correspond to the notion of circulating capital. The relevant tables are 4AU1, 4BU1, 4AU2, and 4BU2. These tables concern only manufacturing. But manufacturing is only one element of the production of material goods (which include also agriculture, mining, and construction). To estimate the total quantity of circulating capital, the *fixed* capital (assets) invested in manufacturing has been computed as a percentage of the total *fixed* assets invested in material goods and this percentage has been applied to the *circulating* capital in manufacturing. [↑](#footnote-ref-9)
10. Figures for private industry inventories are available from the BEA, Tables 5.7.5A and 5.7.5B, but these figures include finished goods. The share of finished goods in manufacturing inventories (see note 10) has not varied much since 1967 at about one-third. So we have assumed a similar ratio for all private industry inventories and used a 2/3rds figure for circulating capital in the corporate measure. And see McCarthy and Zakrajsek (2002) and Ribarsky (2004). [↑](#footnote-ref-10)
11. See Carchedi (2011) and Roberts (2011 and 2012). Our measures here meet the criticism of previous measures that they exclude variable capital and circulating capital. See Kliman (2011, p. 81) and B. Jefferies (2012). [↑](#footnote-ref-11)