Essays in this series…

Guglielmo Carchedi and Michael Roberts (December 1, 2013) more on Marxism & Socialism

Michael Heinrich's article is really a continuation of the argument by *Monthly Review* that Marx's law of the tendency of the rate of profit to fall (LTRPF) is not the main cause of economic crises.1

Heinrich makes the following points: 1) Marx's law is indeterminate; 2) it is empirically unproven and even unjustifiable on any measure of verification; 3) Engels edited Marx's works badly, distorting his views about the law in *Capital* Vol. 3; 4) Marx himself, in writings during the 1870s, began to have doubts about the law as the cause of crises and started to abandon it in favour of some theory that took into account credit, interest rates and the problem of realisation (similar to Keynesian theory); 5) Marx died before he could present these revisions of his crisis theory, so there is no coherent Marxist theory of crisis.

Let's take these points one by one.

1) Marx's law of profitability is indeterminate. The LTPRF, the 'law as such', says that the rate of profit (from now on, ROP)will tend to fall over time because the organic composition of capital (the ratio of the constant capital to variable capital) will tend to rise. This flows from the basic equation of profitability, s/c+v. If constant capital (machinery, plant, raw materials etc.) rises faster than the variable capital (the value of labour power and the only creator of value), percentagewise the former rises and the latter falls, the surplus value generated per unit of capital falls, and the ROP falls, other things—including the rate of surplus value—being equal.

To reject the charge of indeterminateness, we must argue (a) that the rise in the organic composition, and thus the fall in the ROP, is the tendency and (b) that the possibility for the countertendencies to hold back this fall is not unlimited so that eventually the ROP falls.

Let us first consider point (a) i.e. the question why, when labour is ejected, the organic composition should tendentially rise rather than falling. Heinrich considers Marx's example of a downsizing of labour power, from 24 workers to 2 workers. Against the thesis that this implies an increase in the organic composition of capital, Heinrich comments that "we cannot exclude the possibility that the capital used to employ the two workers is smaller than that required to employ twenty-four". Sure, we cannot exclude such a possibility.

But the point is not whether the capital needed to employ 2 workers is higher or lower than that needed to employ 24 workers, i.e. whether capital accumulates of dis-accumulates. The law holds in both cases. The point is whether the organic composition of the capital invested when 2 workers are employed is higher or lower than the previous one. The ROP obtained with 2 workers can be higher if the new organic composition is lower. It can be lower in the opposite case.2

Let us then assume that Heinrich had framed the question in its proper terms, i.e. in terms of rising or falling organic composition. Against the thesis of a falling ROP, Heinrich offers an example of a rising ROP when labour power is downsized thus arguing that the law is 'indeterminate'. However, this indicates indeterminateness only by using an example taken out of Marx's theoretical context.

Marx's law is framed in terms of tendencies and countertendencies. When new technologies are brought into the production process in order to increase efficiency, *as a rule*, assets replace labour and the organic composition rises. So the ROP falls. This is the tendency.

It follows from this that Heinrich's example is either an example of a countertendency, in which case the law still holds. Or it is an example that, tendentially, the organic composition will fall. But if it is the latter, then Heinrich should submit valid theoretical arguments and empirical data to support this thesis. He does neither. His example, rather than invalidating the law, is really one more example of how, when the non dialectical mind meets a dialectical movement, all it can see is indeterminacy.

Why does Marx argue that the ROP tendentially moves downwards? In order to increase their profitability, the capitalists must increase their (labourers') productivity. The way to do this is to introduce new means of production, which in order to be productivity-increasing must be labour-shedding. There might be, hypothetically, capitalists investing in less efficient and thus lower productivity means of production, which imply a lower organic composition of capital. But if they persisted in this choice, they would be doomed to bankruptcy. Thus, tendentially, due to the application of new technologies, the number of labourers per unit of capital invested falls, i.e. the organic composition rises.3

It is important to stress that, in spite of generalized and persistent efforts by individual capitalists to increase their own organic composition, the increase in an economy's organic composition is not linear but cyclical.4 In a period of depression and trough, some capitals close down. Other capitalists can fill the economic space left vacant. Production increases. Initially, net fixed investments do not rise. Rather, capitalists increase their assets' capacity utilization. So the means of production's efficiency does not rise and the numerator of the organic composition does not rise either. Also, due to higher capacity utilization, assets are subject to increased wear and tear, which reduces their value. Finally, the capitalists buy the means of production, raw materials, semi-finished products, etc. of the bankrupt capitalists at deflated prices. Thus, the numerator of the organic composition falls. Increased production with unchanged efficiency implies greater employment. So the denominator of the organic composition rises. The organic composition falls on both accounts. The ROP rises. Rising employment increases labour's purchasing power and rising profitability increases that of capital. Both factors facilitate the realization of the greater output.

But at this point, the movement of the rate of profit changes direction. It is the start of the downward cycle. Spurred by higher profit rates, hindered by the difficulty to further increase their assets' capacity utilization, and seeing that higher profitability is threatened by rising wages, some capitals (the innovators) start investing in higher organic composition assets, i.e. in labour-shedding and productivity increasing means of production. Constant capital rises and employment falls percentagewise. The organic composition rises and the ROP falls (while the profitability of the innovators rises). The less efficient capitals cease operating, i.e. some capital is destroyed. Production falls. Due to falling employment and to falling profitability, both labour's and capital's purchasing power falls. Difficulties of realization follow.

So the upward profitability cycle generates *from within itself* the downward cycle. This latter, in its turn, generates *from within itself* the next upward profitability cycle. Given that, as mentioned above, as a rule, capitalists must compete by introducing labour-shedding and productivity-increasing means of production (i.e. given that they tend to replace labour by assets), the downward cycle is the *tendency* and the upward cycle the *counter-tendency*. Indeed, the dialectical interplay of the tendency and the countertendency, the cyclical effect of the movement of the organic composition on the profit rate (Heinrich's 'indeterminacy') is there, even before the rising rate of surplus value—or other countertendencies—is considered.

Let us now consider point (b), the counteracting role of the rate of surplus value when it is allowed to change, i.e. to rise. For Marx this is a countertendency. Not so for Heinrich. For him, it is part of the law. As he says: "contrary to a widespread notion, the increase in the rate of surplus value as a result of the increase in the productivity (of labour) is *not* one of the counteracting factors but rather one of the conditions under which the law as such is supposed to be derived." Let us see why. Marx's formula for the average rate of profit is s/(c+v). Call it formula (A). This formula can also be written as (s/v)/[(c/v)+1]. Call that formula (B). Heinrich argues that, given that in (B) the rate of surplus value, just as the organic composition, is an integral part of the formula of the rate of profit, and given that we do not know which of these two factors rises or falls more quickly, the direction of the movement of the ROP is indeterminate, quite aside from the countertendencies.

Heinrich's argument implicitly questions a basic rule of scientific procedure. To assess the relation between profitability and the organic composition, Marx holds other factors, including the rate of surplus value, constant. This procedure allows Marx to reveal the tendency. We can re-write (A) as (B), but the fact that the rate of surplus value can be made to appear explicitly in (B) does *not imply* that we should drop the initial assumption of a constant rate of exploitation. First, we must establish the inverse relation between a rise in the organic composition and a fall in the ROP. Then, we can let the rate of surplus value fluctuate and see how this fluctuation affects the initial relation. So the rate of surplus value becomes one of the counter-tendencies.

We can now consider Heinrich's critique that 'the law cannot be proven': "If the rate of profit has fallen in the past, this does not constitute a proof—since the law purports to apply to future development and the mere fact of a fall in the rate of profit in the past says nothing about the future". Heinrich's demand for a proof is legitimate. He is correct that past facts, in and of themselves, cannot constitute a proof that they will recur in the future. But he is wrong in using this argument to demonstrate the impossibility of proving Marx's law. The same argument could be used to undermine the validity of any law, including the law of gravity (a possibility which Heinrich probably has not considered). This is a consequence of the fact that Heinrich's argument severs the future from the past, whereas the future is a development of the past. We need a theoretical bridge between the past and the future. If this is done, predictions can be made and Heinrich's critique vanishes. Let us see how.

Past developments can be predicted to recur in the future if we can argue that *the same factors* that determined the course of events in the past will keep operating in the future. If the prediction comes true, the prediction, and thus the theory behind it, is proven to have been correct.

Let us provide an analogy. We can predict that if we drop a stone, it will inevitably fall to the ground (aside from temporary counter-factors) not only because of "the mere fact" that this stone has fallen to the ground in the past but because we can argue that the force of gravity, which has operated in the past, will continue to operate in the future. This applies to Marx's law as well. If we can identify the factors that have determined the fall in the ROP in the past and if we can argue that the same factors will operate in the future, then we can predict that the ROP will fall also in the future. But this is only the first step. Subsequent empirical substantiation will be required to confirm the correctness of the analysis and thus of the prediction.

What are these factors that must operate to prove Marx's law? The first factor is the tendential increase in the organic composition as explained above. The second factor is the impossibility for the rise in the rate of surplus value to outstrip *indefinitely* the rise in the organic composition of capital.

The reason for the latter is that, as Marx indicates, there is a biological, but above all, a socially class-determined insuperable limit to the extension of the working day. When that limit is reached, the countertendency exhausts its capacity to hold back the tendency and the ROP falls. Moreover, technological competition does not stop after the rate of surplus vale has been raised. Each wave of technological competition increases the need to raise further the rate of surplus value and thus to lengthen even more the working day. Thus the limit gets closer and closer. This is what has happened in the past and is supported empirically. But can we extrapolate this movement to the future? Heinrich's answer is negative, ours is affirmative.

It is, of course, possible to construct *numerical examples* showing that the rise in the rate of surplus value can check the negative effect of the rise in the organic composition either forever or for a (very) long time. But this is empty mathematical formalism. In reality, as just argued, the limit to the lengthening of the working day is the outcome of a constant confrontation between capital and labour, of a constant renegotiation of the rate of surplus value. Within a given context of the power relations between capital and labour, even a small increase in the organic composition might require a socially unsustainable rise in the rate of surplus value and thus in the socially acceptable extension of the working day. What determines how long it will last before the rate of surplus value reaches its limit is not the time derived from numerical examples but the timing of class struggle, the time needed by labour to stop the increase in the rate of exploitation and possibly reduce it. *This* is the meaning that Marx's law operates 'in the long run.'

Let us exemplify. Let $1 be the equivalent of 1 hour and let each unit of labour (L) cost $4. Then, if each time c increases by $8=8h, v decreases by 1L=$4=4h

Labour units	c	v	s needed for ROP = 33.3%	ROP	OCC	Hours per unit of labour	Rate of surplus value
5	$40(=40h)	$20(=20h)	20h	33.3%	2	40/5=8	100%
4	$48(=48h)	$16(=16h)	21.3h	33.3%	3	37.3/4=9.3	133.1%
3	$56(=56h)	$12(=12h)	22.6h	33.3%	4.6	34.6/3=11.5	188.3%
2	$64(=64h)	$8(=8h)	23.9h	33.3%	8	31.9/2=15.9	298.7%
1	$72(=72h)	$4(=4h)	25.3h	33.3%	18	29.3/1=29.3	632.5%

C = constant capital; v = variable capital; s = surplus value; ROP = rate of profit; OCC organic composition of capital.

This example shows that the more the organic composition rises, the closer the rate of surplus value gets to the point at which the working day cannot be lengthened any longer. If the organic composition rises from 2 to 18, the rate of surplus value needed to prevent the ROP from falling rises from 100% to 632.5%, which means that the working day would have to be 29.3 hours long, an obvious impossibility. *But it is not necessary to hypothesize such an extreme example*. Given a working day of 8 hours, in the example above, even a rise in the organic composition from 2 to 3 requires a likely socially unsustainable increase in the working day from 8 hours to 9.3 hours. And even if this longer working day can be imposed on labour, the next wave of technological innovations will require a yet further lengthening of the working day. Of course, the above is only an example. As such, it is an illustration, not a proof.

On the basis of the above theoretical arguments, we can argue that the ROP has fallen because, tendentially, the capitalists substituted labour with assets and because the countertendencies became weaker the longer they operated. We can also argue that in the future, tendentially, the capitalists will keep substituting people with means of production and that, the longer the countertendencies operate, the weaker will be their capacity to hold back the tendency. On the basis of these two *realistic* assumptions, we can predict that the ROP will necessarily and tendentially fall also in the future and subject that prediction to empirical verification.

To refute this, the counter-argument must prove that, within Marx's theoretical frame, as a rule in the past the capitalists have competed by introducing less efficient (low organic composition) assets or that the working day has been extended indefinitely, and that therefore the ROP has tendentially risen; and that this is what will (or may) happen in the future. *Hic Rhodus, hic salta!*, said once an old man.

Some Marxist authors, even though severe critics of Heinrich in many other respects, have accepted Heinrich's position that the law cannot predict the inevitability of the fall of the ROP in the future. For example, for Kliman et. al. "Heinrich's claim that Marx failed to prove the LTFRP is rooted in his mistaken belief that the law is an assertion that the rate of profit *must, under all circumstances*, fall in the long run. In fact, however, the law is not a *prediction* of what must inevitably happen, but an *explanation* of what does happen; it explains why the rate of profit does tend to fall in the long run" (2013, p.3).

This argument is logically wanting. Since the long run refers to the future, an explanation of why the ROP tends to fall in the long run *is* a prediction and not simply an explanation, an explanation of a prediction. However, if it is a prediction, how do the authors respond to Heinrich's correct observation that "the mere fact of a fall in the rate of profit in the past says nothing about the future"? On what theory do they base their prediction? As long as they are silent on this point, their law cannot predict anything, neither what must nor what might occur in the future. Their law can only explain. But a law that cannot predict is a strange law indeed.

The authors evade this difficulty by stating not what their law can predict but what it cannot predict: the law cannot be "a prediction of what must inevitably happen." What then does it predict? The task of filling this theoretical vacuum is left to the reader. On the one hand, it predicts that, since the future tendential fall of the ROP is not inevitable, the ROP *might* tend to fall. But then it might also tend to rise, or remain the same. On the other, their prediction is that the rate of profit *must* inevitably either tend to fall, to rise, or to remain the same. This is what must inevitably happen because these are the only three possible future outcomes. Then, their 'prediction' is no prediction at all, it is simply a vacuous statement of the obvious, i.e. that, given that there are only three possible future developments, one of the three must inevitably occur even though we don't know which one.

It is because of this last aspect that such a 'prediction', besides being vacuous, is disastrous for labour's struggle against capital. If we cannot predict the inevitability of the tendential fall in rate of profit and thus of crises, we deprive labour's fight of its objective ground, the recurrent attempt by the system to supersede itself due to its internal contradictions. Labour's fight, then, rather than being the conscious manifestation of the system's blind force of self-destruction, becomes a purely voluntaristic act.

Kliman and his co-authors' problem is not only that they accept Heinrich's standpoint that the law cannot predict the inevitability of the tendential fall in the ROP; not only that their argument is theoretically inadequate; not only that their prediction is vacuous; but also that their position is harmful for the working class and its fight against capital.

It is our opinion that the law does predict the inevitability of the tendential fall of the ROP in the future. This is why the system will inevitably keep generating crises, i.e. will keep trying to supersede itself rather than reproducing itself in a state of, or tending towards, equilibrium. And this is what gives labour's fight a solid, objective basis.

2) Heinrich's second argument is that: "With this law, Marx formulates a very far-reaching existential proposition which cannot be empirically proved or refuted." Any economic, indeed any scientific, law must be empirically observable and subject to falsification and must have predictive value too. We have contended that these criteria are met by Marx's law. Let us now be more specific.

First, we can measure the rate of profit in capitalist economies using Marxist categories and test the law against its components. And a host of scholars have done just that for various national economies and even for the world capitalist economy.[5] And that includes Marx himself.[6]

What are the empirical issues? Does the rate of profit fall over a long period as the organic composition rises? Does the rate of profit rise when the organic composition falls? Does the rate of profit recover if there is sharp fall in the organic composition of capital through the destruction of capital? The answer to these empirical questions is yes. And the correlations between Marx's variables (organic composition and the rate of exploitation etc) and the outcome (the rate of profit) are high.[7]

Apart from all the studies cited (see references), here are some examples for the UK and the US economies.[8] Between 1963 and 1975, the UK rate of profit fell 28%, while the organic composition of capital rose 20% and the rate of surplus value fell 19%. Between 1975 when the UK rate of profit troughed, and 1996, it rose 50%, while the organic composition of capital rose 17% but the rate of surplus value rose 66%. Finally, from 1996 to 2008, the rate of profit fell 11%, as the organic composition of capital rose 16% and the rate of surplus value was flat. All these three phases are compatible with Marx's law. Indeed, over the whole period, 1963 to 2008, the organic composition of capital rose 63%, while the rate of surplus value rose 33%, so the rate of profit fell in a secular trend.

In the case of the US economy, the rate of profit fell 24% from 1963 to a trough in 1982, while the organic composition of capital rose 16% and the rate of surplus value fell 16%. Then the rate of profit rose 15% to a peak in 1997, while the organic composition of capital rose 9% but was outstripped by the rise in the rate of surplus value of 22%. From 1997 to 2008, the rate of profit fell 12% while the organic composition of capital rose 22%, outstripping the rate of surplus value, up only 2%. Again, all three phases fit Marx's law, when the organic composition of capital rose faster than the rate of surplus value, the rate of profit fell and vice versa. Over the 45 years to 2008, the US rate of profit fell secularly by 21% because the organic composition of capital rose 51% while the rate of surplus value rose just 5%. The rise in the organic composition of capital explained 62% of the fall in the rate of profit, while there was no significant correlation with the rise in the rate of surplus value.[9]

Thus there is a body of evidence to support the view that Marx's law does operate in capitalist economies and that it is the key (underlying) factor in booms and busts. If Heinrich disagrees, then what is his evidence to the contrary and what alternative explanation does he offer that can be empirically analysed?

3) Heinrich's third argument is that Marx himself started to doubt his own LTRPF as an explanation of crises. According to Heinrich, Engels revised and edited Marx's notes in the chapters in *Capital* Vol. 3 on the LTRPF in such a way that it made it seem Marx was fully committed to it when in fact a close reading of the writing would show he was not. So Engels falsely "created an impression of an already largely completed theory of crisis."

Well, we are no experts on the origination of each chapter in *Capital*, but we are not convinced that Engels making up a title for one of the chapters on LTRPF is sufficient to dismiss Engels' efforts to put Marx's detailed notes together into some order without misleading the reader about Marx's intentions.

4) That brings us to Heinrich's fourth argument: What is the justification for saying that Marx became doubtful about his law of profitability? Heinrich says "*Presumably, Marx was plagued with considerable doubts*" (our emphasis) because he started talking about doing a chapter on credit. And "these doubts were *probably* amplified in the course of the 1870s" (our emphasis). A view based on adverbs such as 'presumably' and 'probably' can hardly be convincing.

Heinrich claims that, in the 1870s, Marx was looking at the role of national banks in the course of a crisis, so Marx must have no longer thought the LTRPF was relevant without credit being involved. But there is plenty of material in his works on the role of money and credit well before the 'revisionist' years of the 1870s. Moreover, why should the intention to write a chapter on credit indicate that Marx was plagued with major doubts about the law? Why should the addition of the role of the credit system to the law in order to explain the crises invalidate the law instead of enriching it?

The law is the tendency that also explains the counter-tendencies. The cycle is the outcome of both the tendency and the counter-tendencies. Carchedi has examined the role of monetary policies in recent crises.[10] These policies can indeed influence the timing of the crises and thus the shape of the cycle but they are neither their cause nor can prevent them. This is a general conclusion that holds for all counter-tendencies.

5) Marx died before he could complete his ambitious task of producing analyses of money, the state and the world economy. But that does not mean we cannot derive from his works *a logically coherent and politically useful theory of crisis* based on his law, his views on credit and banking (fictitious capital) and on world markets and imperialism. Of course, there is plenty of work to be done in developing Marx's theory of crisis in relation to modern developments and, as Marx did, we are learning more each day. But Marx's law remains the most robust explanation of capitalist crises and something way superior to alternative Keynesian and other mainstream economic explanations, which signally failed to predict the Great Recession.11

Notes

1. ↩ For a more detailed discussion of the critics of the law, see Carchedi, 2011a, pp. 92–101.
2. ↩ Kliman et. al. submit that "the LTFRP *presupposes* an increase in the denominator of the rate of profit, i.e. the accumulation of capital." 2013, p.10. This is their interpretation and it is in any case questionable. The ROP can fall also if capital dis-accumulates, provided that percentagewise the constant capital rises and the variable capital falls, *ceteris paribus*.
3. ↩ This holds per unit of capital invested. Total employment depends also on capital accumulation.
4. ↩ This and the following two paragraphs are taken from Carchedi, unpublished.
5. ↩ Empirical studies of Marx's law are so numerous that the references at the back do not exhaust the list. So how Heinrich can claim that Marx's law cannot be empirically analysed is bizarre. See the extensive references at the back.
6. ↩ Cockshott, Cottrell and Michaelson (1995) make the point that "It is noteworthy that Marx himself did not hesitate to use empirical data to measure the rate of surplus value. He estimated, using the prevailing wage rates, costs of constant capital and final selling price for No.32 yarn, that the rate of surplus value in the Manchester cotton industry in 1871 was 154 per cent, and that the rate in wheat farming in 1815 was just over 100 per cent (Marx, 1970: 219–220). Throughout the first volume of *Capital*, Marx constantly uses official statistics and factory inspectors' reports to justify his theoretical claims. When dealing with the production of absolute surplus value he produces statistics comparing the production of absolute surplus labour in industrial England with feudal Romania: when dealing with the concentration of capital he uses Income Tax statistics to document the concentration of wealth."
7. ↩ For example, see Freeman (2009), who concludes "Marx's much-maligned argument that the long-term rise in the organic composition of capital—to which the output-capital bears a simple and direct relation—is the most significant cause of the long-term fall in the profit rate. The empirically dominant cause of all long term movements in the US profit rate between 1929 and 2000, that is, the whole period for which records have been kept, is the ratio between output and capital stock." See Shaikh (1992), Roberts (2009), Roberts (2010), Carchedi (2011a), Kliman (2012), Tapia Granados (2012), C. Izquerdo (2010). Carchedi (unpublished) focuses on the productive sectors of the US and finds a very high correlation between the rise/fall in the ROP and the fall/rise in the organic composition.
8. ↩ The figures presented are from Roberts (unpublished), Carchedi and Roberts (2013), and Carchedi (unpublished).
9. ↩ Both Freeman (2009) and Kliman (2012) have found similar correlations. Izquierdo (2010) finds that: "the drop in the productivity the capital from the 1946–1973 period to the 1974 –1983 period explains 78% of the fall in the rate of profit, while the minor decrease in the profit share explains only 22%. Therefore, the declining profitability manifested during the Keynesian period is explained by the technological component of the rate of profit, confirming the expectations of the Marxian law of the tendency of the rate of profit to fall. The scant recovery of the general rate of profit during the neoliberal period is also explained mostly by the productivity of capital, which accounts for 84% of the relative increase in profitability, while the profit share remains nearly constant; it grows only 1% in relative terms –and explains only 16% of the recovery."

10. ↩ Carchedi (unpublished).

11. ↩ See Roberts (2010)

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