Michael Roberts and Guglielmo Carchedi on Heinrich

Michael Heinrich, Marx's law and crisis theory

Michael Roberts May 19, 2013

Michael Heinrich is an exponent of what is known as the 'New German Reading of Marx', which interprets the theory of value that Marx presents in *Capital* as a socially specific theory of 'impersonal social domination'. He is a collaborator on the MEGA edition of Marx and Engel's complete works and has published several philological studies of *Capital.* He has also authored a work on Marx's theory of value, *The Science of Value*, which is forthcoming in the Historical Materialism book series. And recently he has published *An Introduction to all Three Volumes of Capital* as his first full-length work to appear in English.

I am not going to do a critique of Heinrich's views on the theory of value, as this has been done by Guglielmo Carchedi in his book, *Behind the Crisis* (see chapter 2). But I am moved to respond to a recent article of Heinrich's in the *American Monthly Review*, entitled "Crisis theory, the law of the tendency of the rate of profit to fall and Marx's studies in the 1870s".

In this article, Heinrich makes the following points: 1) Marx's law is inconsistent because its categories are indeterminate; 2) it is empirically unproven and even unjustifiable on any measure of verification; 3) Engels badly edited Marx's works to distort his view on the law in Capital Vol 3; 4) Marx himself in his later works of 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.

I am working with G Carchedi on a more thorough response to Heinrich's arguments, so I shall deal with just some of these points in this post – and more briefly. First is Heinrich's claim that Marx's law of the tendency of the rate of profit to fall (LTRPF) is illogical and inconsistent. In other words, the conclusions that Marx draws do not lead logically from his assumptions. The LTPRF, the 'law as such', says that the rate of profit will tend to fall over time because the organic composition of capital (the ratio of the value of constant capital to variable capital) will tend to rise faster than the rate of surplus value (the ratio of surplus value to variable capital). This flows from the basic equation of profitability, s/c+v, where c/v rises faster than s/v because Marx's value theory argues that only labour power creates value. So if the value of constant capital (machinery, plant, raw materials etc) rises faster than the value of variable capital (the value of labour power and the only creator of value), then the rate of profit will fall, other things being equal.

But other things are not always equal. Marx allowed for counteracting factors to offset the impact of a rising organic composition of capital on the rate of profit. First, a rise in the rate of exploitation could overcome the effect on the rate of profit of a rising organic composition of capital; and second, the 'cheapening of the elements of constant capital' (due, for instance, to technical advances lowering the costs of reproducing labour power) would tend to retard the growth of the organic composition itself.

Now Heinrich says that "Marx assumes that the fall in the rate of profit derived as a law in the long-term outweighs all counteracting factors. Yet Marx does not offer a reason for this." And Heinrich says the 'law as such' is unsubstantiated because"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, the increase in c occurring precisely in the course of the production of relative surplus value that leads to an increasing rate of surplus value". The rate of surplus value could rise faster than the organic composition of capital and so the law as such does not prove that the rate of profit will tend to fall over time. The law is thus 'indeterminate'. Heinrich reaches this conclusion because he does not accept the method by which Marx focuses on the relation between the organic composition and the average rate of profit (ARP) to show that, if the former rises, the latter falls. In the 'law as such', Marx holds the rate of surplus value constant. But this is a common scientific procedure. First, we must establish the inverse relation between the capital composition and the ARP. Then we can let the rate of exploitation fluctuate. So the rate of exploitation becomes one of the counter-tendencies.

And, contrary to Heinrich's claim, Marx does explain why the rate of surplus value cannot permanently outstrip the rise in the organic composition of capital. If two workers can be substituted for 24 workers through mechanisation, <u>total</u> surplus value will <u>eventually</u> be less than the capital advanced, despite the sharp rise in the <u>rate</u> of surplus value from the increase in productivity of the two workers compared the 24 workers. That's because *"the same influences which raise the rate of surplus value (even a lengthening of the working time is the result of a large-scale industry) tend to decrease the labour power employed by a certain capital, it follows that they also tend reduce the rate of profit".* (Marx).

Heinrich rejects this argument:*"we cannot exclude the possibility that the capital used to employ the two workers is smaller than that required to employ twenty-four"* Heinrich says the numerator (surplus value) in the rate of profit formula may well fall because the variable capital that creates value has shrunk, <u>but</u> so will variable capital in the denominator. Constant capital may have increased due to mechanisation, but the rate of profit only falls if the rise in constant capital is greater than the fall in variable capital in the denominator It depends on *"Whichever of the two quantities changes more rapidly – and we do not know that."*

The first thing to say here is that if constant capital rises to at least match the fall in variable capital, then the denominator will not fall. <u>And this will usually be the case in the process of capital accumulation.</u> That's because increasing the rate of surplus value can only be achieved by methods that also increase the value of the constant capital employed in relation to the number of workers engaged in the production process. So the organic composition of capital will increase. <u>And it will increase faster than the rate of surplus value, the larger that rate of surplus value becomes.</u> So even if the rate of surplus value rises faster than constant capital to begin with, <u>eventually</u> it will increase more slowly as variable capital shrinks as a share of new value. If the capital composition rises, while the variable capital falls by the same amount as the constant capital rises, then the rate of surplus value must rise much more percentage-wise for the rate of profit to remain the same (or to rise). Whether the capital composition grows at an increasing or at a decreasing rate, the rate of surplus value must grow at an increasing rate to keep the rate of profit from falling. This is the reason why, <u>at a certain point</u>, the counter-tendency (the rise in the rate of surplus value) cannot overcome the tendency (the increase in the rate of growth of the capital composition).

To repeat: a rising organic composition of capital will eventually produce a downward move in the rate of profit even when the rate of surplus value is rising faster to begin with. The rate of surplus value rises over time if wages do not rise as fast as the productivity of labour. But as the rate of surplus value rises, it rises at <u>an ever slower rate</u> as it approaches its limit which is the full appropriation of the product of living labour (wages plus surplus value). So no matter how fast the rate of surplus value rises, the rate of profit will eventually fall at a rate asymptotic to the fall in the ratio of the product of living labour (wages plus surplus value) to total constant capital (fixed and circulating). And that is because, as the organic composition of capital rises over time, it reduces the relative amount of living labour produced. So even if surplus value moves towards one and wages move towards zero, the rate of profit will eventually fall.

Now this is not some mathematical trick, although the argument can be spelled out more elegantly using maths. Maths is only as good as the assumptions that you begin with. Maths can take you logically to any conclusions or outcomes that flow from the assumptions. And Marx's law has two key assumptions: 1) that only labour (or labour power) can create value and 2) as a general rule the value of mechanisation will outstrip growth in the cost of the labour force i.e. the organic composition will rise. Marx draws these assumptions from the reality of the capitalist process of accumulation. So, as long as we assume that the basic trend in capitalist accumulation is for the organic composition of capital to rise, then a rising rate of surplus value cannot permanently counteract any tendency for the rate of profit to fall. If Marx's two assumptions about the mode of capitalist production are wrong, then Marx's law is wrong. But starting from these two assumptions, Marx's law is determinate.

As for Heinrich's argument that Marx's law cannot be empirically proved or refuted, this is bizarre. We can measure the rate of profit in capitalist economy using Marxist categories and test the law against its components. I and a host of other scholars have done just that for various national economies and even for the world capitalist economy (see lots of my posts). And that includes Marx himself. He looked for empirical verification for his law. Marx's law, just like any other scientific law, can be refuted and empirical analysis is necessary to confirm or refute it. 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 or the rate of surplus value rises more than the organic composition increases? Does the rate of profit recover if there is sharp fall in the organic composition of capital through the destruction of value of capital? The answers to each of these empirical questions is yes. The statistical correlations and measures of significance between Marx's variables (organic composition and the rate of exploitation etc) and the outcome (the rate of profit) have been shown to be high and significant.

Here are some examples for the UK and the US economies that I analysed quickly for this post. 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, the UK rate of profit rose 50%, while the organic composition of capital rose 17%. The rate of profit rose because the rate of surplus value rose 66%, faster than the rise in the organic composition of capital. Finally, from 1996 to 2008, the rate of profit fell 11%, as the organic composition of capital rose 16% but the rate of surplus value was flat. All these three phases are compatible with Marx's LTRPF. 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 on a secular trend.

In the case of the US economy, the rate of profit fell 24% from 1963 to a trough in 1982, because 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, because although the organic composition of capital rose 9%, it was outstripped by a rise in the rate of surplus value of 22%. From 1997 to 2008, the rate of profit fell 12%, because 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 rate of profit was negatively correlated with the organic composition at -62%, while there was no significant correlation with the rise in the rate of surplus value.

Second, there are empirical studies of Marx's law that show that it is a reasonable predictor of future events, including the recent Great Recession of 2008-9. These studies show that when the rate of profit starts to fall, a crisis or economic slump will occur some time thereafter and, even more specifically, the recession begins when the mass of profit falls as a result of the falling rate of profit. This is predictive value is more than we can say about any studies that aim to justify empirically alternative explanations of crises based on the ‘problem of realisation’ (consumption or investment) or on high interest-rates or lack of credit, Keynesian-style.

Again, I looked at the UK economy. Since 1963 there have been four major economic recessions of slumps: 1974-5, 1980-2, 1990-2 and 2008-9. In each recession, the rate of profit peaked and started to decline at least one year before the slump began. And each recession was accompanied by (or coincided with) a fall in the mass of profit in successive years. Similarly, if we look at the US economy, there were five recessions or slumps after 1963: 1974-5, 1980-2, 1990-2, 2001 and 2008-9. In each case, the rate of profit peaked at least one year before, but on most occasions up to three years before. And on each occasion (with the exception of the very mild 2001 recession), a fall in the mass of profit coincided with the slump, with the biggest fall (over 7%) in the Great Recession. So there is a body of evidence to support the view that Marx’s law does operate in a capitalist economy and that it is the key (underlying) factor in booms and busts.

We can derive a coherent theory of crisis from Marx’s works based on his LTRPF, 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 LTRPF remains the most robust explanation of capitalist crises and something way superior to alternative Keynesian and other mainstream economic explanations, which signally failed to explain the Great Recession.

Returning to Heinrich

Michael Roberts, July 25, 2013

Back in May, I did a short post outlining my rejection of the arguments of Michael Heinrich, a Marxist scholar. He recently wrote an article in the US journal, *Monthly Review,* arguing that Marx's law of profitability was faulty, empirically unproven or even unprovable and anyway, Marx decided to drop it in his later works and only editing distortions by Engels have left us epigones with the impression that Marx still supported the law.

Well, since then there have been several more responses to Heinrich's arguments. Andrew Kliman et al has published a long reply. Sam Williams has also started a two-part response on his blog and more recently Ed George has delivered a very clear and perceptive defence of Marx's law. And as promised in my May post, G Carchedi and I have produced a joint piece in reply to Heinrich (see below). And we are working on an even more comprehensive paper dealing with not just Heinrich's arguments but also other criticisms of Marx's law of profitability and its role in crises. So readers who want to follow this debate now have plenty to read!

I am spending quite of bit of effort with Heinrich's arguments because in doing so I think it will help to develop our understanding of Marx's theory of crisis and the eventual demise of capitalism. But now in this post, I just want to spell out the implications for crisis theory and for the future of capitalism in accepting Heinrich's position and rejecting Marx's law. In my view, if Heinrich's view is accepted, it would be crippling for a coherent theory of capitalist crises, but also for the key Marxist concept that capitalism is not an eternal economic system that can last forever but is a transitory mode of production like the slaveholding economy of the ancients, feudalism or Asian despotism.

In other words, the law is central to Marx's materialist conception of history. If it is believed that, in the long run, the rate of profit might just as easily rise as fall or that it will tend to oscillate forever around some average value, as Heinrich suggests, then the capitalist mode of production takes on the character of a permanent ongoing system. Instead, Marx's law of the tendency for the rate of profit to fall over the long run most convincingly demonstrates the transient nature of capitalism.

The more the world's population is drawn into the capitalist mode of production, the more the law exerts its power of prediction. As the reserve army of labour globally is used up in new rounds of exploitation to create more value and surplus value, the more the law will begin to operate because the rise in the organic composition of capital (even after the cheapening effects on constant capital from new technology) will outstrip the rise in the rate of surplus value. Indeed, the more there develops a world rate of profit, the more the law of the tendency of the rate of profit to fall will operate (see my paper roberts_michael-a_world_rate_of_profit). The rate of surplus value, among other counteracting factors, may change in such a way as to cause the rate of profit to rise for a certain time but the world rate of profit must fall in the long run.

As Jim Miller put it in his critique of the attack on the law by one of the founders of the Monthly Review school, Paul Sweezy: "If the rate of profit has not yet fallen, or its direction is not yet definitely demonstrated, nonetheless it must inevitably fall eventually. The rate of profit must fall in life or the theory is incorrect. The law is unidirectional and irreversible. The law is the law of the tendency of the rate of profit to fall, not the law of the tendency of the rate of profit to rise, fall or go whichever way it pleases." This same argument drove Henryk Grossman to his groundbreaking book on Marx's law of breakdown and crises. As Marx says, the counteracting tendencies to the law "do not annul the general law. But they have the effect that the law operates more a tendency i.e. whose absolute realisation is held up, delayed and weakened by counteracting factors." Marx 1981, p341-2.

The point is that increasing the rate of surplus value and thereby the amount of surplus value in relation to the advanced capital can only be achieved by methods that also increase the mass and value of constant capital employed in relation to the number of workers engaged in the production process (the technical composition of capital). This is key: Marx again: "Moreover, it has been demonstrated - and *this constitutes the real secret of the tendency of the rate of profit to fall* - that the manipulations to produce relative surplus value amount, on the whole, to transforming as much as possible of certain quantity of labour into surplus value on the one hand; and employing as little labour as possible in proportion to the invested capital on the other, so that the same reasons which permit raising the intensity of exploitation rule out exploiting the same quantity of labour as before by the same capital" Marx 1962, p228

The organic composition of capital must increase and this unavoidable growth in the organic composition ultimately sinks the rate of profit, no matter how high the rate of surplus value may climb. The more advanced the organic composition of capital, the less effect a rising rate of surplus value can have in overcoming a dwindling profit rate. With fewer workers employed, the product's value becomes increasingly composed of value reflecting constant capital. "With the absolute amount of living labour newly incorporated into individual commodities decreasing enormously as production develops, the absolute mass of unpaid labour contained in them will likewise decrease, however much it may have grown as compared with the paid portion." Marx, 1962, p221.

Sure, mathematically, the rate of surplus value could tend towards infinity (where workers live on air), as could the organic composition of capital, but well before that, the rate of profit would have fallen. That's because each increase in productivity (hours of unpaid labour to paid labour) has less and less an effect on the rate of surplus value: "the smaller already the fractional part of the day falling to necessary labour, the greater the surplus labour, the less can any increase in productive forces perceptibly diminish necessary labour, since the denominator has grown enormously." Marx 1973, p340.

Moreover, there is a social limit on the reduction in variable capital and thus the maximum rate of surplus value, set by the class struggle over the distribution of the value created between labour and capital. So the rate of profit will fall well before the rate of surplus value moves towards infinity. The tendency for the organic composition to rise is stronger because the rate of surplus value can only rise "within certain definite limits", Marx 1981 p 333.

So the former tendency is the law and the latter is a weaker countertendency. The organic composition of capital and the rate of surplus value are not independent variables, either one of which might overpower the other. One rises as a tendency and the other as a countertendency - and by definition and reality, the latter is weaker.

Marx considered the law of the tendency of the rate of profit to fall as the most important law of motion of capitalism. And it is because it explains and predicts crises and slumps under capitalism. And it also explains why and predicts that capitalism cannot last. Either the working class will remove the capitalist class and introduce a democratically planned economy using the resources of the globe in common to develop socialism, or capitalism will descend into barbarism just as the ancient slave society of the Roman empire did or the Asian absolutist states.

Heinrich: a small rejoinder

July 28, 2013

The debate in the comments section of this blog over the proper response to the misrepresentation by Michael Heinrich of Marx's law of the tendency of the rate of profit to fall has got lively. Some of the best Marxist economists in the world (Kliman, Freeman, Carchedi, Lebowitz) have pitched in and the debate continues. I have not really intervened in the debate so far, but I thought it might be appropriate to add a short post now as a small rejoinder to some of the questions and differences raised so far.

I think, understandably, that Professors Kliman and Freeman are concerned that none of us defenders of Marx's law fall into the trap set by Heinrich who claims that supporters of the law are 'fundamentalists' and are trying to 'prove' Marx's law by mathematics or by logic and that can't be done. Heinrich says at one point that Marx spent a lot of time with mathematical formulations to 'prove' his law but gave up. But I am concerned (and I think Professor Carchedi is) that Professor Kliman's formulation that the law 'explains' but does not 'predict' is in danger of conceding to Heinrich that the law is 'indeterminate', namely that it is the law of the tendency of the rate of profit to fall, rise and stay the same as circumstances permit. That is no law, as Heinrich says. But perhaps our differences here are just a matter of wording when Professor Kliman says that if the law was confirmed in the past then it is likely to be confirmed in the future and that is good enough proof? Or is he still making the law 'indeterminate' by this formulation? That is what worries me.

Let me put it this way. For the purposes of the debate, I think Marx's law is similar to the law of gravity. In other words, if we see an apple come off a tree, we can predict that it will fall to the ground, but counteracting factors could intervene and the apple could get lodged in the tree or wind could blow it sideways for some time. But that would change nothing about the law of gravity and moreover our prediction that this apple and others would eventually fall to the ground. Eventually, the wind would subside and the apple would fall. Later there would be no wind and all the apples would fall, although there could be significant periods when no apples would fall. This does not make the law of gravity indeterminate. It would only be indeterminate if it was decided that the power of the wind <u>was just as strong as gravity</u> and also should be <u>incorporated into</u> the law of gravity. This is Heinrich's main point: that a rising rate of surplus value is really a necessary part of Marx's law, contrary to Marx's view, and has equal power or weight in determining the direction of the rate of profit and therefore the law is indeterminate.

Marx says that the strength of the law, namely the tendency of the organic composition of capital to rise as capitalism expands the productive forces, is greater than the counteracting factors over time, in the same way that gravity exerts its downward pull on the apple and over time counteracting factors like wind will not prevail in stopping the apple falling. In this sense, the law is 'unidirectional and irreversible', like the law of gravity. The law of gravity does not say the apple will fall, rise or stay where it is depending on the circumstances, but predicts that it will fall. If, in reality, it does not fall but rises, that is because of the intervention of counteracting factors that are not part of the law as such.

Wind is not part of the law of gravity and a rising rate of surplus value is not part of the law of profitability (as such). We can show that this is the case for Marx's law by starting with some assumptions that are realistic (the law of value operates and the organic composition of capital rises). On those assumptions, the rate of profit will fall. Then we can show that there are limits in reality for counteracting factors like a rising rate of surplus value to outstrip a rising organic composition of capital indefinitely, just like the wind cannot indefinitely triumph over the law of gravity. Thus the law is based on the reality of capitalist development and the class struggle, just as the law of gravity is based on realistic assumptions about the universe.

Moreover, it does not take hundreds of years before the wind gives way and the apple falls and before the law overcomes the counteracting factors and the rate of profit falls. If that were the case, it would be a pretty useless for our lifetime needs, like knowing that the moon will leave the earth's orbit in 1.5 bn years and then the earth will start to wobble uncontrollably and life would become extinct. That is a prediction with not much immediate practical use.

In contrast, empirical evidence shows that the law of profitability operates over much shorter periods. We can show that the law is confirmed empirically on numerous occasions. There has been a secular decline in the rate of profit in the US since 1947. Sure, there are periods when the US rate of profit rose. In my view, the US rate of profit rose from 1982 to 1997, but the law tells me that this will not last and the rate of profit will eventually start to fall. Heinrich says you cannot know such a thing because the law is indeterminate.

What do Professors Kliman and Freeman say on this point? I'm not sure: they seem to say that, as the law is not 'unidirectional and irreversible', presumably you can have no idea if the US rate of profit will fall over the next decade or not until it has happened. But then they say that as it has been shown to fall in the past, so it is likely to do so in the future. I'm not sure that this interpretation of the law (even if it is Marx's, as Professor Kliman claims) is a very powerful 'explanation' (to use their words) of the law. Ironically, Professor Kliman has spent much diligent and careful time arguing that the US rate of profit did NOT rise after 1982 and there has been a persistent fall in the US rate of profit since 1947. And Professor Freeman has recently presented a paper to 'correct' the evidence that the UK rate of profit rose after the mid-1970s, claiming that it continued to fall. If they are right, would that not support the view that the law is 'unidirectional and irreversible' in the sense above, and not indeterminate, as Heinrich argues? Perhaps the professors should make a study of periods when the rate of profit has risen and explain why. Does the rate of profit only rise when there is a slump and the value of capital employed is sharply destroyed? Does it not rise sometimes in periods of boom? If so, can the law explain or even predict these periods?

And that brings me to another possible difference, at least in the debate between Marxists trying to refute Heinrich's bastardisation. Does the law just show how there are crises in capitalism, booms and slumps, driven by the up and down movement of the rate of profit; or does it go further and say that IN A WORLD ECONOMY, where capitalism is exhausting all sources of value creation, the rate of profit will fall secularly to new lows and thus make it more and more difficult for capitalism to develop the productive forces? In other words, the law shows why capitalism will come up against the ultimate barrier, namely capital itself, and so is a transient mode of production like other earlier class-based systems. It will increasingly descend into stagnation, decay and chaos unless the progressive class, the proletariat, takes over. If the law is just one of explaining recurrent booms and slumps in capitalism, that would suggest that capitalism could go on forever expanding the productive forces, albeit with waste, inequality and injustice. If it is more than that, then it provides support for the view that capitalism is not eternal.

In summary, can we reach an agreement in this debate? Let me pose some statements that could have yes or no answers.

1) The law is not indeterminate; instead it argues that the rate of profit WILL fall over time, like the law of gravity that the apple will fall if it breaks from the tree.

2) The law is not a fake mathematical 'proof' as claimed by Heinrich, but, based on reasonable realistic and relevant assumptions, it predicts that the rate of profit will fall over time.

3) The law is not a law of the tendency of the rate of profit to fall, rise or stay the same, depending on various counteracting factors that come into play. If the latter do, the rate of profit may rise, but eventually (and not in a hundred years), the counteracting factors cannot hold sway.

4) There is empirical evidence to back up the law, contrary to Heinrich.

5) The law goes further than just predicting booms and slumps, but also predicts capitalism's eventual demise (in the sense of not taking the productive forces forward).

These are the questions for yes and no answers that may help you to know where you stand. My answers are yes to all these statements.

A critique of Michael Heinrich

Guglielmo Carchedi and Michael Roberts, 22 June 2013

Michael Heinrich's article is really a continuation of the argument by the *Monthly Review* (MR) that Marx's law of the tendency of the rate of profit to fall (LTRPF) is not the main cause of economic crises. In the view of Heinrich, Marx's law is theoretically wrong, illogical and empirically unjustifiable and unjustified.

Heinrich makes the following points: 1) Marx's law is inconsistent because its categories are 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.[1]

Let's take these points one by one.

<u>1) Marx's law of profitability is inconsistent and illogical.</u> This argument has been thrown up regularly since Bohm Bawerk, through Bortkiewicz, Sweezy and the MR, to the neo-Ricardians and now Heinrich.[2]

The LTPRF, the 'law as such', says that the rate of profit will tend to fall over time because the organic composition of capital (the ratio of the value of 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), the rate of profit will fall, other things – including the rate of surplus value - being equal.

There are two issues involved here. The first is why, when labour is ejected, the organic composition should rise rather than fall. Heinrich considers Marx's example of the fall in labour power from 24 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 rule out that a decrease in labour power is accompanied by a greater decrease in assets. But Marx is rightly concerned not with incidental occurrences but with regularities and tendencies. Heinrich, on the other hand, is here concerned with an exception to the rule in order to invalidate the rule. If for Heinrich a persistent – even though cyclical - decrease in the organic composition of capital is the rule, he should submit valid theoretical arguments and empirical data. He does neither.

Marx, on the contrary, has bulletproof arguments. 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 are both labour shedding and productivity increasing. Capitalists investing in less efficient and thus lower productivity means of production, which imply a lower organic composition of capital, would be doomed to bankruptcy. Thus, as a rule, due to the application of new technologies, the number of labourers per unit of capital invested falls, i.e. the organic composition rises.[3] As for empirical evidence, it is overwhelming. To mention only one example, in the productive sectors of the US economy, the number of labourers per one million of (deflated) dollars of assets has fallen persistently from 65 in 1947 to 6 in 2010[4].

[1] For a critique of Heinrich's own version of value theory, see Carchedi, 2011a.

[2] See Kliman (2007) for a refutation of many of their arguments on this issue. Also see, Rosdolsky (1977), pp398-411.

[3] This holds per unit of capital invested. Total employment depends also on capital accumulation.

[4] Carchedi and Roberts (2013)

The second issue is the 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 (ARP) 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 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 average rate of profit (ARP) is indeterminate, quite aside from the countertendencies.

Not so. Here Heinrich 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 is a common scientific procedure and it reveals the 'tendency' that Marx wants to show. We can re-write (A) as (B), but the fact that the rate of exploitation appears 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 the organic composition and the ARP. Then we can let the rate of exploitation fluctuate and see how this fluctuation affects the initial relation. So the rate of exploitation becomes one of the counter-tendencies because, as we shall see, in the end the negative effect of the rise in the organic composition re-emerges in spite of the countertendencies. But here is the point: the tendential fall in the ARP would hold also if Heinrich critique were valid. We shall see this too in a moment. Let us begin with the former point.

The interplay between the organic composition of capital and the rate of surplus value co-determines the cyclical fluctuations of the ARP. But this does not imply indeterminateness. *In the long run* the ARP must fall through troughs and peaks, i.e. eventually the rise in the rate of surplus value cannot stop the ARP from falling because it cannot outstrip the rise in the organic composition of capital. But why? The reason is that there is a *socially determined insuperable* limit to the extension of the working day. When that limit is reached, the ARP falls.

It is of course possible to construct numerical examples showing that the rise in the rate of exploitation 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, the limit of the working day beyond which it is impossible to go is the outcome of a constant confrontation 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 mathematical formulas but the time 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 of '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%

This example shows that the more the OCC rises, the closer the rate of surplus value gets to the point at which the working day cannot be lengthened any longer. If the OCC rises from 2 to 18, the rate of exploitation needed to prevent the ARP 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. For example, given a working day of 8 hours, in the example above, even a rise in the OCC from 2 to 3 requires a possibly socially unsustainable increase in the working day from 8 hours to 9.3 hours. This is why we should assume that the downward movement is the tendency and the upward movement is the countertendency. And this is what allows us to conclude that the system tends towards crises, i.e. that crises are inevitable, rather than towards equilibrium.

We can now see that Heinrich's critique of the Law, as being indeterminate, is wrong even on its own terms. Even assuming for the sake of argument that there are two contradictory movements within the Law, namely the rise of the organic composition and of the rate of surplus value, there is no indeterminateness because the rise in the organic composition pushes the working day towards its socially unsustainable limit.

Marx's LTRPF is thus logically consistent. But it is also empirically supported. Heinrich both misunderstands the former and overlooks the latter. Let us then turn to empirical verification.

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."

We agree that any economic, indeed any scientific, law, must be empirically observable and subject to falsification and must have predictive value too. We contend that both of these levels of proof are met by Marx's law.

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 or the rate of surplus value rises more than the organic composition increases? Does the rate of profit recover if

[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".*

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 LTRPF. 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].

Second, there are empirical studies of Marx's law that show that it is a reasonable predictor of future events, including the recent Great Recession of 2008-9.[10] These studies show that when the rate of profit starts to fall a crisis or economic slump will occur <u>some time</u> thereafter and, even more specifically, the recession begins when the mass of profit falls as a result of a falling rate of profit[11]. This is more than we can say about any studies that aim to justify alternative explanations of crises based on the 'problem of realisation' (consumption or investment) or on high interest-rates or lack of credit, Keynesian-style.

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 (and

[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"* And see Shaikh (1992), Roberts (2009), Roberts (2010), Carchedi (2011a), Kliman (2012), Tapia Granados (2012), C Izquerdo (2010)

[8] The figures presented are from Roberts (unpublished), Carchedi and Roberts (2013 forthcoming), 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] See Roberts (2009), Carchedi (2010), Tapia Granados (2012) and Carchedi (2013) unpublished.

[11] See Tapia Granados (2012): *"with available empirical data for 251 quarters of the U.S. economy... statistical evidence rather supports the hypothesis of causality in the direction of profits determining investment and, in this way, leading the economy toward boom or bust."*

he does)[12], 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. And 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). The use of the adverbs 'presumably' and 'probably' indicates that Heinrich is uncertain about his thesis.

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? Would the addition of another element (a counter tendency) to the explanation of crises invalidate the law? Only if one adopts an "either-or" approach namely that either the increase in the organic composition or the credit crunch is the cause of crisis. But such an approach has nothing to do with Marx's method.

The law is the tendency that also explains the counter-tendencies. The cycle is the outcome of both the tendency and the counter-tendencies. We have examined elsewhere the role of monetary policies, i.e. money supply and interest rate policies in recent crises. Monetary 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.[13] This is a general conclusion that holds for all counter-tendencies.

Finally, in Heinrich's words, Marx attempted "*mathematically to grasp the relationship between the rate of surplus value and the rate of profit"* in the 1870s. That does not suggest he dropped his previous position.[14] Heinrich may argue that, if Marx had shown *"a consistent regard for them* (these calculations), it *"should have led to abandonment of the law"* (our emphasis). But why? This is only an opinion.

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 coherent theory of crisis based on his LTRPF, 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 LTRPF remains the most robust explanation of capitalist crises and something way superior to alternative Keynesian and other mainstream economic explanations, which signally failed to explain the Great Recession.[15]

[12] See Heinrich (2012)
[13] Carchedi (unpublished)
[14] See Carchedi (2011) chapter X for another explanation of Marx's intentions in his mathematical studies
[15] See Roberts (2010)

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