

Marxism and the law of the tendency for the rate of profit to fall

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I am not on a campaign to demolish Marxism. I am writing this note partly because I published a couple of articles relating to Marxism and, decades later, I now think I was wrong on a number of points, so I would like to clarify my own argument, mainly for my own benefit. But also, for political organisations aiming for the overthrow of Capitalism and particularly for such organisations where the importance of political theory is emphasised, it seems to me that the adoption of a mistaken theory could be a serious handicap to their success.

One worry about Marxism, as Martin Hyland once pointed out to me, is that it is a theory of everything. Marxism is a theory of history, politics, class-struggle, natural science, philosophy, religion and economics, but the underlying theory, *dialectics*, claims to be a logic of change and interaction of processes in full generality. The track record of theories of everything is not good and while that in itself is not enough to rule Marxism out, it does place a greater burden of proof to provide a clear justification — either empirical or logical — for all its claims.

Dialectics and Logic My main point here, is that the foundations of Marxism are unscientific. By a scientific theory I mean a theory based on evidence, using logic. Both parts of this definition are problematic, the question of evidence it tied up with the notion of interpretation, and what is meant by logic needs to be clarified. Nevertheless, I take this as a useful definition of Science. It is widely accepted that science must be based on evidence. But of course science is not simply the process of collecting evidence, a scientific theory will be based on evidence and deduces a general understanding of a topic based on logical reasoning from the evidence. What counts as a logical argument may depend on the field. But it should include a clear definition of any non-standard terms, any assumptions that are being made, and it should be clear how each statement or proposition follows from either evidence, or from what has gone before in the argument. In formal logic, simple rules are given that allow you to deduce new statements from old (e.g. Socrates is a man, all men are mortal, *therefore* Socrates is mortal). In other branches of science a more informal approach is commonly accepted, however in a scientific theory each step in an argument must be clearly justified and it should be possible to formalise them

if required. If a step in the argument cannot be formalised, rather one is asked to think deeply about what is claimed until enlightenment is received, then it seems to me that the argument is unreliable and unscientific.

Marxists often employ a different notion of logic. According to Engels, and many Marxists, the dialectical laws of contradiction exist not only in the realm of thought, but in reality too. Accordingly, a statement can be both true and false simultaneously. The contradictions that exist in reality should be understood as the engine of the process of change and transformation. Dialectics is proposed as a generalisation of formal logic (which is considered static and non-interacting) that applies to processes of interaction and flux. I have written elsewhere about how it is false to portray formal logic as a technique that cannot apply to properties that change over time or to processes of interaction. Here, however, I take issue with the idea that contradictions exist and that it is possible to reason forward from contradictions in a useful way. Whereas in everyday conversation, a contradiction in an argument is seen as a good reason to reject that argument, in Marxism contradictions are not only permitted, they are an *essential part* of an argument¹.

The idea that a statement can be both true and false is problematic. The word “not” has a logical meaning, which we learnt long before we had heard of Marxism or logic. When we say that x is not the case, we mean to exclude the case where x is true. By claiming that x is true and not true, we are being inconsistent. It is not a good way to reason logically. When Matt Hancock argued that the UK was avoiding testing as a strategy for COVID in March 2020 and argued that this was because Science showed that testing would not save lives, and anyway the Government *were* testing, the contradiction does not strengthen the argument, rather it undermines it. When we claim that p is both true and false, we undermine our argument because both statements cannot both be true to reality, so something we have said is clearly false. According to very simple laws of propositional logic, if we take both p and NOT p as assumptions we may draw any conclusions whatsoever. Bertrand Russell may have said once (although I cannot track down a reference) that the weaker the logic, the more surprising the conclusions.

Although there are three laws of the dialectics, there is no indication of how you can deduce one thing from another, or when one argument follows logically from another. The cases where dialectics have been used in that way include Hegel’s proof that the number of planets could only be seven, or Engels’ proof that an electron must travel in a circular orbit. These arguments are not scientific.

Value Marxism distinguishes itself from the wider political left by an interesting analysis of exploitation and profit. The general anti-capitalist view is that capitalism is based on exploitation and is therefore sinful, against a natural

¹There are formal logics that deal with contradictions, e.g. *paraconsistent logic*. The intention here is to deal with inconsistent, contradictory information and try to resolve those inconsistency. The idea is not that contradictions exist in reality, rather they consider databases of information which may not be reliably true.

concept of justice. Marx shares this view, but adds that exploitation is also the root cause of a problem for the Capitalist system that dooms it. Exploitation leads to a rise in the organic composition of capital, which leads to a fall in the rate of profit. This is the central content of the thesis elaborated by Marx in the three volumes of Capital. According to this thesis, the Capitalist system is a transitory system which cannot last long. The reason that it cannot last long is that a mechanism built-in to the nature of Capitalism leads to a long term tendency for the rate of profit to fall. This mechanism works as follows. The rate of profit is defined as the ratio $\frac{S}{C+V}$, surplus value divided by total costs. In order to improve productivity, over time the organic composition $\frac{C}{V}$ will rise and consequently (assuming some bound on the rate of exploitation $\frac{S}{V}$) the rate of profit will fall.

Here I will argue that the argument stated above is incorrect. A consequence is that I do not know how long the Capitalist system will last.

But first, lets examine some issues in this formulation of the theory. In the statement “The Capitalist system is transitory and cannot last long” and in the phrase “long-term tendency”, we might ask, what counts as long? All previous economic systems have turned out to be transitory, so we might have guessed, without reference to the three volumes, that Capitalism will end eventually, but Marx’s thesis suggests more: that Capitalism will last significantly less time than previous systems, in particular significantly less than the thousand years of Feudalism. After two centuries of Capitalism it can certainly be argued that insufficient time has elapsed for us to see this, on the other hand, the more time that passes without an end of Capitalism, the more problematic this is for Marx’s thesis.

A second preliminary comment is that the theory makes use of quantities, like C, V, S , the rate of profit etc., and these quantities require an explanation in the theory — an explanation that provides numerical values for these quantities. Without such an explanation we cannot infer that a certain ratio of these quantities will fall. That is why the theory of value is so important in Marx’s work. Marx’s theory of value is the crux of my argument too.

In Marx’s writing there appear to be a number of types of value: exchange value, necessary labour time and underlying value.

The *exchange value* of a particular commodity tells you the ratio that you expect to exchange this commodity for other commodities, under average conditions. Given certain assumptions about fluidity in the market, the exchange value of a commodity may be represented as a certain non-negative number in such a way that two commodities with the same number as their exchange value would represent a fair exchange, i.e. the sort of exchange you would expect to be able to make, in average conditions. More generally, the ratio between exchange values of two commodities tells you (inversely) the ratio that you expect to exchange quantities of each commodity. The monetary price of a commodity is an indication of its exchange value². On the face of it, the exchange value of a commodity should be observable and measurable, but as a result of enormous

²Its an interesting problem to find conditions which are necessary, or sufficient, for a

complexities relating to currency exchange rates, hidden costs and subsidies, it is very hard to establish reliable exchange values in practice.

The *necessary labour time* for a commodity is what it says, the duration of all the work needed to produce the commodity, measured in hours. It has to be modified to take into account the fact that some types of labour are more valuable than others. A skilled worker may be able to produce more value in one hour than an unskilled worker, so an adjustment is needed to take this into account. It gets complicated because the skill is itself a commodity that may be purchased and the value of that skill would then be determined by the amount of labour needed for the necessary instruction of the worker³. There is a danger that we are already losing track of exactly what we mean by “necessary labour time”.

The *underlying value* is the true value of a commodity, when distortions and illusions created by the system are removed. It is not directly observable or measurable, but it is needed to understand the behaviour of exchange value, labour time and everything else. It is the holy ghost of this value trinity⁴. The *Law of Value* is sometimes invoked to explain the connection between these different types of value, but the definition of this law of value varies considerably and is nowhere stated precisely.

One version of the Law of Value is the *Labour Theory of Value* (LTV). According to this, the exchange value of a commodity is determined by the amount of labour that is required for its production. It will be instructive to see how the LTV does lead to a long term tendency for the rate of profit to fall.

Our assumptions are that (i) the organic composition $\frac{C}{V}$ rises without bound (ii) but the rate of exploitation is bound⁵, say $\frac{S}{V} \leq b$, (iii) $V > 0$ and (iv) there

meaningful exchange value to be defined, and to construct other models which summarize the patterns of exchange of commodities in situations where a global exchange value cannot be defined. I might look at that further some other time, here we may assume that an exchange value is well-defined.

³This raises a doubt about Marx’s contention that over time, in order to raise productivity, investment will tend to shift into capital intensive forms of production, hence the organic composition of capital tends to rise. However, productivity can also be increased by investing more intensely in the value of labour-power. The value produced by a highly skilled worker in one hour can greatly exceed the value produced by an unskilled worker. All investment in education and welfare can be considered as a cost of production counted as variable capital V . Given that, it is not clear that there has to be a tendency for the organic composition of capital to rise. Perhaps there is empirical evidence on that.

⁴Unobservable, hidden parameters may well be required in order to explain how Capitalism works, but any theory which adopts such parameters needs particular justification — either empirical or logical — of how these hidden parameters can be used to obtain a correct understanding of observable things, like the collapse of capitalism. To illustrate a problem with the notion of a discrepancy between observed values and true underlying values, consider the well-known Newtonian equation $f = ma$. Imagine a physicist postulated that the true law was $f = mv$ but because of certain peculiarities in the way we observe these quantities, we should multiply the right hand side of the equation by $\frac{a}{v}$ to account for the illusion that is observable to us. The true law is $f = mv$ but after adjustment it seems (superficially) that $f = ma$. The argument would be discounted, if for no other reason that it falls foul of Occam’s razor by introducing unnecessary and unobservable properties.

⁵Such a bound on the rate of exploitation is questionable. If we are assuming that the organic composition of capital rises without bound it is certainly conceivable that the rate of

is a positive lower bound on the rate of profit, below that bound Capitalism cannot continue, say $\frac{S}{C+V} > \epsilon$ for some $\epsilon > 0$. Then

$$\frac{S}{C+V} \leq \frac{bV}{C+V} \leq b \frac{V}{C}$$

Since $\frac{C}{V}$ is getting bigger without bound it follows that the rate of profit is gets arbitrarily small. When the rate of profit falls below ϵ , or earlier, Capitalism must end. It all works. But note that if we drop any one of our four assumptions, the conclusion does not follow.

The problem, of course, is that LTV is empirically and systematically false. Because of the equalisation of profit rates between different sectors of the economy, the exchange value of a commodity will differ from that predicted by LTV. Marx was aware of this problem and referred to it as the *transformation problem*⁶. Marx argues that there is a transfer of value from labour intensive industries to capital intensive industries, caused by the equalisation of profits. This means that the exchange value of a commodity will differ from the necessary labour time. Since LTV is false, Marx's theory still requires an account of how values are determined⁷.

One weak version of the law of value states merely that all value originates with labour. The problem with such a weakening of the law is that Marx's thesis concerns numerically valued quantities, like the rate of profit, so the theory must explain and provide numerical values, and the weakened law of value says nothing about quantities or values. Without a quantitative account of underlying value it cannot be possible to prove that the rate of profit will fall.

A stronger version of the law of value states that underlying value is determined by necessary labour time, but makes no assertion about a relationship between exchange value and underlying value. However, what counts for Capitalists when making investment decisions is the exchange value of the commodities they (have their workers) produce. The true underlying value is of no interest to them, what matters is what they can exchange their commodity for. Capitalists will happily invest if they expect that the rate of profit, measured by exchange value, is high, it won't trouble them if the rate of profit, measured by underlying value, is low.

exploitation also rises without bound.

⁶All the same, for much of volume 1 of *Capital*, Marx gives the strong impression that he is using the LTV. In his laboriously worked examples he estimates that values produced by a worker over the ten hours of a working day, e.g. 4 hours for capital costs and depreciation costs, 3 hours for worker's own wage, 3 hours for the boss.

⁷It is true that Marx and marxists have written extensively about the relation between underlying value and exchange value. Explanations are given as to why the rate of profit rose in particular periods of history. It might be that in a certain period, Capitalist were able to raise the rate of exploitation, or the organic composition did not rise, or perhaps that a chunk of value was stolen from one sector and deployed in another, somehow causing the rate of profit to rise. Such arguments are based on hindsight. What they do not give is a way of working out, given data about an economy, how these quantities (exchange value, rate of exploitation, organic composition, etc.) will interact and how to work out what the rate of profit will be.

Since it is exchange values that matter to capitalists, Marx's theory must explain why the rate of profit, measured as a ratio of actual exchange values, tends to fall if the organic composition rises. The argument that worked under the assumption of LTV works no longer. Assume an equalisation of profit rates, let this rate of profit be a variable p . Since profit rates are equal, if V is the exchange value of labour, C is the exchange value of constant capital, then the exchange value of the commodity produced is $(C + V) * (1 + p)$ and the surplus value $S = (C + V) * (1 + p) - (C + V) = (C + V) * p$ of course. This confirms that the rate of profit is $\frac{S}{C+V} = p$, as we assumed at the start, but nothing more follows. No particular bounds on p may be inferred. In order to demonstrate a tendency for the rate of profit to fall, additional assumptions are needed but not given.

In conclusion, what I take issue with is Marx's argument, that because of a tendency in the organic composition to rise there is a long-term tendency for the rate of profit to fall and therefore the system is unsustainable. The argument is false. However, I do not doubt that Capitalism, like all previous systems, will end. It is clearly a dynamic system prone to booms and destructive slumps. It is quite conceivable that a slump more severe than previous slumps will occur before very long and that this would wreak enormous damage to our lives. Whether Capitalism could recover from such a slump, perhaps in a new form, or whether a new economic system would emerge, remains open.