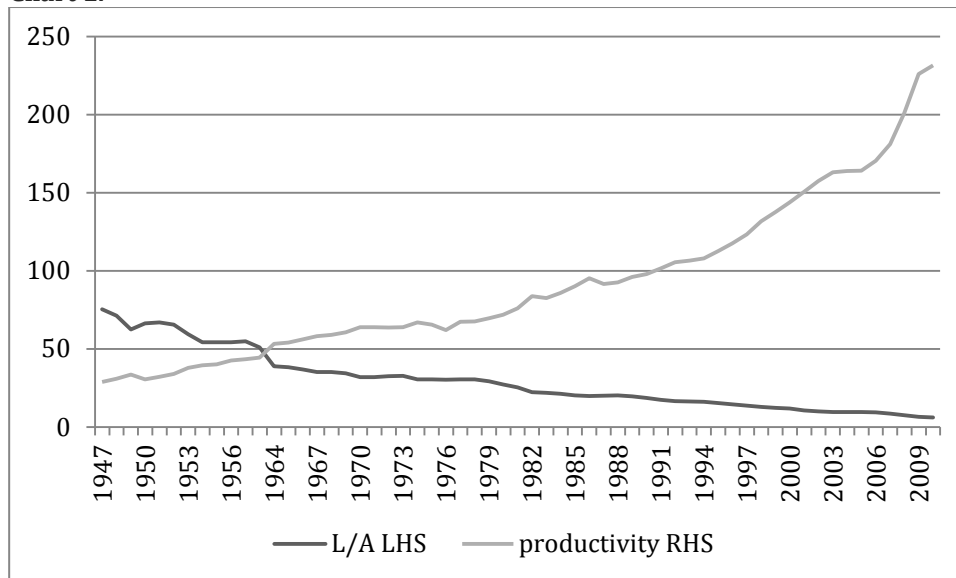


**THE LAW OF THE TENDENTIAL FALL IN THE RATE OF PROFIT AS A THEORY OF CRISES:
TWELVE REASONS TO STICK TO IT.**

The Law has been the object of recurrent attacks. After each attack recedes, a new one emerges from the arsenal of Marx's critics. I shall mention twelve of such critiques, drawn principally from the critics' current repertoire.

1. First critique. The core of the Law is that *technological innovations are productivity increasing but labour shedding*. This is questioned. However, the following chart leaves no doubts

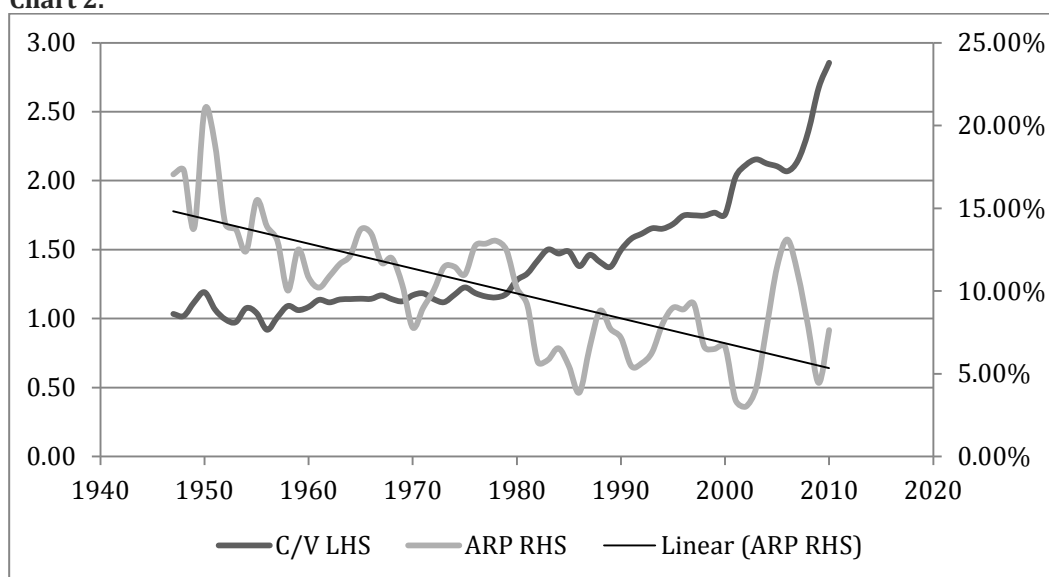
Chart 1.



The number of labourers per 1 million dollars (deflated figures) falls from 75 in 1947 to 6 in 2010 (labour shedding effect) while productivity increases from 28 million per labourer in 1947 to 231 in 2010.

Second critique. The Law submits an *inverse relation between the OCC and the ARP*, i.e. if the OCC rises, the ARP falls and vice versa. The critique is that technological innovations, by increasing productivity, decrease the unit value of the output, including the MOP. When those means of production enter the next production process as inputs, the OCC falls on this account. Supposedly, the movement is indeterminate. However, the fall in the OCC is a counter-tendency that can only retard the manifestation of the tendency. This too is shown empirically

Chart 2.



Tendentially, if the OCC rises, the ARP falls.

Third critique. There are many causes of falling profitability, besides the increase in the OCC due to technological innovations. Thus the theory is incomplete, or unsophisticated. However, the question is whether the other causes of falling profitability are also causes of crises. The critics do not address this point. Take for example, the rise in the price of labour power due to an increase in capital accumulation greater than the rate of growth of the labour force. The point is that firms do not invest to adjust the supply of labour. They invest to increase their productivity. If labour is in short supply, labour-shedding technologies will increase the supply of labour. If the supply is plentiful (i.e. if labour is unemployed), labour-shedding techniques will further increase it. At low wage levels some capitals in some countries might not be induced to innovate. But other capitalists in other countries will innovate and due to their higher productivity will eventually force the former to innovate as well. If they fail to innovate, they fall in a state of permanent economic dependency, thus losing value to the former group of countries. But this is a different story.

Fourth critique. If new technologies reduce profitability, *why should capitals innovate?* It is obvious that the innovators realize higher ROPs. If other capitalists follow suit, the general, and thus the average ROP should rise, not fall. This is in essence Okishio's standpoint.

This critique overlooks the labour shedding nature of technological innovations. The technological leaders increase efficiency but, by investing in high OCC MOP, i.e. by shedding labour, also create less value and surplus value. Nevertheless, they increase their own ROP because, by selling a greater output at the same price as that of the smaller output of the technologically backward capitals, they appropriate a share of the latter's surplus value. The former increase their ROP at the cost of the latter and the total value and surplus value as well as the ARP fall.

Okishio has surreptitiously replaced Marx's notion of labour as value creating activity with the bourgeois notion of labour as a cost. This is a capital sin, if not for an Okishian, surely for a Marxist.

Fifth critique. *The Law does not hold in a monopolized economy.* It is held that the lack of capital mobility across sectors is an obstacle to the equalization of the rates of profit. It is also held that monopolies need not innovate so that their OCC does not rise and each monopoly's rate of profit does not tend to fall. The counter-critique is that the need to innovate arises also due to another reason, the price mechanism. Suppose the whole economy is composed of two monopolies. Monopoly A exchanges its output for monopoly B's output at a certain price, being the monetary expression of a certain value. Suppose now that monopoly A introduces new technologies. Its OCC increases. Its output increases too. Suppose that with the same investment, A doubles its output. Given the unchanged technological requirement of the two capitals in terms of each other inputs (use values), capital B exchanges its

whole output for half the output of capital A. But monopoly A, to produce half of its output, has invested half its capital. A's ROP increases and B's ROP falls. This is why monopoly A must innovate. Then, B too is forced to innovate. The two ROPs tend to equalize, even if there is no capital mobility across sectors. Moreover, if A has increased its OCC, it has produced less value and surplus value. It then appropriates surplus value from B while the ARP tends to fall.

Sixth critique. *The Law cannot be empirically substantiated.* There are three variants on this theme. First, there are no data to compute the ROP. This is quite a remarkable statement, given the wealth of estimates of the ARP not only in the US but also in a variety of other countries. Second variant, the ARP cannot be precisely estimated. This is true, but precision is not the question here, approximation is sufficient. What is important is that these quantifications allow the detection of the trend of the ROP. There have been many different estimates of falling profitability, both short term and long term, in variety of countries. But all of them converge on the finding that the ARP has been falling, the difference being since when. For some since the end of WWII, for others since the end of the Golden Age.

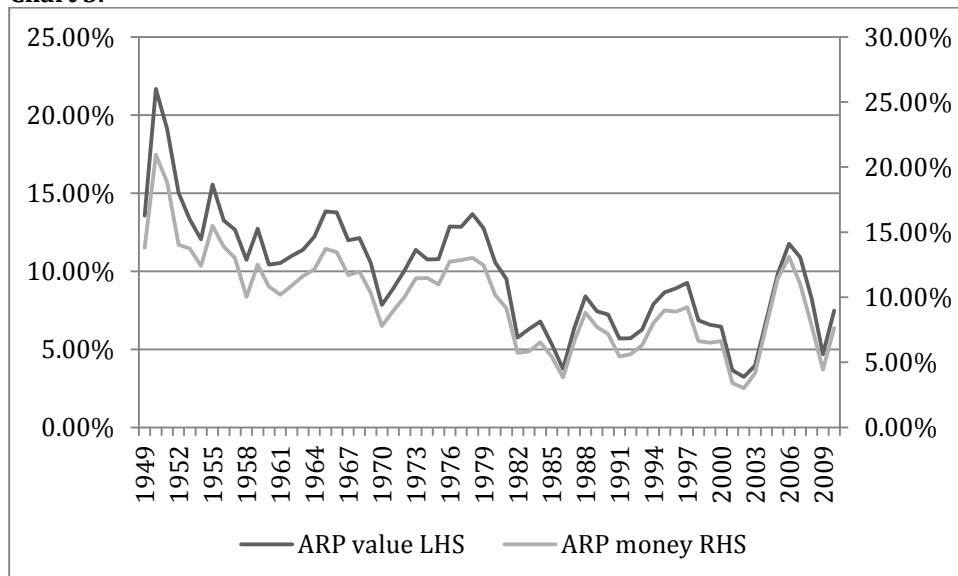
Third variant, empirical studies quantify the ARP in terms of the money expression of outputs and thus of use values. But this is not what Marx intended. This is true. However, it is possible to convert official data into value, i.e. labour, quantities. In essence, the key is the relation between the number of hours or of labour units and the sum of money profits plus wages paid at the end of year 1. These are known quantities. The ratio between the two quantities gives the monetary expression of one unit of labour (or of one hour).

$$\alpha = (W+P)/NL$$

W = wages, P = profits, NL = number of labour units or of hours worked

For example, if W+P = \$100 and NL is 5 labourers, 100/5 = 20, and \$20 represents 1 unit of labour. By applying this ratio, we can compute the labour content of wages and of profits separately. Further, given the inherent homogeneity of abstract labour, the same ratio can be applied to the price of the means of production, also at the end of year 1. This is the labour content of the means of production as outputs at the end of year 1. Given that the output of year 1 is also the input of year 2, this is also the labour content of the same MOP at the beginning of year 2. At the end of year 2 we compute again profits and wages in terms of labour. Finally, we divide profits in labour terms at the end of year 2 by the sum of the labour content of wages also at the end of year 2 plus the labour content of the MOP at the beginning of year 2. The *temporal* ARP in terms of labor (value) at year 2 follows.

Chart 3.

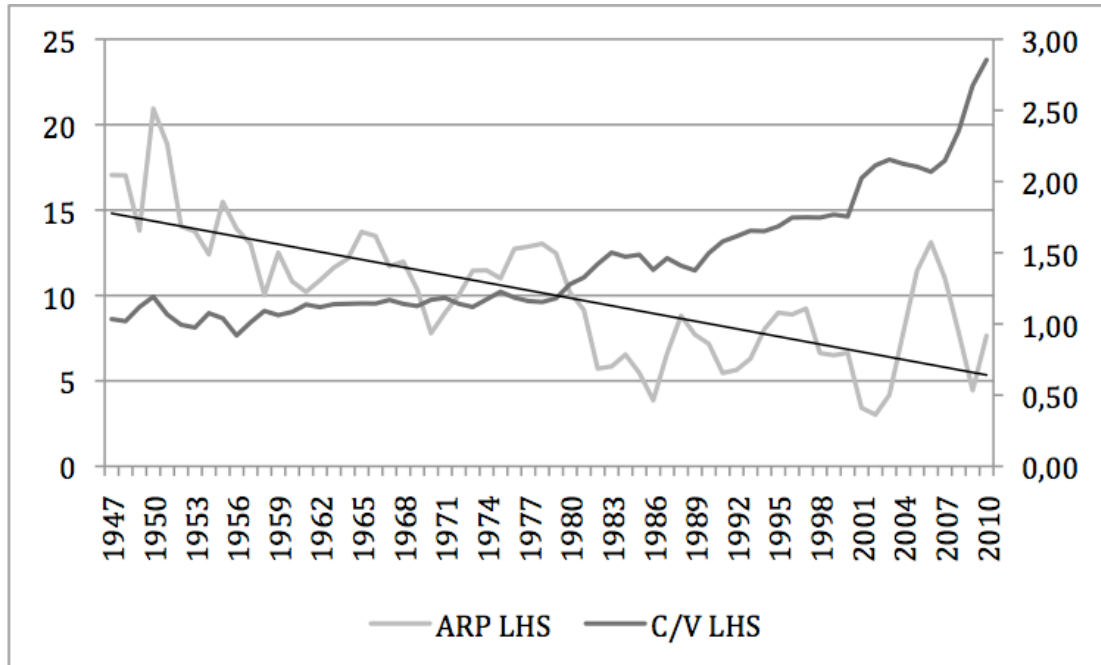


Since money quantities can be converted into value magnitudes, the results of the analysis in money terms apply also to the value dimension. The Law holds both in money and in value terms. Moreover,

the two ARPs not only move in the same direction (tendentially downward) but also track each other very closely.

Seventh critique. *Since the mid-1980s, the ARP has been tendentially rising, not falling.* Thus supposedly the Law has ceased to operate.

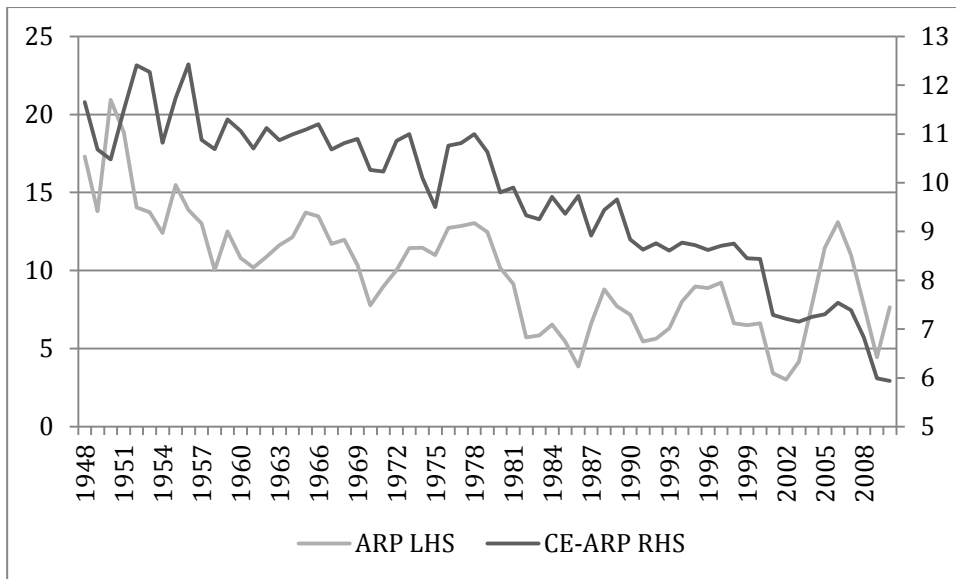
Chart 4.



However, tendentially the ARP has been falling throughout the post-WWII period. If the whole secular trend is downwards, and that includes the period of rising profitability, then this period is a counter-tendency. Some critics reply that the period of rising profitability is too long to be a counter-tendency. The answer is that a tendency lasts as long as its causes last, in this case the historic defeat of the world working class. The Law must be understood in terms of the tendency and of the counter-tendencies.

What is then the counter-tendency operating in this period? The rising rate of exploitation, the essence of neo-liberalism. This becomes evident if the effects of an increased rate of exploitation are removed, i.e. if in the numerator of the ARP we control for the fluctuations in the rate of exploitation. This I call the *constant exploitation ARP (CE-ARP)*, the ARP whose numerator has been computed by holding the rate of exploitation constant throughout the long-term period.

Chart 5.

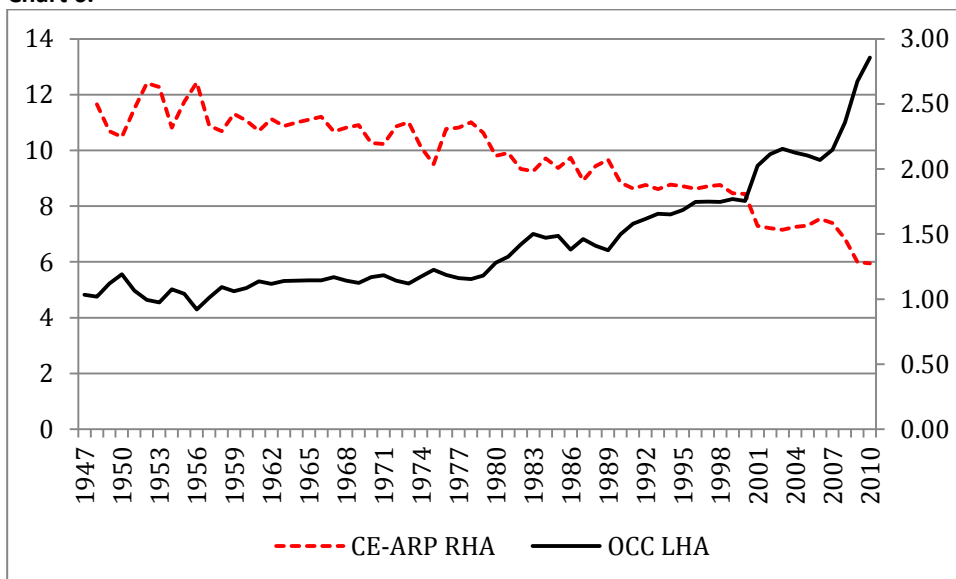


Even though the ARP has increased between 1986 and 2010, the CE-ARP has decreased. A comparison between the two lines shows that a greater share of the shrinking new value has been redistributed from labour to capital. And this is why the ARP has risen.

It has been argued that the CE-ARP is not a 'real', but a hypothetical measure of profitability because it measures what profitability would have been under the assumption of a constant rate of exploitation, rather than what it has actually been. If correct, this objection would invalidate, say, the computation of the ARP with deflated prices. The point is whether the CE-ARP, just as deflated prices, helps us understand features of reality that the ARP with variable rates of exploitation cannot disclose.

Eighth critique. *It cannot be shown that labour is the sole creator of value.* It is argued that the MOP create value too. Here the fundamental mistake is that no distinction is made between use values and value. The MOP help creating use values, not value. The following chart shows it.

Chart 6.



If the OCC and thus the assets relative to labour rise persistently while the CE-ARP falls persistently, assets cannot produce surplus value. So they do not produce value either. Marx's basic assumption is empirically substantiated.

Ninth critique. The 2007-9 crisis has been preceded by 4 years of rising profitability. But if crisis are caused by falling profitability, then supposedly *crises must be preceded by a falling ARP*. Again, the Law would seem to have ceased operating.

The answer is that since an upward cycle precedes always a downward cycle, there is nothing strange about crises being preceded by one or more years of rising profitability. The Law does not specify that the crisis must necessarily be preceded by one or more years of falling profitability. It may or it may not. The Law specifies an inverse relation between the OCC and the ARP. When the former rises, the latter falls. This fall can result in a crisis. The 1954, 1980-82, and 2001-2002 crises are preceded by falling profitability. But the 1957-58, 1960-61, 1970, 1974-75, 1990-91, and 2007-2009 crises are preceded by rising profitability.

Let us now consider the 2003-2006 recovery preceding the 2007-09 Great Recession.

Table 2.

	Exploitation rate	ARP	CE-ARP	OCC	Wage share
2003	13.1%	4.1%	7.1%	2.15	
2004	24.4%	7.8%	7.2%	2.12	
2005	35.5%	11.4%	7.3%	2.10	
2006	40.2%	13.1%	7.5%	2.07	
	206.8%	219.5%	5.6%	-3.7%	

In those 4 years, the CE-ARP grows by a very modest 5.6%, but the ARP grows partly because the OCC falls by 3.7% and much more because of the jump in the rate of exploitation, by 206.8%, in conformity with Marx. The inverse relation between profitability and the OCC holds. This is what validates the Law. The rise of profitability before the crisis does no invalidate it.

Consider now the 2007-2009 crisis.

Table 3.

	OCC	Exploitation rate	CE-ARP
2006	2.07	40.2	7.50%
2007	2.15	34.6	7.39%
2008	2.36	26.1	6.83%
2009	2.67	16.3	5.99%

The CE-ARP falls because the rate of exploitation falls dramatically but also because the OCC rises, again in conformity with Marx. Given that the rate of exploitation has been kept constant in order to compute the CE-ARP, the fall in the CE-ARP is due to the rise in the OCC.

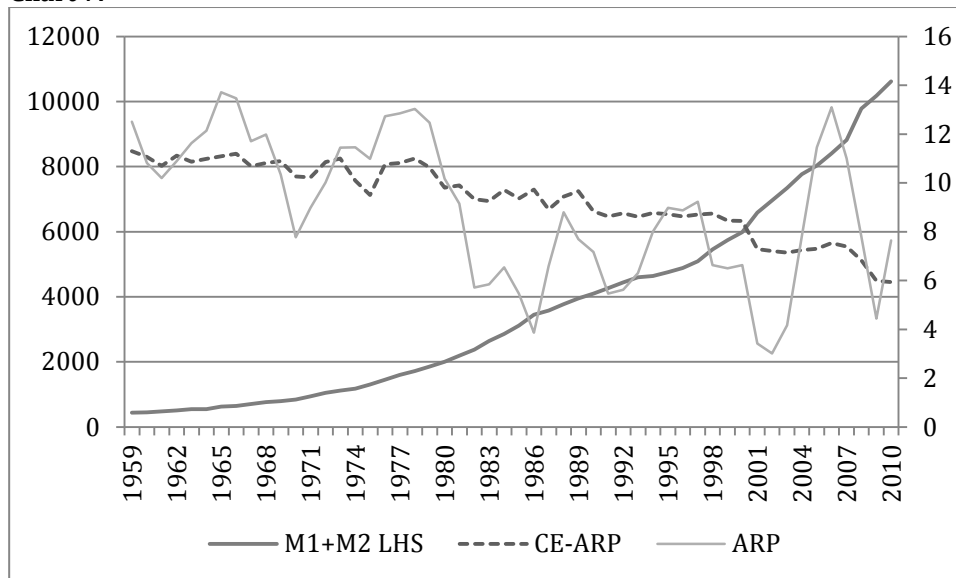
Tenth critique. *Each crisis is different because each crisis has a different cause.* It is held by some Marxists that the Law is an ahistorical straightjacket or too simplistic. This view seems to have become a new vogue among Marxists. But what do the critics mean? Do they mean that the falling ARP is just one among the many causes of crises? If this is the case, if each crisis is different because it has a different cause, why should be crises recurrent? Why should different causes of crises emerge recurrently? There must be something in the working of the system that causes all these different immediate and different causes of crises. In other words, there must be an ultimate cause. This is the tendential fall in the ARP, the effect of the increase in the OCC on the ARP due to labour-shedding and productivity increasing new technologies. Given the tendential nature of the Law, the tendency interacts with the counter-tendencies and the result of this interaction is the specific form taken by each crisis.

Once one accepts that each crisis has a different origin, it becomes possible to argue that the latest crisis has been a financial and not a profitability crisis. In some cases, falling profitability in the productive sectors causes capital migration to the financial and speculative sectors where higher, but fictitious profits can be made. The financial bubble inflates and when it bursts it detonates the crisis in the productive sphere. But this is not an absolute rule. The 2007-2009 crisis has been preceded by rising profitability. In this case, the great jump in the ARP has been due to an almost equally great rise

in the rate of exploitation. Consequently, the wage share falls from 34.0% in 2000 to 30.4% in 2003, to 28.8% in 2006. Labour's purchasing power falls and capital is demotivated to invest in the productive sectors and moves to the unproductive ones. Thus the chain of causation is from a larger appropriation of value by capital, to an increase in profitability, to a fall in the absorption capacity by labour, to capital's demotivation to invest in productive sectors, to a movement to the financial and speculative sectors, to the creation and burst of the bubble.

Eleventh critique. *Crises are caused by an insufficient quantity of money and not by falling profitability.* Consider this table

Chart 7.



While the quantity of money (M1+M2) grows persistently from 1959 to 2010, the CE-ARP falls persistently and the ARP falls up to the mid-1980s and then rises. The quantity of money has no influence on long-term average profitability no matter how it is measured. I use the conventional definition of money, as M1+M2, to show that not only money proper (bills and coins) but also credit (which is not money) are impotent against the tendency towards the fall in profitability and thus crises.

Twelfth critique. *Crises are caused by the class struggle.* This is the profit squeeze theory. While the class struggle contributes to give a specific form to the cycle and can detonate the crisis, it cannot be the cause of crises. To explain how crises are endogenous to the system, one has to start from economic growth, when both the rate of profit and the new value rise, and see how economic growth turns into its opposite. But the inverse relation between wages and profits holds if the mass of new value is unchanged or falling. It does not necessarily hold if the new value rises, i.e. when the economy is recovering. If the new value produced rises, *both* wages, profits and thus the profit rate can rise. There is no inherent necessity for the ROP to fall, only a possibility. Then, there must be a factor that *necessarily* undermines the increase in the rate of growth of the new value created. This is the increase in the OCC due to labour shedding and productivity increasing techniques.

To sum up, it is better to stick to the original Law. It works and it works well.