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CRISIS AND THE POVERTY OF NATIONS: TWO MARKET PRODUCTS WHICH VALUE EXPLAINS BETTER

ARTICLE FOR HISTORICAL MATERIALISM

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ABSTRACT

This article demonstrates using empirical data, that the concept of value is required to understand three phenomena, produced by the market, which call its own existence into question.

- *crisis* – a sharp and well-defined interruption in growth, accompanied by a fall in money profits, a rise in unemployment, and a sudden fall in asset prices – every 7-12 years;
- *general crisis* – prolonged 20-40 year phases of relatively slow growth, accompanied by a declining average profit rate, permanent unemployment, economic turbulence and political instability (including war, racism, and rising barbarism) alternating with 15-30 year phases of stable rapid growth.
- *long term growth in inequality between nations*. The gap between rich and poor countries has grown for a hundred and fifty years almost without remission, accelerating sharply since 1981 at the onset of ‘globalisation’ – the re-construction of a unified world market.

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CRISIS AND THE POVERTY OF NATIONS: TWO MARKET PRODUCTS WHICH VALUE EXPLAINS BETTER

In Sarsi I seem to discern the firm belief that in philosophising one must support oneself on the opinion of some celebrated author, as if our minds ought to remain completely sterile and barren unless wedded to the reasoning of someone else...that is not how things are. Philosophy is written in this grand book, the universe, which stands continually open to our gaze.

– Galileo Galilei, cited in Stillman Drake, *Discoveries and Opinions of Galileo*

THREE FACTS WHICH NEED TO BE EXPLAINED

I want to show, using empirical data, that we need the concept of value to understand three phenomena, produced by the market, which call its own existence into question.

- *crisis* – a sharp and well-defined interruption in growth, accompanied by a fall in money profits, a rise in unemployment, and a sudden fall in asset prices – every 7-12 years;
- *general crisis* – prolonged 20-40 year phases of relatively slow growth, accompanied by a declining average profit rate, permanent unemployment, economic turbulence and political instability (including war, racism, and rising barbarism) alternating with 15-30 year phases of stable rapid growth.¹
- *long term growth in inequality between nations*. The gap between rich and poor countries has grown for a hundred and fifty years almost without remission, accelerating sharply since 1981 at the onset of ‘globalisation’ – the re-construction of a unified world market.

I chose these particular facts for several reasons.

Universal recognition: they are very widely accepted, in effect visible to anyone; they appear, in one way or another, in every theoretical framework. This is why I feel justified in asserting them as ‘facts’ – of which more later. The first two emerge clearly from the wealth of data supplied by Brenner, and for the longer run in the work of Duménil and Lévy (1994) and the copious material on Long Waves (Freeman, C. 1996) so I will not document them further. I will spend some time later substantiating the third claim.

Universal appearance: Cycles, generalised crisis, and national polarisation arrived when market relations became generalised at the beginning of the nineteenth century, and have been with us ever since. They have persisted under every permutation of culture, technology and politics so far seen. It is very difficult, therefore, to justify any theory which explains them as exceptional or unusual circumstances, rather than an internal consequence of the theory itself. The most obvious conclusion is that the capitalist market generates them; on simple empirical grounds at least, any theory that does not generate this conclusion should be treated as questionable, and any theory from which this conclusion is a straightforward deduction should be considered very carefully.

Universal impact. They affect every aspect of our lives and loves: our wellbeing, our enjoyment, our work, our environment. Even though humans created them, they confront us as objective circumstances, like facts of nature. Not least, although they are facts of our making, we did not ask for them; they are the concentrated visible manifestation of our alienation.

¹ I use ‘general crisis’ because this was the term used by the economists who first discussed it (see Day 1987). I avoided the term ‘long wave’ because this assumes that the alternation of expansion and contraction is an automatic process, which is precisely what was in dispute when Konradieff (cf Freeman, C. 1996, Trotsky 1923, Day 1987) first noted this alternation, and precisely what I want to re-examine now.

Universal political implications. We all run up against these facts, because of their impact on us. They force us all, sooner or later, to decide whether to suffer them, oppose them or end them; and so we must know why they happen. If they are a deviation from the market – more specifically, the capitalist market – they can be ended by perfecting this market. If they are an incidental by-product of this market, they can be opposed by modifying or regulating the market. But if they are intrinsic and insuperable consequences of it – if they are a necessary part of its being – then they can only be ended by abolishing it. This is the fundamental question of political economy and that is why I wrote this article.

This is the *factual basis* of the core theses of this article, which are that:

- General crisis is the direct consequence of accumulation. It is best explained by Marx's theory of the falling rate of profit, provided (as explained below) this is expressed in terms of value, specifically *temporal*, or *non-equilibrium, labour-time value*,² a theoretical category that Brenner does not employ and does not consider. General crisis is thus intrinsic or 'endogenous' to the capitalist market; it cannot be explained (or avoided) by particular historical circumstances such as a regulatory régime, a system of innovation, or special competitive behaviour.
- General crisis is not final breakdown. Capitalism can recover from it and has done so. But the recovery requires an external, political intervention – in the cases so far seen (the industrial revolution itself, 1848-1872, 1893-1914, and 1947-62), a complete re-organisation of the world's markets and territories through extended war and barbarity to provide privileged spheres of operation for rival great capitals. So-called 'globalisation' is not an automatic process but the outcome of a conscious political attempt to recreate these conditions for recovery. The Reagan-Thatcher restructuring of 1980 led to the dissolution of the USSR, the formation of the WTO, and the opening of world financial markets to US capital, opening a period whose closest historical analogy is 1893-1914, best described as 'classical imperialism'. Unlike the 1945 re-organisation, this liberal imperialist re-organisation is unstable because there is no sufficiently productive hegemon; the advance of each great power is bought at the expense of the others. It leads to competition between the great powers which grows without limit, and it is by no means guaranteed that it can unleash a new expansion. This competition is, however, not the cause of the crisis but an effect of it.
- The growing polarisation of nations is likewise intrinsic to the capitalist market and, unlike general crisis, continues without limit. This, too, is a product of the market. It cannot be explained by specific cultural or historical conditions such as late or insufficient integration into the capitalist market; to the contrary, it only ever slowed down when nations partially withdrew from the world market in capital, and has accelerated more rapidly than ever now that the market has reached its greatest ever extent.
- The partial restoration of US profitability is not the result of a fundamental revival of the productive dominance which the US enjoyed in 1945, and far less the onset of a 'New Paradigm' wave of expansion, as Greenspan maintains; it has been achieved by directly appropriating the surplus value of the third world, and of the USA's rivals, to finance US debt and compensate for its own competitive failure.

all thus seek to link, within a common theoretical framework, two great historical facts – the alternation of general crisis and expansion, and the ever-increasing poverty of nations. The

² Elsewhere this is referred to as the Temporal Single-System or TSS concept of value. I have used the term 'temporal labour-time' value to more clearly distinguish the distinct *measures* arising from the two distinct concepts of value; on the one hand, labour time and on the other, use-value.

lack of this linkage is, I think, the principal weakness in Brenner's contribution when considered, as I think it should be, as a work of historical analysis.

THE ROLE OF THEORY IN EXPLAINING THE FACTS

The service that Brenner, a historian, has rendered, is to confront economics with essentially historical facts – facts, moreover, which it cannot deny. On the basis of this, he interrogates its theory. I unreservedly welcome this approach and further, think that to respond principally by taking issue centrally with Brenner's theoretical analysis misses the point of a potentially productive engagement between political economy and historical analysis. If a theory cannot explain facts, then it is wrong. That is why, above, I set out my theses principally in the form of a different *historical* thesis, not a different economic thesis. It is on the ground of the interpretation of history that I take issue with Brenner.

However, the path to a clear debate on these historical questions is blocked by the theoretical instruments and categories that Brenner has employed, which do not allow us to express what is going on in the world economy and therefore obscure our understanding of it. This blockage, I will sustain, should not be laid at the feet of Brenner who has only used what contemporary economic theory has provided him with. Rather, what we should both explore is the inadequacy of these instruments themselves.

The principal problem is that, in my view, Brenner has omitted a theoretical explanation which, on his own grounds of logical coherence and explanatory power, is in fact superior. This is because he has not applied, in his analysis, the decisive *concept* on which this explanation rests, namely value – specifically, value measured in labour-time. For this precise reason, I think he has done Marxism, whose contribution he seeks to assess, an enormous disservice; he has confused Marx's own theory with an entirely different theory proposed by Marx's interpreters. As a historian, he should know better. The consequence is that we are not only deprived of the concepts that the historian needs to understand the world economy, we are misinformed of the range of theoretical positions offered to explain it. This is in the last analysis unscientific, since it deprives us of the right and the means to choose between the full range of theoretical explanations of the facts which Brenner provides.

In summary, I accept what I take to be Brenner's terrain of discussion, which is an organised confrontation between historical facts and economic theories. I will try to justify everything I say like Galileo, by confronting facts with the theory I propose.³ But in order to do so I need recourse to an alternative conceptual framework, which has been considered neither by Brenner nor by contemporary Marxists, but which is in fact – I will argue – Marx's own

³ The factual basis of political economy was clearly Marx's own starting point, and a decisive point on which he did openly take issue with Hegel. In a famous passage (Marx 1976:100) on the 'Method of Political Economy' he criticises the idea that one can analyze the 'population' without theoretical categories, without the classes, for example, of which it is composed. This is often mentioned as a critique of crude empiricism. Less widely acknowledged is that he then insists that this 'reconstruction of the population in thought' takes as presupposition the actual, concrete population which is the starting point of thinking *before* the categories used to analyze it: "The concrete is concrete because it is the concentration of many determinations, hence the unity of the diverse. It appears in the process of thinking, therefore, as a process of concentration, as a result, not as a point of departure, even though it is the point of departure in reality and also the point of departure for observation and conception...Hegel fell into the illusion of conceiving the real as the product of thought concentrating itself...whereas the method of rising from the abstract to the concrete is only the way in which thought appropriates the concrete..."

conceptual framework.⁴ I hope that in this way I can help clear the way to a new and genuine reconsideration of what Marxist political economy has to offer both history and economics.

My principal theoretical arguments will be:

- that value is a necessary category;
- that a specific temporal labour-time concept of value, which Brenner did not have at his disposal, is required to explain these facts;
- that this concept measures the actual socially necessary labour time in a commodity, whereas the value concept which Brenner employs measures not the labour time in a commodity but its physical size – in Marx’s terminology, its use-value.
- that the labour-time concept is inaccessible both to both neoclassical and marxist economic orthodoxy because of an ontological and conceptual structure imposed upon both bodies of thought by a paradigm they share, that of *equilibrium*.
- that Marx himself did not employ use-value and was a temporal, non-equilibrium theorist par excellence. His explanation of crisis is only understandable in terms of a temporal labour-time concept of value. Brenner – in common with most orthodox marxist economics – thus does not employ Marx’s own concepts to assess Marx’s own theory.
- hence Marx’s original insights remain to be investigated as a possible explanation of the observed facts, since the ‘Marxism’ which Brenner purports to examine is a construction of his interpreters conveying no more than their own ontological prejudices, which are alone responsible for the confusions which Brenner justly identifies in ‘Marxism’.
- that Marx’s own category of value, if interpreted as a non-equilibrium labour-time concept, furnishes a coherent and rigorous explanation of the empirically-observable facts which is superior to the alternative explanations considered by Brenner, and should therefore be preferred to them, by normal scientific criteria.

THE ROLE OF CONCEPTS IN THE CONSTRUCTION OF THEORY: EQUILIBRIUM AND THE POVERTY OF POLITICAL ECONOMY

A valid theory should explain the facts. But as Brenner notes, contemporary theory doesn’t. Since I don’t dispute this conclusion I will not offer further evidence of it: those who disagree can take issue directly with Brenner. My purpose here is to suggest that the failure of contemporary theory which he describes constitutes a fourth fact that also needs explaining: *why* can’t economics account for what is happening?⁵

My response is that economics has ceased to function as a science. It is governed by an assumption which converts it into a religious dogma whose God is market perfection: *equilibrium*. It sets out to study an economy in motion by supposing it to be static: that every seller finds a buyer, prices never change, and all profits are equal. Such a market cannot empirically exist; it is in the very nature of a market that supply does not equal demand, prices

⁴ For a detailed exposition of this approach see Freeman and Carchedi 1995 and the website of the International Working Group on Value Theory (www.greenwich.ac.uk/~fa03/iwgvvt)

⁵ I speak interchangeably of ‘economics’, the ‘mainstream’, and ‘the economists’. Dominant theories in every school share a common body of concepts and methods which I term the *equilibrium* or *simultaneist* paradigm. All these terms refer to this paradigm. Excepted are those (minority) schools, such as Post-Keynesianism and Evolutionary economics, which explicitly or implicitly eschew equilibrium reasoning. See Freeman (1998)

fluctuate incessantly, and profit rates ceaselessly move apart. This is how the market in fact works.

Of course economics, like any arcane undertaking, is many-splendoured and contains many variations, challenges to its central dogma, attempts to get around it, creative alternatives, and so on. The problem is, first of all, that these creative alternatives are always suppressed and wither, and second, that the mechanism of this suppressive process is not sufficiently understood, as a historical and sociological phenomenon in its own right.

It isn't my purpose here to document the dominance of the equilibrium dogma (see Freeman 1998) Rather, it is to suggest this dogma *constitutes* the explanation of the practical failures which he points to. To those economists⁶ who object that their own particular theory does not presuppose equilibrium, I reply that first, I am sure this puts them in a better position to explain the facts, which I urge them to exploit, and, second, we should make common cause against the equilibrium paradigm.

What is the problem with equilibrium in economics? I don't want to reduce it to the simplistic charge that because of equilibrium, economics refuses to discuss change. Of course it does. The problem is *how it conceives of this change*. The problem is not technical but ontological, paradigmatic, constitutive. The equilibrium paradigm is wrong – and irretrievably so – because *by definition* its presupposes the market works, in the same way that Ptolemaic astronomy by *definition* places the earth at the centre of the universe. It is not, therefore, simply a 'first approximation', a 'simplification' or an 'abstraction', a step along the road to a useful way of thinking; it is a complete dead end; its concepts are unusable. It plays the same role as the idea that the beasts of the earth express God's striving for perfection.

To illustrate this point, I can make a simple analogy: equilibrium economics would have to conceive of a waterfall as an imperfect lake – since water in equilibrium is flat. Waterfalls, however, are a phenomenon of *motion*, something that exists only in the absence of equilibrium. It is impossible to explain a waterfall as a peculiar form of lake, because in reality a lake is a particularly restful waterfall. Ontologically, we should begin from the most general presupposition – motion – and discuss stasis as a special case of it. But this is exactly what the equilibrium paradigm renounces. It starts from a particular presupposition – stasis – and conceives of motion as a deviation from it. It is therefore forced to expel reality from its theory and say, in effect, that a waterfall is curved because someone bent it. It cannot deduce the suspension of the market from its theory of the market; crisis and national inequality are invariably attributed to *exceptions* or *external* disturbances: mistaken government policy, monetary carelessness, monopoly, oil shocks, trade unions, historical peculiarities, national culture, psychology or – in 'left' variants – regulatory régime, technical change, capitalist behaviour, or class struggle.

This manifests itself in Brenner's own explanation of general crisis. A specific form of competition, he says, explains the declining profit rates of the late twentieth century. We don't need to go into economic theory to study this idea; we can consider it as a historical thesis. First of all, it is clear that if this explains the present period of declining profit rates, then the same explanation should also explain all previous periods. Otherwise we don't actually have a theory but a descriptive account. This descriptive account may even turn out to apply empirically to other periods: but it further requires that this particular form of competition should *not* operate during periods of expansion. Once we put it this way, we are immediately led to a third question: *why* should this particular kind of capitalist behaviour appear in one period, and not in another? We need the explanation behind the explanation. We need to explain why *capitalism itself* produces this alternation of different competitive behaviours.

⁶ Such as Post-Keynesians and particularly Kaleckians, evolutionary economists, many institutionalists, and so on.

What purports to be a theoretical explanation has turned out to be the gateway to the real question.

This is profoundly unsatisfactory. Fundamental facts should emerge as fundamental consequences of a body of theory, not as modifications or suspensions of it. A valid economic theory cannot exclude such concrete phenomena as money, government, technical change, competition or class struggle, but it must explain their role in the capitalist market as a *effect* of this market, not as an *external modification* of it.

Political economy requires categories which represent what the market does in terms of what the market creates. The purpose of this paper is to exhibit a non-equilibrium value concept which meets these requirements and explains the facts as we know them.

THREE CONCEPTS OF CRISIS

No firm science can be given of such things as weight, speed, and shape which are variable in infinitely many ways. Hence to deal with such matters scientifically, it is necessary to abstract from them. We must find and demonstrate conclusions abstracted from the impediments in order to make use of them in practice under those limitations that experience will teach us.

– Galileo Galilei, *Two New Sciences*

I began with three assertions I called facts. I consider a fact, as previously stated, to be something that presents itself to consciousness independent of theoretical framework. This is not such a simple idea as it might seem.⁷

Although facts exist independent of how we represent them, it nevertheless *matters* how we represent them, and this is why we need theory. Everyone can see the sun rise, but if we conceive of this by saying that the earth revolves, it explains what we see *better* than if we say the sun goes around the earth. The concept of planetary motion is scientifically superior.

What concept best equips us to represent the movement of the economy? The aggregate quantities of the economy – output, capital stock, profit, and so on – require a *measure*, a means of quantifying them. The measure we adopt depends, in turn, how we *conceive* of economic quantities. If we think that a capital *is*, in essence, the money that it is worth, then we should measure both capital and output as total money worth or sales respectively. If, on the other hand, we think that they are, in essence, the amount of use-value or quantity of material in them, then we will try to measure them differently, in terms of what the national accounts call ‘real output’.

These two concepts of economic quantity register very different things and causal effects. For example, if there is a general rise in prices with no change in production, then output conceived of as money sales will rise, but output conceived of as the production of use-values will not. Moreover every capital will increase in size (because it is worth more money) and the holders of capital assets will register a monetary profit. Consequently, the rate of profit

⁷ It does not, for example, mean that essence communicates itself directly to consciousness. It does not mean we perceive facts correctly: only that we do perceive them. I say the same fact appears in every framework, not that it appears the same in every framework; however my definition excludes relativism since one may assess which of several frameworks is better, which is what I mean by science. Finally, my definition furnishes a concept of objectivity appropriate to the social sciences, since it does not rely on a neo-Kantian separation of the universe into material things out there on the one hand, and consciousness of them on the other. It maintains the unity of subject and object, central to both Marx and Hegel’s ontology, but does not dissolve reality into mere ideas.

measured in money terms will be higher than the rate of profit measured in terms of so-called 'real output'.⁸

In most contemporary economics including Marxist economics, these are the only two measures considered. Brenner relies entirely upon them. There is, however, a third and quite distinct measure; if we conceive of output as *human or social effort*, then we should measure it as a quantity of human labour, exactly as Marx proposed. This concept of output registers things that differ from both use-value and monetary concepts of output. For example, if the productivity of labour increases due to technical change then output, conceived of as use-value, will rise, but output conceived of as labour-time will not, since the same amount of time is being worked as before. Moreover capital assets, measured in labour time, will decrease since the value contained in each quantum of use-value decreases. The holders of capital assets will therefore experience this as a *loss* of value, and in value terms their rate of profit will be smaller. Consequently, the *value rate of profit is smaller than the use-value rate of profit* under conditions of technical change, and this is the core of the reasoning behind Marx's law of the tendency of the rate of profit, *in value terms*, to fall.

Marxist economists experience great difficulty in distinguishing this concept from the second concept above, output conceived of as use-value. The reason for this difficulty, which we will elaborate below, is that when Marx's theory is itself interpreted as an equilibrium theory, the value rate of profit and the 'real' rate of profit appear to be identical and, indeed, 'value' simply reduces to physical quantity.⁹ Another way of expressing the same thing is to realise that the loss of value experienced by holders of capital assets is treated, by the equilibrium concept, not (as in normal capitalist accounting) as a deduction from current profits but as an unexplained disappearance of value, a costless loss. This is because, according to the equilibrium conception, each period is treated as an entirely self-contained entity with its own hermetically-sealed determinations, and no account is taken of the effect which changes in any given period have on the key variables of the next period. The losses suffered by the depreciation of capital from one period to the next are assumed to have no effects on the capitalists.

The rate of profit which we are expressing when we apply a non-equilibrium concept of value may thus be understood simply and directly as the capitalists do, as the rate of self-expansion of capital.

When, therefore, the assumption of equilibrium is removed, it emerges that these three rates of profit are substantively different as are the measures of all major economic quantities. It therefore *matters*, when we speak of the rate of profit, whether we refer to the money rate of profit, the so-called 'use-value' or material rate of profit, or the labour-time or non-equilibrium rate of profit. The question then arises as to what insights and explanations we

⁸ I enclose the term 'real output' in quotation marks because it is by no means a rigorous concept. Once we try to measure the amount of use-value in a bundle of more than one commodity, we run up against enormous difficulties because different use-values are not comparable. But in this article, since we are dealing with the *concept* of value used by orthodox theory, and since orthodox theory treats the idea of 'real output' as unproblematic, we will not go further into this difficulty.

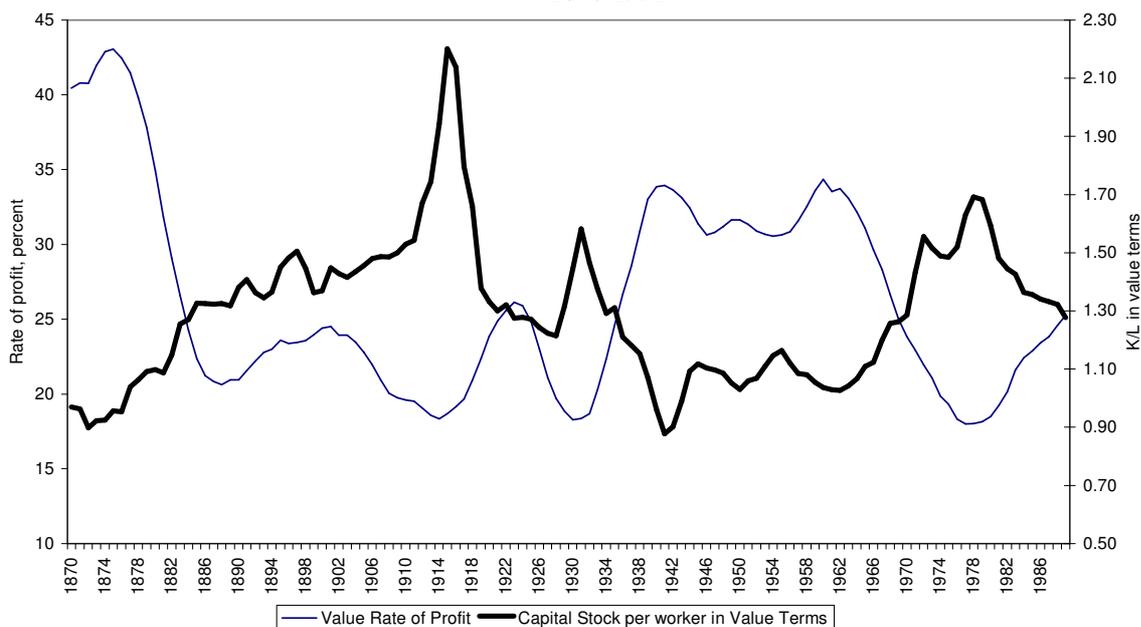
⁹ This conclusion is explicitly drawn by the surplus school (cf Steedman 1977, Pasinetti 1977) making them the butt of very sustained strong criticism from the Marxists. But as Steedman rightly points out, this school only drew out the conclusions that were already implicit in the standard interpretation of Marx. If Marx is interpreted as an equilibrium theorist, value is indeed identical to use-value; the two notions are simply conflated. What the surplus school has hitherto ignored, however, is that once the assumption of equilibrium is dropped, the two notions ceased to be identical, either numerically or conceptually.

can arrive at, if we both represent and conceive of the profit rate, and indeed all other economic magnitudes, in each of these different ways, and which way of representing such magnitudes has superior explanatory power in relation to the facts we seek to explain.

In Figure 1, the thin line shows the rate of profit and the thick line shows the stock of capital divided by labour employed (K/L , where $L=S+V$).¹⁰ Both are measured in socially necessary abstract labour time, by transforming raw data from Duménil and Lévy (1994), using a simple algorithm given in Freeman (1997). This isn't the standard concept: it is an alternative which the literature systematically ignores, of which Brenner was therefore unaware: the *Temporal Single-System*(TSS) or *non-equilibrium* interpretation of Marx's theory of value. I applied only one other transformation: I took a moving average of the profit rate over seven years to remove short-term fluctuations.

The economy directly displays the monetary rate of profit rather than the value rate. Figure 2 compares this raw money rate with the smoothed labour-time profit rate. As can be seen, the first fluctuates with or around the second, though it is higher for long periods: we will argue that this is due to the rise and fall of the value rate of inflation – the rate of growth of monetary expression of labour time or MELT, the ratio between the value of the stock of capital in society measured in hours, and in money.¹¹

Figure 1: United States rate of profit and capital stock in terms of labour time 1870-1992



Source Data: Dumenil and Levy (1994)

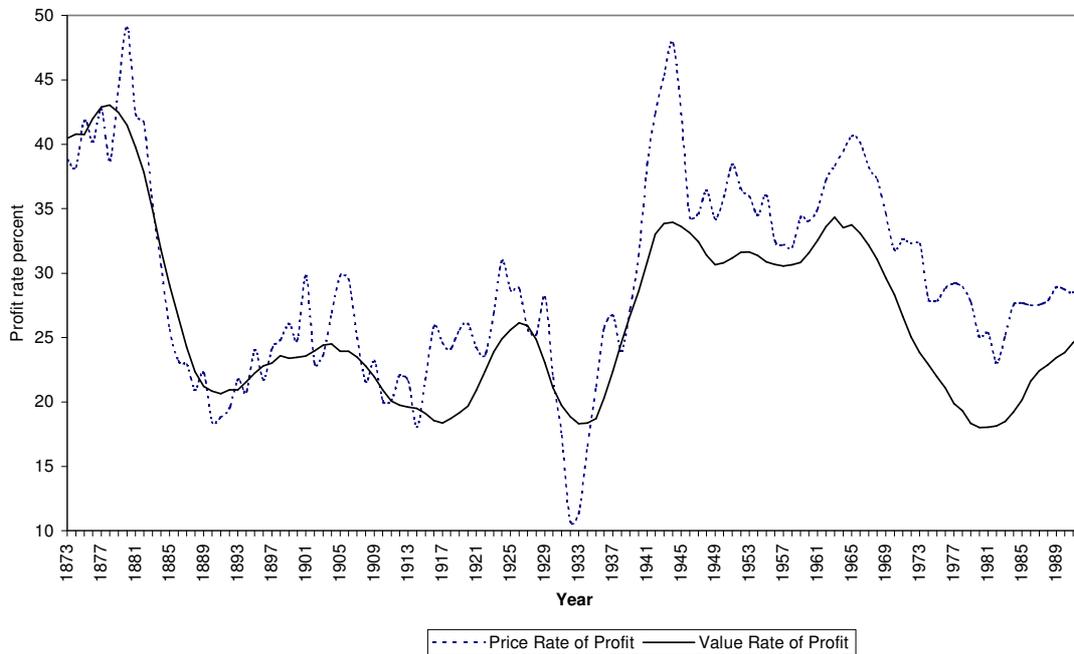
Any unprejudiced observer can verify the relation between these quantities. When the capital-labour ratio rises the rate of profit falls, and vice versa. Statistical analysis confirms that 80% of the variation in the value rate of profit is explained by changes in the capital-labour ratio.

¹⁰ I graphed the capital-labour ratio K/L rather than K/V , the organic composition of capital. This is to strictly differentiate strictly between effects of distribution (variations in S) and accumulation (variations in K). As Steindl (1952) points out, Marx's himself poses his sharpest arguments in terms of K/L .

¹¹ This term is due to Ramos (1995)

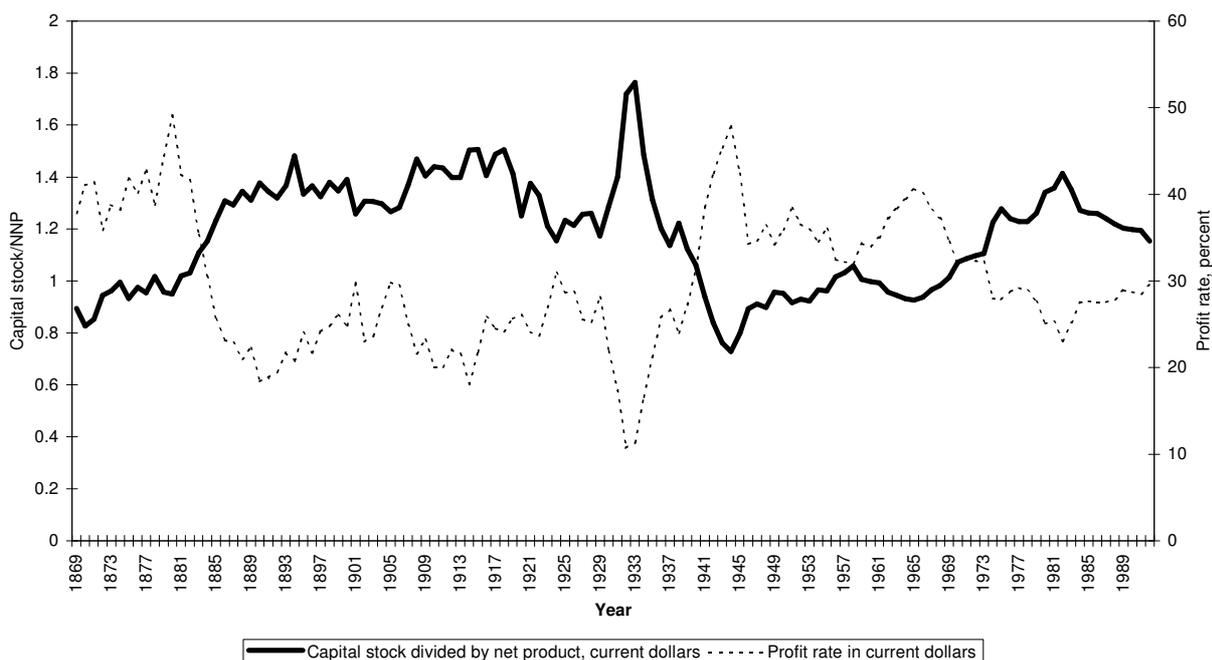
This strongly suggests that the profit rate falls as a consequence of the accumulation of value, and that technical advance cannot counteract this tendency. 1890-1914 marked a phenomenal technological revolution, but the profit rate did not recover until 1942-45, following a thirty-year rundown of the capital-labour ratio to one-third of its 1914 size.

Figure 2: Money and labour-time profit rates compared



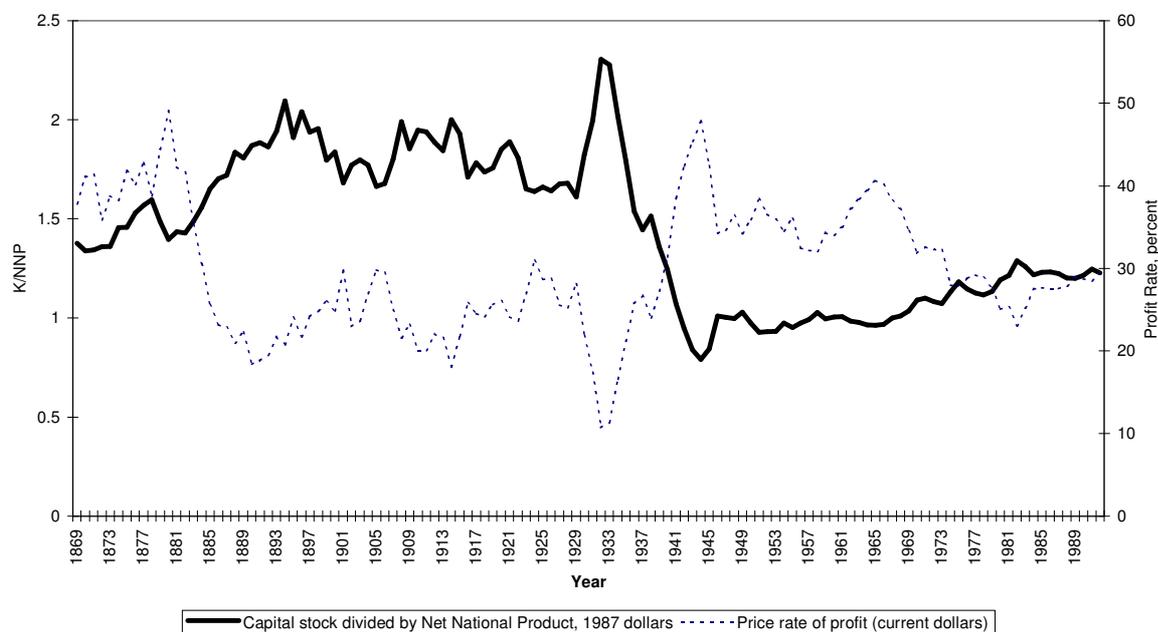
The capital stock graph also picks out critical turning points. The peak of 1914 signals the exhaustion of the third industrial revolution and the wave of classical imperialist expansion of the 1890s. The long irregular decline to 1939 accompanies the prolonged interwar general crisis and the 1933 peak marks the great depression. The long boom of 1945-1962, the onset of a phase of profitability crisis in 1962, and the sharp turning point of 1980 all stand out.

Figure 3: Capital stock and profit rate in money terms



Finally the graph displays a vital feature: there are two distinct types of expansionary phase. The recovery of 1890 did not re-establish the profit rate but that of 1945 did indeed do so. We can relate this to facts about the relations between nations: 1914 opened a prolonged period of extreme and violent political crisis. A key question about any possible upturn is to establish whether it is stable like 1945-1962 or unstable like 1890-1914.

Figure 4: Capital stock and profit rate in use-value terms



Now consider figure 3, which presents the same facts directly in money. Here we simply report money profits, and for the organic composition we divide gross capital stock in current dollars by net product in current dollars.

The same empirical relation is still evident. The profit rate goes down when stock goes up, and vice versa. The literature on the 'law of the tendency of the rate of profit to fall' ignores this obvious fact and asserts instead that its logic refutes the theory, though this conflict would have led any genuine science to question the logic before burying the theory.

But though the same qualitative conclusions emerge, figures 1 and 3 are not quantitatively the same. The value profit rate is different from the price rate and the value of capital stock is different from the price of the capital stock. Moreover the graph of capital stock in price terms does not pick out defining historical moments and periods as clearly.

Now consider figure 4 which represents the money profit rate beside capital stock using the usual value concept found in the literature: physical quantity of goods or 'real output'.¹² This is the measure applied by Brenner. Both marxists and non-marxists identify this with value though it corresponds most closely to 'use-value', which Marx sharply contrasts with value and could not have even considered as a measure of output, since it involves aggregating disparate goods. My data, from Duménil and Lévy, measures this in constant 1987 US dollars.

¹² Strictly, we should present, beside the use-value of capital stock, the *temporal use-value* profit rate, for proper comparison. The use-value rate of profit as calculated in the equilibrium paradigm fails to correct current profits for the losses or gains in capital stock arising from price changes and it therefore appears as if the use-value profit rate is just a variant of the money profit rate. We did not have the technical means to make the correction and so the presentation is incomplete in this respect.

To derive the concept equivalent to K/L I divided capital stock in 1987 dollars by the net national product also in 1987 dollars.

The empirical relation is still present, but now to an even smaller degree. The alternation of periods of general crisis and expansion is no longer evident and the distinction between stable and unstable expansionary phases is completely absent. Over the period studied by Brenner, this profit rate corresponds quite poorly with the capital-output ratio. Use-value understates stock in periods of growth, and overstates it in periods of contraction; it hence fails to register, for example, the run-up in capital values that preceded the crisis of 1919 and the crisis of 1980. During two decisive crises in profitability, 1905-1914 and 1965-1980, the capital-labour ratio in value terms rises steeply and independent of the capital-output ratio in use-value terms which, I conclude, has inferior explanatory power.

WHY VALUE? THE CONCEPTUAL FOUNDATIONS OF ECONOMIC SCIENCE

It would indeed be news to me if book-keeping in abstract numbers did not correspond to concrete coins of gold and silver or to merchandise. Just as an accountant who wants his calculations to deal with sugar, silk and wool must discount boxes, bales and packings, so the philosopher-geometer, when he wants to recognise in the concrete those effects which he has proved in the abstract, must deduct the material hindrances; and if he is able to do that, I assure you that material things are in no less agreement than arithmetical computations. The errors, then, reside not in abstractness or concreteness, but in a bookkeeper who does not understand how to balance his books.

Galileo Galilei, *Dialogue on the Two Chief World Systems*, pp207-8

So far we have only really presented numerical coincidences. This does not make a theory. This is what I want to begin to do.

What law links accumulation and profit? How can we offer an explanation of falling profits that logically connects it to what happens when the economy is growing? Actually, this logical connection is studied by a number of economists (Harrod (1937), Steindl (1952:262), Kalecki – cf Toporowski (1999)) other than Marx; Marx was however the first to exhibit it, and the only economist to exhibit it in value terms. The point is a quite straightforward one; when capital accumulates, capital stock grows. If output grows more slowly, then the rate of profit falls unless profit forms a growing share of output, and even in the latter case, there is an ever-falling ceiling on the rate of profit given by the ratio of output to capital stock.

To illustrate this suppose we have an initial capital of \$1000 and suppose that the constant labour force adds \$300 each year. Suppose \$200 of this is profit, and of this profit, \$100 is invested. Thus, \$100 is spent by the capitalists in each current period, as revenue. Table 1 shows what happens each year:

Capital	Output	Wages	Profit	Capitalist Revenue	Investment	Profit Rate
1000	300	100	200	100	100	100/1000 = 10%
1100	300	100	200	100	100	100/1100 = 9%
1200	300	100	200	100	100	100/1200 = 8%

Table 1: the law of accumulation

Normally, investment is positive. But when capital stock is reducing, it becomes negative – disaccumulation. For example if in period 4 the capitalist consumes \$400 of accumulated wealth, the accounts for periods 4 and 5 will read:

Capital	Output	Wages	Profit	Capitalist Revenue	Investment
1200	300	100	200	600	-400
800					

Table 2: disaccumulation

Disaccumulation means the capitalists actually spend their wealth in the current period, which Marx describes as the conversion of capital into revenue or the release of capital.¹³ In period 4 above, the capitalist spends \$600, being \$200 in current profit plus \$400 withdrawn – disaccumulated – from the business.

This exceptional circumstance takes place only in crisis. Capital that ceases to expand is destroying itself, not least because it destroys the source of demand for investment goods, provoking a slump. In this precise sense the fall in the profit rate is endogenous to capitalism: it can be ameliorated or stopped only by suspending capitalist accumulation itself. There are two ways this can happen: one is to end the market in capital and remove investment from the sphere of capital altogether. Otherwise the fall ends destructively as investment is hit by falling profitability: this is the source of crisis.

It is important to understand how this is conceptualised differently when we employ a temporal, or an equilibrium concept. Suppose first of all that the material process is such that all the advanced capital is circulating, that is, that the capitalists replace the whole of their capital every year. Now suppose that as a result of a rapid rise in productivity, the material of production can be replaced for \$800. In that case, even though production can carry on materially exactly as before, the capital invested now amounts only to \$800. This *constitutes* disinvestment, and this is exactly how Marx theorises it; \$400 units of the advanced capital are not ploughed back into the business and are at the disposal of the capitalist for frivolous, military or other unproductive use.

Conversely, if we pay no attention to the origin of the extra \$400 in revenue, then we will *report* it as a profit; we will treat the whole \$600 in revenue above as if it were profit. We will greatly overreport profits by treating what is in fact a value transfer between capital and revenue, as if it were profits.¹⁴

¹³ See Maldonado-Filho (1998,1999)

¹⁴ Matters are no different in principle when fixed capital is involved, since the only difference between fixed and circulating capital is that it is replaced over a longer time period. If, therefore, we suppose that the capitalists replace their capital entirely at the end of this longer time period, and that in the meantime it has become cheaper, then exactly the same reasoning applies. The only more complicated question concerns the proper treatment of profits in the intermediate years, when the owners of fixed assets experience their fall in value as a *loss* in terms of current profits, a fall in asset values that is not directly caused by being used up, which Marx terms *moral depreciation*. This loss would be entirely recouped if, when the capital is replaced, the capitalists had only to pay its reduced value. However this is not what happens; new goods enter the market at a social, or average value that is higher than their individual value or cost of production. This social value is raised by the existence of fixed capital; new computers, for example, can be sold far above their cost of production because they enter into comparison, on the market, with the older and more expensive computers that they replace. In consequence, value is transferred from the purchasers of the new equipment to its producers. The higher the rate of technical innovation and the greater the size of fixed capital in comparison with existing production, the greater is this transfer. I

This is exactly what the equilibrium approach does. It ignores the transition from one period to the next, pays no attention to extra money released for the capitalists to spend, and calculates profits *as if* the economy was already stabilised at the new prices. In so doing, it simply fails to balance the books; it simply forgets where the released \$400 came from and treats it as if it were profit. It turns out that this ‘forgetting’ amounts to calculating profits *as if they were equal to the quantity of goods sold, not the labour time in them*. By treating value as if depreciation had no impact on current profits, the approach effectively treats value as constant, that is, a constant multiple of use-value.

We can understand the same point in a different way. Suppose that goods are actually sold for an amount of money that maintains their prices constant in use-value terms even though the volume of output is increasing due to technical change; so that, in other words, although their value is declining, their price remains constant or, which is the same thing, the price is inflating relative to the labour time in them, at a rate governed by the increase in labour productivity. In that case the money rate of profit will simply be equal to the use-value rate.

In this case, two phenomena will act to raise this (fictitious) money rate of profit above the value rate. First, fixed assets will not decline in money terms, because their money price will increase fast enough to outweigh their fall in value. Losses due to moral depreciation will be ignored. And second, year-on-year current profits will be higher because each year, more goods are being produced and so the price realised by selling this total output will increase with technical change.

As explained above, the resultant rate of profit is exactly the same as the rate of profit which we get, if we employ the equilibrium assumption. This is because, by judicious choice of prices, we have completely eliminated the impact of falling values on commodity prices. The equilibrium profit rate is thus the *same* as the material rate – which is, in any case, a well-known result in the literature.¹⁵

Marx himself adopted a very different assumption; he supposed that the value of money remained constant, which is to say that \$1 always represents the same amount of labour-hours and, in consequence, steadily-rising amounts of use-value as technical change proceeds. This assumption corresponds to the table that we have given above.

In such terms, it is intuitively clear that output will in general grow more slowly than capital stock, and that only a suspension of accumulation can overcome this. Output cannot, in general, grow faster than the number of hours worked, and this is relatively constant or grows only as fast as the population. But capital stock grows as fast as the capitalists can invest, and will continue to rise unless they stop investing.

- This is *why* accumulation leads to a falling profit rate. The ‘law of the tendency of the rate of profit to fall’ is only an expression of accumulation.

However, there is no logical basis for the same law if we conceptualise value as money profits. If prices are rising fast enough, then output can simply expand to match the rise in capital already advanced. But neither is there any logical basis for the law if we conceptualise value as use-value, which is the source of Brenner’s frustration with orthodox theory. Technical change *ought* to bring about a continuous rise in the profit rate, if conceived of as the use-value rate.

What is the empirical significance of this discussion? Of course, the actual observed profit rate is the money rate. This is neither equal to the fictitious use-value rate nor the value rate.

suggest this is a major factor in accelerating the inequality between technologically advanced and technologically deprived countries.

¹⁵ See eg Steedman (1977), Pasinetti (1977)

The question is then; what governs the money rate? Is it the fictitious use-value rate, or is it the value rate?

However, what we find, as Brenner exhaustively documents and as Duménil and Lévy's own figures amply demonstrate, is that the *actual observed* money rate does indeed fall, and moreover falls most systematically during precisely the periods of rapid technical change which, according to orthodox theory, should bring about rapid rises in profits. We then have the following choices for theory:

One path is to draw up an ever-increasing list of *exceptional conditions* which drive down the observed rate of profit even though we have a theory that predicts it should rise: real wages rising faster than productivity, monopoly, aberrant capitalist behaviour, competition, or what have you. The theories that Brenner justly criticises all follow this path, and that is what makes them so frustratingly counter-intuitive. Unfortunately, his own alternative falls into the same category.

An entirely different path is to cut the Gordian knot and re-state this whole mess in a different way by recognising that the technical conditions of production simply *do not* govern the money rate of profit, just as Galileo was obliged to suppose that the earth simply *is not* the centre of the universe, Priestley that burning simply *does not* produce the mythical Phlogiston, or Darwin the the beasts and flowers simply *were not* created by the almighty. One then considers the alternative, perfectly scientific hypothesis, that the money rate is actually more closely governed by something else, the value rate, which does indeed fall with viable technical change.

That is the path I suggest we explore further.

A pure law of value: accounting separately for value, technical change and money

Does the above chain of reasoning mean that we can ignore, or discount, the impact of technical change or monetary factors? Absolutely not. It does however demonstrate that empirically, there appears to be some mechanism (to be investigated) whereby the law of value in some sense dominates or overrides the impact of these other factors. If matters were otherwise, then at some point in history, capital would surely have discovered some way to escape the effects of accumulation by adroit manipulation of technical or monetary factors. We can't ever rule out that it might to so but we must pay careful attention to the fact that so far, it has not.

The question then arises: does this dominant or governing law of value *interact with* monetary and technical factors and if so how? In my view this is the way to put such factors in their correct relation to value. An analogy might be the concept of energy in physics. One consequence of the conservation of energy is, to take a very simple example which intrigued our hero Galileo, the time which it takes a pendulum to swing is independent of everything except the length of the pendulum. We can't override the time-period of the pendulum by fiddling, for example, with the material of the string or the weight at the end of it. At the end of the day, this is because the movement of the pendulum is governed by the conservation of energy; this universal law dominates over all particulars.

But this does not mean that the size of the pendulum's weight is irrelevant once we start to consider how it *interacts* with other factors. For example if we put the pendulum near a magnet, then it matters if the weight is made of iron or copper. The problem of analysis is not, then, to separate out a pure law and suppose that it determines everything. It is to separate out the various factors that determine motion *in order to see how they interact*.

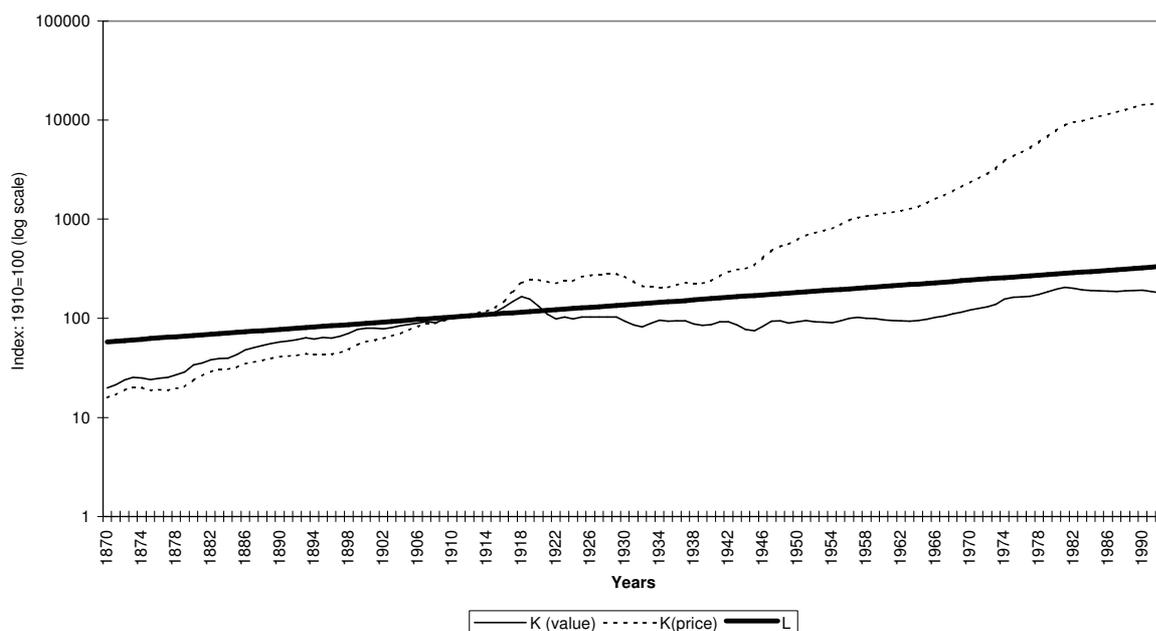
In my view, conceptualising value as either money or as use-value denies us this separation, and therefore prevents us from analysing the interaction between three quite distinct factors at work in the economy:

- (1) the law of accumulation, which is fundamentally a law endogenous to the movement of capital and is expressible in terms of labour value alone;
- (2) the effects of technical change
- (3) the effects of the monetary and credit system

This also can be illustrated empirically. Consider the *monetary* expression of value. How is this made up? If we measure output in money terms, then we amalgamate two distinct effects and give them the same name. On the one hand, capital assets increase when people work and make new value. On the other, they rise when the goods they make rise in price. If we treat money as the true measure of value, we will amalgamate these two causes of change and call them one.

Figure 7 illustrates this by plotting capital in terms of money and labour time on the same axis as a trend line showing the growth of the working population. Until 1910 the two measures march more or less in step.¹⁶ Subsequently, the value of money systematically rises so that by 1992, capital stock in money terms had risen by 81 times more than in labour time.

Figure 7: growth of capital stock in terms of money and labour time



This latter expansion is a monetary effect, in the sphere of circulation. This is very important but cannot be confused with growth arising from productive effort. Precisely because inflation is so important, we have to separate it from production, just as air resistance must be distinguished from gravity to explain how objects move through space. This separation is accomplished by a value measure unaffected by circulation, strictly governed by the labour time added in any period and modified by nothing else. Monetary effects are then recorded in the difference between the two measures.

¹⁶ In Volumes II and III of *Capital*, Marx explicitly states that he assumes a constant value of money. This is valid on theoretical grounds for the level of abstraction reached in these works. It is worth noting, however, that for the historical period he covered this assumption seems to be empirically justified.

Exactly the same consideration applies to the idea that use-value, or physical size, can serve as a measure of output. At first sight, use-value appears as the ideal measure of both capital stock and output. What could be more reasonable than to treat the outcome of production as the number of things it has produced?

However the concept in fact amalgamates intrinsic market phenomena with phenomena that arise outside it. It counts anything which leads to the creation of more use-values as part of production, whether or not humans are directly involved and whether or not the results are exchanged on the market. But almost everything in nature leads to new use-values. Moreover the machines we produce take their place beside natural objects as an objective and unalterable part of our general environment. The use-value concept in its early form appeared as the physiocratic notion that the unaided activity of nature is the prime source of traded products. In its modern guise it leads to a concept we might call robocracy, that everything machines do is also a part of production, even if no humans are involved at all. It promotes *things* to a factor of production. In a certain sense, it defines production as ‘everything that gets bigger’ which voids it of all content.

Why does this matter? Since, for example, nature clearly helps us produce, why not recognise it as a factor of production? Since better machines make more products, why not recognise this advantage? My answer is that both nature and machines must be recognised, but we have to distinguish sharply between their non-market effects and their market effects. Machines and nature when organised by the market exhibit a completely distinct behaviour and their operation must therefore be separated into two distinct components, that which arises from the conscious application of waged labour, and that which takes place independent of this labour.

The explanation for the *existence* of crisis lies with the accumulation of value as such. This in no way denies the enormous importance of technical advance, whose interaction with accumulation almost certainly accounts for the dynamics of long-run change – its timing, extent, and social impact. But it is not the same as accumulation itself, which has independent laws which, the empirical facts show, are not transcended by technical advances. The entire problem with use-value as a measure of output is that it does not permit this distinction; it does not tell us, when ‘output’ grows, whether the economy was using more human labour or whether it was applying it to better machines. It does not constitute an information gain to mix up two distinct sources of variation in a single measure; it constitutes an information loss.

This is not altered because the two things interact; indeed we can only speak of an interaction between separate things. When I produce an article my head interacts with my arm but if I can’t tell my head from my elbow, I will have as much trouble writing as I will thinking.

Three distinct aspects of the commodity – its value, its price, and its use-value – must all be taken into account in a complete account of economic activity. Each must be studied separately in order that their combined effect may be evaluated. The function of the category of value is that it *partitions* all changes in the monetary value of output into three distinct components: the application of labour, the improvement of machinery, and the impact of circulation.

All theories which claim to prove accumulation does not diminish the value profit rate, do so by defining value so that it no longer measures accumulation in its pure form, as a growth in abstract production by wage-labour and nothing else. They mix up the deployment of the labour force, technical change, and monetary fluctuations under the illusion that, because this incorporates many concrete phenomena, it somehow represents them more generally.

This is to misconceive the purpose of abstraction: all truly great scientific abstractions are both universal and simple. They are simple not because they explain so little but because they explain so much. Generality does not arise because an abstraction represents everything that could possibly happen but because it remains valid no matter what happens. To take another example that exercised Galileo: all objects fall at the same speed. This doesn’t make it

irrelevant whether an apple or a cannonball falls on me: it does mean they will take the same time to reach me.

The concept of value provides us, therefore, with the following extremely important tool: it allows us to express certain laws, which empirically we can see are dominant, in a form independent of monetary and technical changes which therefore cannot be overridden or contradicted by them. It allows us to understand *why*, in a nutshell, value might dominate in certain crucial respects over technical and monetary factors.

The property of the value concept that permits it to make this separation is the following: it is the only concept which clearly and absolutely distinguishes the sphere of circulation from the sphere of production. In value terms, *only* conscious human social activity – that is, labour – can modify the resources available for conscious human social activity. It is therefore perfectly natural, and not at all unreasonable, to quantify this activity in its own terms, in terms of the human time taken, without anything extraneous. With this done we find that in each period, the value created is given by the amount of labour expended, and this is so quite regardless of the money that represents this labour time or the amount of goods that it produces. This, unlike the standard interpretation of Marx, reproduces one of Marx's most central ideas – that value arises in production precisely because it cannot be modified in circulation. It yields a completely clear distinction between production, in which value is created, and circulation, in which it is redistributed. This is one of the principal theoretical reasons why value needs to be measured in labour time – it is the only value concept which realises quantitatively the notion that production is a specifically human social activity.

But this clear distinction has further theoretical consequence. It allows us, using the same conceptual framework, to account for the the second endogenous product of the market: the poverty of nations.

CONCEIVING THE POVERTY OF NATIONS

Aristotle says that a hundred-pound ball falling from a height of a hundred cubits hits the ground before a one-pound ball has fallen one cubit. I say they arrive at the same time. You find, on making the test, that the larger ball beats the smaller one by two inches. Now, behind those two inches you want to hide Aristotle's ninety-nine and, speaking only of my tiny error, remain silent about his enormous mistake

Galileo Galilei, *Two New Sciences* p68

The left once widely believed that the fall in the rate of profit was irreversible and would lead, in some way, to the final breakdown of the capitalist system. I think the experience of the 1930s has settled this question. Capitalism did survive its most shattering and protracted crisis and it would be imprudent to suppose it cannot do so again.

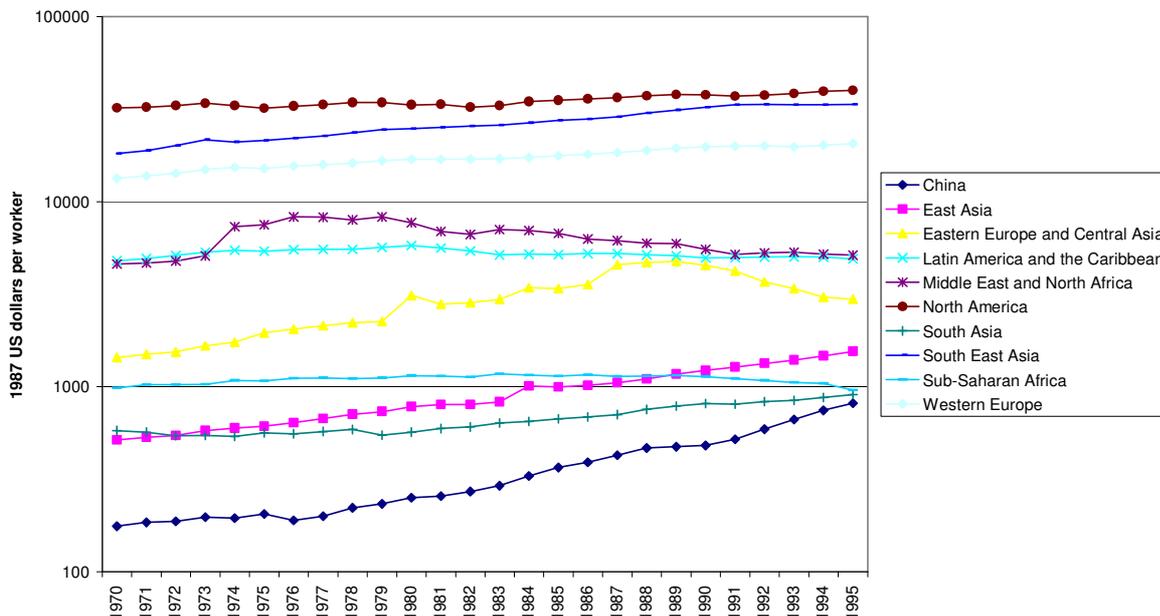
What is significant is the way this was accomplished. It took two devastating wars and Europe-wide fascism, and provoked revolutionary convulsions embracing a third of the world's people. In short it was not achieved by the market but through a cataclysmic suspension of the market, which reversed the law of accumulation and launched a new phase of expansion under a new hegemon.

The same cannot be said for the differentiation of nations. The evidence, which is now considerable, suggests that the global market has given rise to a prolonged and irreversible divergence between the nations of the world, organising them in two fundamental groups:

- a small group containing around one fourth of the world's population and comprising essentially those nations that have been rich since the start of this century, plus a tiny number of additions, mainly peripheral to the existing centres;
- a much larger group containing three-fourths of the world population. Although this is made up of two groups, middle and low income nations, it shouldn't be forgotten what

‘middle’ means in this context – a living standard between a fifth and a tenth of the advanced country average.

Figure 5: Use-Value output per worker



This secular change in market relations, unlike the decline in the profit rate, has *never* been substantively reversed. It has not even been interrupted except when nations have protected or isolated themselves from the impact of the world market in capital.¹⁷ Those nations that have risen from rich to poor status since 1870 are a tiny group containing an even tinier part of the world’s people. An authoritative article by Pritchett (1997:9) sums up the results as follows:

If you accept (a) the current estimates of relative incomes across nations; (b) the estimates of the historical growth rates of the now-rich nations, and (c) that even in the poorest countries incomes were not below P\$250 at any point – then you cannot escape the conclusion that the last 150 years have seen divergence, big time...The magnitude of the change in the absolute gaps in per capita incomes between rich and poor is staggering. From 1870 to 1990, the average absolute gap in incomes of all countries from the leader had grown by an order of magnitude from \$1,286 to \$12,662.

Pritchett gives the ratio of the GDP of the richest to the poorest country as 8.7 in 1870, and 45.2 in 1990. He gives the ratio of the ‘advanced capitalist’ to all other countries as 2.4 in 1870, and 4.5 in 1990. The acceleration of this differentiation since 1980, when the US opened its world trade offensive, is so marked that it is now widely recognised by all major world agencies, to the extent that George Soros, and now Ted Turner of CNN, comment on it in alarmist terms. According to Maddison (1995), Brazil grew by 4.13% per year between 1960 and 1979, and *declined* by 0.54 percent between 1980 and 1994.

The great difficulties which economic theory has with these facts arise because it is literally inconceivable, in use-value terms, that one country might get poorer because another gets

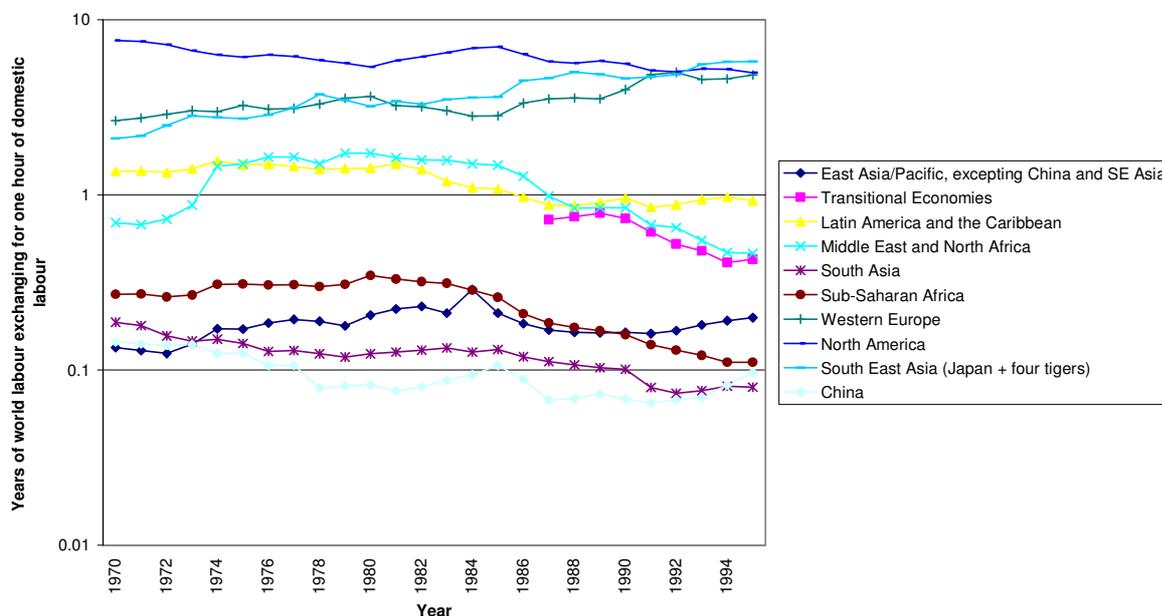
¹⁷ I distinguish categorically between isolation from the world market – that is, the products of capital – and protection from the world market in capital itself, that is, the capitalist mechanism for allocating investment resources. The decisive strategic question for any nation facing the destructive power of the world market is how to prevent its investment decisions being subjected to the requirement of realising a competitive money profit in an open world market. The decisive tactical question is preserving access to the world’s products while so doing.

richer. This is demonstrated in figure 5, which compares the output of the major regions of the world in use-value terms.

This representation makes it appear as if almost everyone is gaining, but some more than others. Since output may always be increased by technology, which is apparently limitless in its potential, there is no obvious reason that all should not exploit it. The problematic of ‘development’ economics is not competition but backwardness, a failure to avail oneself of allegedly limitless resources. Indeed, if output is nothing more than a physical product there is no intrinsic reason for losses; everyone should benefit, but some more than others. If only, it seems, the poor countries could emulate the rich ones, the problem would go away. The market, it seems, places no intrinsic limit on human potential. This intuitive notion is enshrined in the theory of Comparative Advantage which, despite its well-known empirical shortcomings, still underlies the doctrine of free trade which underpins current world policy.

Yet there is a limit to human potential, namely human activity. The maximum the world can produce in any year is fixed, given the technology actually in place, by the labour it employs.

Figure 6: Unequal value for equal work



Let us therefore study the same fact in a different way. We can express the product of all countries regardless of productivity by treating all labour as equal, forming world values,¹⁸ or years of total world labour. This lets us treat the distribution of this product as a competitive struggle for a magnitude fixed each year, independent of technology; as a phenomenon of circulation. We find that, for example in 1995 Europe consumed the results of 854 million years of work in the world economy, whilst all the developing countries except China consumed the results of 366 million years of work, about four-tenths of what the Europeans consumed. Nevertheless the total working population of Europe was 175 million, whilst that of the developing world was 1,349 million, 7.7 times as great.

These are real years measured with real clocks, and worked by real people. Each is a sixtieth of the short life of some human somewhere. By working nearly eight times less than their

¹⁸ The calculation is less accurate than in the first section, since capital stock data is not available for all groups. Hence it uses an approximation based on the ratio of GDP to labour-force. However, it clearly demonstrates the explanatory power of the value concept.

developed country counterparts, European workers either produced, or brought into their countries, the fruits of more than twice as much labour.

It is still more striking to ask how many years of local labour are required, in each region, to acquire one year of world labour, a number I call the 'labour-appropriation ratio'. This is shown in figure 6, which clearly conveys a series of phenomena that do not show up in the use-value presentation. First, the competitive struggle between nations – including that between advanced regions themselves since 1980, a key point in Brenner's analysis – emerges clearly. When one goes up, the others go down, and vice versa.

Second, the graph shows that 1980 was a turning point in the structure of the world economy. The protracted downturn of the Middle East, of Latin America, of South Asia and of Sub-Saharan Africa all date from this point; although the data for the transitional economies is available only from 1989, their collapse was in large degree the culmination of the US policy offensive launched in 1980.

The graph also conveys very clear information about the structure of the world economy. Three groups of industrialised or industrialising countries have converged at a labour-appropriation ratio of 8, namely Western Europe, North America and South East Asia (Japan and the four tigers). Among these North America shows a clear relative decline. Though the graph does not show it because the figures are disaggregated, the industrial countries as a whole show a rising trend.

A second group bumps along the bottom at a labour-appropriation ratio between 0.2 and 0.1 and is also differentiating: China and East Asia/Pacific (a group which excludes China and the South East Asian economies) are rising although China's rise is quite recent and has not restored its 1970 position (of this more later when we assess its use-value performance). South Asia – a region with nearly a quarter of the world population – and Sub-Saharan Africa have suffered what Pritchett (1997) calls 'an implosive decline'.

A further three 'middle' groups track each other at around or under a labour appropriation ratio between 0.5 and 1. Moreover only Latin America has staged anything recognizable as recovery: Middle East/North Africa and the transitional economies are in effect converging not with the advanced countries, but with the poorest.

Finally, the sheer scale of the difference is quite staggering. In the extreme case of South Asia, one hour of US labour was by 1995 exchanging for 80 hours of Indian labour on the world market, double what it was in 1980. This region contains some of the most ancient civilisations of the world – as indeed do most of the third world. It gave the world numbers, algebra, and some of its greatest mathematicians. It bequeathed material, aesthetic, and spiritual riches which nourished most of the apparatus of the British Empire for three centuries. The idea that its present economic subjugation is a consequence of productive, cultural or psychological backwardness is a mockery of science and an abomination of the spirit. This status is something Asia was neither born with nor achieved; it was thrust upon it. No other explanation makes sense.

EXPLAINING THE POVERTY OF NATIONS

There are fundamentally two ways to interpret inequality. We may suppose that its basic explanation lies in the market itself; or we may suppose that it resides in something external such as historical backwardness or national culture.

The second, spontaneously racist conception, is what actually lies behind a lot of very sophisticated economics.

It gives difficulty with the data. Are we to suppose that three-quarters of the world's population, suddenly became technically paralyzed at the very moment that, by a strange

coincidence, they entered the world market? Or that some terrible mental affliction seized the Indian people in 1980 and doubled the time they needed to work from forty to eighty hours to acquire one hour's worth of US goods?

It simply makes more sense to suppose that what caused the inequality was not the state of the people at the time when they entered the market, but the effect that the market itself had upon them.

Moreover Brenner himself focusses on the decisive point: namely, there is actually enough to go around. World production per head of population now stands at around \$3000 in 1987 US dollars. This could provide, if not handsomely, for every person on this planet: it could house, clothe, feed and educate them, protect them from major diseases, maintain them in dignified old age, and provide for all those disadvantaged by difference. Also output per head continues to grow; the equivalent figure in 1970 was \$2000. The Malthusian argument is, so far, false.¹⁹

But this very fact shows we cannot explain national differentiation on the basis of technical change alone, and why the use-value presentation of the facts is therefore insufficient. Since the amount of use-value in the world is increasing a lot faster than the population, why isn't the population getting it?

The market clearly, in some sense, *dominates* over technical innovation. This is what has to be explained; not the effects of technical change as such, which *ceteris paribus* we would expect to raise all living standards, if some more than others, but why this wealth does not reach its direct producers.

We can see this more clearly if we begin by studying, quite closely, the period that opened in 1980. This unleashed a marked acceleration in differentiation, and coincided *both* with a major extension of the world market *and* with the recovery in the US rate of profit recorded in figure 1. It was initiated by a fundamental shift in US policy that opened the new phase of 'globalisation' discussed in the final section of this paper. At the heart of this shift lies a general transformation of the political governance of world trade which opened third and emerging world markets to advanced country products, services, and capital.

1980 finished the only period in which any inroads at all were made in the gap between nations, namely the period 1950-1980 during which the developing nations had secured within GATT that allowed them to set at least some limits on the penetration of the world market into their economies (see Freeman 1998). The gap recommenced widening at the precise point when these barriers crumbled before the US onslaught.

But the most important evidence comes from the economic performance of China. I accept that caution must be exercised with quantity figures from centralised or post-centralised societies (indeed, with all quantity figures) because they depend heavily on choices such as base year and commodity basket. However the magnitudes are so large that it is unlikely to be the result of measurement error. When we compare China's performance in use-value terms with performance in exchange-value terms, we begin to get some glimmering of what might be going on. Between 1980 and 1995, in constant 1987 dollars, Chinese per capita output rose a staggering 7.65 times while its monetary value grew by less the US. This is reflected in a declining labour-appropriation ratio. Its technical performance thus directly contradicts its status in the world market. Yet it was China that most strongly resisted and controlled the impact of the world market on its domestic economy during the IMF reforms, in contrast to Russia and Eastern Europe which accepted orthodox 'shock therapy' recipes.

¹⁹ This is not to say that the exhaustion of sustainable resources isn't a major threat to the planet. The point is, this threat is a future one. It doesn't explain what is happening now. It doesn't tell us why threequarters of the world are *now* impoverished and getting relatively poorer, and why at least a third of the world is now getting absolutely poorer.

I think the distinction lies not in China's isolation from trade in the world market in commodities, but its relation to the world market in capital.²⁰ If the logic of profitability had been applied to much of Chinese industry – as it was to the countries that submitted to shock therapy – then most of it would have been wiped out. It is here where the labour-appropriation ratio, and the concept of national relations as a struggle for a share of world labour, makes sense of what is happening. A labour-appropriation ratio of fifty to one means that in order to accumulate at the same rate as a single-employee company in the US in money terms, the equivalent Indian company must be fifty times as big in social terms. Any business that does not so compete will not find the capital it needs to continue in existence.

Two competing standards of efficiency are at work. By one standard – human need – all production is useful which diminishes the labour required to meet human requirements. By the other standard – profitability in the world market – only that production is useful which makes a money profit.

On a world-wide scale, we see technical progress combined with social regress. The intrinsic laws of technical progress do not explain this paradox; it requires their interaction with the laws of value.

Combined and uneven development: how value interacts with technical change

An abstraction that explains only one feature of reality at the expense of another, is inadequate. For economics the quintessence of 'hard science' is exactitude; a model that explains one particular fact very precisely is considered scientific almost by definition. The Ptolemaics, however, were very exact, and their astronomy often predicted observed planetary motions better than Copernicus. Nevertheless they couldn't explain comets, they couldn't explain the moons of Jupiter and they couldn't explain mountains on the moon, and that's why they were wrong. A theory which is very precise about one fact, but completely fails to explain another, is often little more than a piece of sophisticated computation.

I therefore ask next whether value as defined above assists or constrains our understanding of the poverty of nations, the principal outstanding fact of the global market economy.

I argue it assists precisely because circulation and production stand as counterparts to each other. When value is defined so that it arises only in production, it *cannot* arise in circulation. We may therefore explain the different fates of nations (and classes, although we have not discussed this here) as the distribution, through competitive struggle, of a pre-given sum of value. The problem of national inequality then reduces to the following: why is this pre-given sum distributed unevenly?

At this point I can exhibit, practically, the merit of the process of abstraction defined above. I said we had to distinguish production, measured by value, from technical capability, measured

²⁰ In this sense, attempts to explain differential performance in terms of traded and non-traded goods miss the point. A world market places all capitals in comparison with each other whether or not they actually trade substantial volume in that world market, because they set the prices at which these capitals must buy and sell, and thereby determine their profit margins. The phenomenon of unequal development operates, I believe, as a supply-side effect through the market in capital, eliminating all domestic producers (and hence products) that do not yield a competitive rate of return in world values. The most dramatic instance of this is provided by the GM revolution which, if carried through to its logical conclusion, would lead to the elimination of all peasant producers using non-GM seeds, or about half the world's population. If this is thought far-fetched, it should be recalled that has already happened – to the population of Ireland and Highland Scotland in the last century.

by use-value, and monetary price, measured by money, in order most accurately and clearly to specify their interaction with the laws of value. In relation to the poverty of nations, this interaction gives rise to definite, quantitative laws in which both value, and use-value play their specific parts. National inequality is neither the outcome of a pure law of value, nor even less the outcome of some putative pure law of technical change. It arises from the interaction between value and technical change: to be precise, the interaction between the pure laws of value and those laws of technical change which are imposed on it by the value-form.

The pure law of value is invariance in circulation; the market can only effect redistribution. The law of technical change is that different sellers of the same product attract different amounts of this value, depending on their productivity. The interaction is that this modifies the law of accumulation so that capital accumulates *unevenly*, growing systematically faster in those places where technical change is most advanced, in the process reinforcing the very technical advantage that gave rise to the original surplus profit.

I therefore think the explanation for national inequality lies with the mechanism which Brenner invokes to explain the falling rate of profit, centred on a feature of real markets: the profit rate does not equalise. I think this illustrates a merit of his contribution in contrast with the approach of the economists. He does not begin, as economics does, from the one-sided abstraction of a hypothetical equilibrium market in which, due to the equalisation of the demand and supply of capital, profit rates become everywhere equal – Ricardo's 'one price' for capital – but from the concrete reality that profit rates are never practically equal.

Nevertheless, though a universal feature of concrete reality must be the starting point of concrete analysis, this does not relieve us of the need to identify the abstractions of which this universal feature is the actual expression. The fact that profit rates are everywhere unequal, whilst economics resorts to the abstraction that they are equal, does not tell us economics needs to be more concrete. It tells us economics is using the wrong abstraction.²¹

Temporal labour-time values provide the right abstraction precisely because they do not presuppose equal profit rates. Such values and, incidentally, prices of production, are defined for any combination of sectoral and enterprise-level profit rates. They let us do something which the standard definition cannot; they let us treat distribution as the outcome of definite processes which drive profits higher in one place than another. In any situation where one company or nation realises profits that are higher in value terms than another, they will appropriate – obviously – more value. If this appropriated value is in turn the basis for their investment in production, then it is clear that they will dispose of a larger investment fund, again in value terms.

If, in turn, this investment fund may be used in such a way that it reinstates or amplifies the original advantage which led to a high profit rate, then it is clear that, over time, sources of consistently high profit rates will be self-reinforcing. This dynamic phenomenon finds no equivalent in equilibrium thinking. It is the equivalent of the curved water which one finds in a waterfall. Despite process that *tend* to make a waterfall flat, namely the tendency of water to find its level, under conditions of permanent change – falling – this tendency never asserts itself because it is superseded and dominated by the process of falling.

Uneven development is just such a process. The permanent process producing the unevenness is technical change itself. This always brings a cost advantage to the early innovators reflected

²¹ The surest signs of a bad abstraction are when something which appears everywhere in the world features nowhere in the theory, and things that appear nowhere in the world appear everywhere in the theory. The greatest revolutions in scientific thought occur whenever thinkers grasp that something they thought was a mistake is actually a universal component of reality.

in a higher, *surplus*, profit, as Marx termed it. Of course there is a countertendency: capital migrates to such sources of higher profit rate. But this countertendency does not nullify the unevenness because the *speed* of capital migration is limited by the process of production itself. New techniques cannot actually be introduced instantaneously: it takes time to build the factories and make the machines. If the process of innovation exceeds the speed of capital migration, unevenness will predominate over equalisation.

Equilibrium thinking ignores all such dynamic considerations and indeed cannot conceive of them. It acts as if, because there is a countertendency, we must be able to treat profit differentials as ignorable, accidental or secondary. *Eppur si muove*: the empirical facts demonstrate that this countertendency does not dominate. Therefore, it is clear that dynamic processes produce self-sustaining, permanently elevated profit rates. We cannot explain, for example, the existence of Microsoft or Intel on any other basis.

The category of value which Brenner inherits from the economists he has consulted does not make this process empirically evident or even logically possible. Because they treat use-value as if it were value, the conceptual framework does not impose the constraint that competition as such cannot raise or decrease value. It is this which produces the permanent and inbuilt theoretical tendency, of which Brenner is so rightly critical, to resort to Malthusian explanations. For, from a use-value point of view, production is apparently limitless. Yet the facts show that the market sets clear limits on growth and distribution. From a value perspective this is completely understandable, since there are a limited number of humans on the planet. From a use-value perspective it is incomprehensible and theory is therefore driven, time and again, to invent an *external* limit on the production of use-values.

The unequal distribution of profit rates is the actual motor of capital movement, as first discussed by Marx but more recently by Ernest Mandel (1962).²² Capital pours into those places where it can reach a *higher than average* profit rate; it thirstily spearheads technical revolution upon technical revolution in the process. The most dynamic sectors, which also yield the highest profits, are those who innovate the fastest.²³

Consequently this is an effect confined to the sphere of circulation. It is, in value terms, a zero-sum game. Technical differentiation may not, in and of itself, either raise or decrease the total value in circulation but it decisively alters its distribution.

Here we have the secret of uneven development. Who is it that realises the extra profits that arise from technical innovation? Those that make the technical innovations. Who has the capital to invest in technical innovation? Those who have realised these extra profits. This is a positive feedback; to those that have, comes more.

Posed thus, it can be seen that a single concept of value suffices to explain both sets of phenomena, crisis and poverty, provided that it distinguishes categorically and rigorously

²² A considerable body of work (cf Semmler 1984, Duménil and Lévy 1993) studies whether *sectoral* profit rates equalise empirically. Whether or not this is true, it is not relevant to the point which Brenner, myself, and initially Mandel deal with, namely, profit rates *within* a sector do not equalise. It is perfectly possible, and in fact it is the normal dynamic of capitalism, that very high profits exist in a sector, like agriculture in the seventies, where profits were generally low, because of a technical innovation – the ‘green revolution’ – which allows new entrants to make exceptional profits.

²³ there is a very significant difference between those who are innovating in the way they produce standard products, and those who are also making products that themselves raise productivity. This is the difference, for example, between someone who buys a new computer to write more letters per day, and someone who actually makes the new computer. The gains of uneven development go, I think, to the second group of people.

between effects of production as such, in which value is created, and circulation, in which it is distributed. Such a concept is to hand; I argue it is in fact Marx's concept but in this article I present it as an interpretation of Marx and defend it in its own right as a scientific category.

THROUGH WHAT STAGE ARE WE PASSING?

One can reject in advance the attempts by Professor Konrad'ev to assign to the epochs that he calls long cycles the same "strict rhythm" that is observed in short cycles. This attempt is a clearly mistaken generalization based on a formal analogy. The periodicity of short cycles is conditioned by the internal dynamic of capitalist forces, which manifests itself whenever and wherever there is a market. As for these long (fifty-year) intervals that Professor Konrad'ev hastily proposes also to call cycles, their character and duration is determined not by the internal play of capitalist forces, but by the external conditions in which capitalist development occurs. The absorption by capitalism of new countries and continents, the discovery of new natural resources, and, in addition, significant factors of a "superstructural" order, such as wars and revolutions, determine the character and alteration of expansive, stagnating, or declining epochs in capitalist development

– Trotsky (1923)

One of my main objectives was to show that it matters what value concept we use to represent the facts. In so doing, I tried to address the objection that value does not tell us everything we need to know. I explained that precisely because such concrete phenomena as money and technical change do influence what the economy is doing, we have to measure these influences separately to study how they interact. A real science of the economy thus explains it in terms of these interactions. Value explains why accumulation leads to crisis, and why rich nations differentiate from poor ones, and also tells us why neither of these processes can be counteracted by technical or monetary changes. It affords the best representation of the impact of technical and monetary changes; for example a better description of which countries are advancing, and which are falling back, as a result of competition. But the pure laws of accumulation and uneven development do not, of course, on their own tell us anything about the timing of crisis or recover, their depth, or their location, or the concrete processes of their development.

I now want, in a tentative way, to show that the categories we have developed can indeed shed light on a concrete situation: the evolution of the world economy since 1980. In particular, I want to suggest that they allow us to understand, more clearly, the actual content and function of the competition between advanced powers that is clearly accelerating, and to which Brenner refers. The following hypotheses constitute an outline and a basis for research to developed elsewhere, rather than a completed analysis.

- There is evidence of recovery in the US profit rate and conditions for profitability, but its duration and depth are not yet clear;
- The circumstances support the view that whilst long-run falls in the profit rate result from endogenous process, there is – unlike in the normal business cycle – no intrinsic process which re-instates profitability. Instead, it was the outcome of a conscious political re-organisation of the structure of the world market which is not yet complete, and on whose outcome the extent of the recovery depends;
- This recovery, unlike that of 1947-62, is not 'hegemonic'. It has not provoked economic growth elsewhere, through the golden age pattern where a US surplus, arising from its clear industrial pre-eminence, allowed it to export capital in turn stimulating the economies of the target countries, but on the contrary was fed by large-scale capital imports provoking recession elsewhere. It has been achieved at the expense of, rather than in cohort with, Europe and Japan;
- Its core is a re-organisation of world markets to appropriate an enhanced portion of world surplus, coupled with a major extension of these markets arising from a re-insertion of

market relations into large territories and sectors from which it had been excluded or restricted;

- The recovery has therefore more in common with that of 1890-1914, in that it does not seem to have laid the basis for a reconstruction of the world economy in which all advanced countries can share; it has on the contrary exacerbated the economic contradictions between the leading power blocs. It has not, moreover, brought about a sufficient reduction of capital stock values to provide for a restoration of profit rates to their golden age levels.
- If this analysis is correct, we are in the middle of a period of unstable and partial recovery whose core is a renewed struggle, between leading industrial powers, to reconstitute national profit rates at the expense of their rivals, in and through a struggle for the domination of all those sources of surplus profits that arise from the control of territory and markets; that is, a period characterised, albeit with specific differences, by a return to classical imperialism.

We begin from the date of the putative recovery, 1980. A reconstitution of US profitability of some sort dates from this time. The same date marks the start of a turn for the worse in the fortunes of the most third-world countries, soon followed by all the transitional economies that applied IMF recipes. In retrospect it marks the start of a remarkable turnaround in the relative economic performance of the US and Japan, leading to a financial crisis whose effects on South East Asia is comparable in its depth and severity with 1929 in the West.

The implicit conclusion of this paper's approach is that these events are connected; the US recovery, such as it is, cannot be understood in isolation from the fate of the third world, the second world, or its rivals in the first world. We now ask why and how.

What happened in 1980?

Globalisation did not just happen. It was not an endogenous consequence of the market: it was the outcome of a political re-organisation of the world economy initiated in the USA. The process began with the 'neo-classical counterrevolution' (Todaro 1994:85) which advocated "the privatisation of public corporations in developed nations and called for the dismantling of public ownership, statist planning, and government regulation of economic activities in developing countries" and secured controlling votes on the World Bank and the IMF. Its core argument was that "[by] promoting free trade and export expansion, welcoming investors from developed countries, and eliminating the plethora of government regulations and price distortions in factor, product, and financial markets, both economic efficiency and economic growth [would] be stimulated."

The World Bank and IMF used the lever of debt to secure market reform packages in line with free-market principles. This also involved a conscious re-organisation, not just of national markets, but the regulatory framework of world trade. The 1986 formation of the World Trade Organisation (WTO) was the outcome of a six-year round of trade negotiations held under the auspices of the General Agreement on Trades and tariffs (GATT), the principal postwar world trade regulatory body. The cornerstones of the new order were:

- (a) a mandatory framework for world trade with economic sanctions as an automatic penalty for violation. Countries could no longer choose whether or not to accept the market; it was now imposed upon them with full binding force.
- (b) GATS (General Agreements on Trade and Services) covering one-fifth of all world trade (\$1 trillion) which liberalised trade in services, including notably financial services. Because this encapsulated a legal obligation to free capital movement, it imposed, as part of the free-trade framework, participation in the market in capital.

- (c) GATS extended the definition of exports to include production by foreign-owned subsidiaries in the host country. Trade regulation was thus extended to the internal market régimes of member states; subsidised state social provision is a technically criminal violation of the rights of foreign private providers. The offensive to open up capital markets, overriding national sovereignty through treaty obligations, continues with the drive to secure the MAI (Multilateral Accord on Investment)
- (d) a new trade category of Intellectual Property Rights (IPRs), an absolute monopoly of advanced countries: 0.16% of world patents are currently owned by third world residents.²⁴ Transforming technological knowhow into a marketable instrument, IPRs formalise the unequal exchange mechanism and provide formal permanent guarantees of advanced country dominance.

The WTO's agenda was the culmination of the aggressive US practice of mandatory unilateral sanctions to enforce GATT-agreed arrangements. Bhagwati (1993) records new legislation which "required the US Trade representative to prepare an inventory of foreign trade barriers, establish a priority list of countries and their unreasonable practices, and then set deadlines for their removal by the foreign countries, and, should they fail to comply, for decisions on retaliation by the United States...[It] is characterised by the (wholly distinct) fact that it enables the United States to unilaterally make demands for trade concessions by others without offering any matching, reciprocal concessions of its own that others might demand in turn."

The market was thus dramatically extended, as it has on previous occasions, notably 1890-1914 when it reached a comparable extent, and in contrast to the onset of the 1945 golden age which was characterised by a contraction of the world market, not an expansion. This extension of the world market was nevertheless restricted in a number of decisive ways

- (e) a system of trading blocks – 'Free Trade Areas' around the dominant capitalist countries – the EC, NAFTA and APEC – gave specific exemption from the measures imposed on all other WTO members.
- (f) large-scale anti-dumping (AD) actions as the preferred protectionist device of the USA, EEC and Australia/New Zealand, Before 1986, these were exceptional events. By 1992 they were universal for the advanced countries, which initiated 1040 AD actions between 1985 to 1992, over half directed against either Eastern Europe (132), the third world (137) or the developing Asian countries (297). The non-industrialised countries – three-quarters of the world's people – initiated 91.
- (g) The specific new development of IPRs manifests a new, explicit contradiction in the commodity form, since trade in knowledge can be achieved only by the *restraint* of trade in products embodying this knowledge. The WTO's harmonisation offensive against India, for example, began by outlawing India production of pharmaceutical products whose patents were less than twenty years old, overriding Indian legislation providing for a seven-year patent period.

This total package constitutes a new world political framework for trade. It is simultaneously a massive extension of the market, and a systematic manipulation of the market to restore advanced country – above all US – profitability. Anti-dumping is baldly described by the World Bank as 'a packaging of protectionism to make it look like something different'.²⁵ As HK remark (p178): "AD is not about fair play. Its goal is to tilt the playing field". Though article XXIV of the GATT proposes stringent conditions that a Free Trade Area must satisfy,

²⁴ Mihevic 1995

²⁵ Hoekman and Kostecki (1995). From now on this is abbreviated to (HK)

these are never applied. The enthusiastic dismantling of third-world barriers to Northern goods has not been reciprocal. What has actually been established is a world market into which the advanced countries can sell with the express function of providing them the necessary freedom of movement to restore their own profitability at the expense of everyone else's. In particular, the central focus of US and European policy, epitomised by the MAI (Multinational Accord on Investments) has been to create a world market in capital; free capital movement is the central tenet of the new offensive.

Endogenous recovery, or a new phase of imperialism?

Does this constitute an endogenous market phenomenon, or an intervention of forces external to the market? Does it represent a 'way out' of the crisis, and if so, what kind of way out?

We can make anything endogenous by definition, by saying everything which affects the market is part of it, like New Growth theory, which 'endogenises' phenomena such as policy that were previously considered external to the market, specifies the formal linkages between them and the market, and so explain the market's failure to behave as its intrinsic theory predicts.²⁶

The core of my objection to this approach is that it ends up obliterating the distinction between the market and everything else. It is stretching a point to treat an AD action as endogenous to the market when its whole purpose is to override the normal functioning of the market to secure a special advantage. Since the policy mix includes even more direct interference with 'normal' market mechanisms such as economic sanctions and wars of intervention, the notion of endogeneity is stretched to breaking point.

But consider even measures whose purpose is to impose or extend the market, such as free trade legislation. If the market could impose or extend itself, no special measures would be needed to do this. Setting the legal framework for the market – in Marx's terms, establishing the property relations which the market presupposes – is precisely *not* an effect of the market itself but an external precondition for it.

Most decisive is the very fact that these measures are exceptional; this is perhaps the third time since the Industrial revolution that a total reorganisation of the world market has been attempted. For me the purpose of making a distinction between endogenous and exogenous influences on the market is as a guide to the abstractions we need to make. What makes an abstraction valid, among other things, is that it is universally present in its object of study, and is not universally present elsewhere. The commodity, for example, is present everywhere there is a market. There cannot be a market without them. The same goes for money. Even more important, there cannot be a market economy – a developed capitalist economy – without waged labour. But many kinds of economy can exist without waged labour, without money, or without commodities. These are therefore defining elements of what a market consists of.

A sequence of events which happens once every seventy years does not serve as a basis for explaining the other sixty-nine. At the very least we have to admit the following; the mechanism now underway as a consequence of the general crisis of 1968-80 is a process that has nothing in common with the expansive wave of 1945-62. We confront two *distinct*

²⁶ "Endogenous growth theory developed a variety of models that capture aspects of the economic mechanism with the following common characteristic: policy affects the rate of accumulation of (some) factor of production of which the asymptotic marginal product does not tend to zero. Hence, policy can determine endogenously the economic growth rate, and as policies may differ, sustained divergence in economic performance of countries need not be considered paradoxical from the theoretic point of view". Jacques Vercuill in Stern (1996)

processes, one of which created the expansion and the subsequent crisis and which is a direct consequence of the pure law of accumulation, the other of which took over when the accumulation process broke down. The sequence is better described as a rise, followed by a crisis, and an external intervention, than a smooth curve in a single process.

This has practical conclusions. It means that the price of recovery from general crisis necessarily includes a general reorganisation of the world market, including all that goes with this: a reorganisation of its territories, wars of intervention, the forcible imposition of the necessary market relations where necessary against the will of the nations concerned, and so on. It means that the exit from one kind of catastrophe is, in the last analysis, another kind of catastrophe. The idea that the market itself, if 'left to itself' will simply restore the conditions for its own existence, does not hold. The evidence confirms Marx's original judgement of a hundred and thirty years ago that the market itself sets the limits on its own existence; to this we must however add that the automatic processes of the market are not the only ones in the world; no ruling class has ever voluntarily surrendered its existence, and there is no evidence of any intrinsic limit on the barbarism and destructiveness of which it is capable: on the contrary, each new exit from general crisis reaches previously inconceivable heights of it. As a 'way out' therefore, what is now happening can only be regarded by the human race with the most extreme distrust. A repetition, under modern technological conditions, of previous ways out for capitalism is, for the majority of the human race, unlikely to provide a way out of anything at all.

CONCLUSION: THE FACTUAL BASIS OF KNOWLEDGE AND ITS THEORETICAL REPRESENTATION

It appears to me that they who in proof of anything rely simply on the weight of authority, without adducing any argument in support of it, act very absurdly. I, on the contrary, wish to be allowed to raise questions freely and to answer without any adulation, as becomes those who are truly in search of the truth – Vincenzo Galileo, *Dialogue on Ancient and Modern Music*

The greatest merit of Brenner's approach, rendering it superior to most of what economics has to say, is that as a historian he insists on a *fact* – a thirty-year fall in reported profit rates – even when it contradicts most existing theory. This article would be incomplete without addressing the 'fourth fact' to which I drew attention at the outset; that the profession of economics as a whole has failed to consider the obvious, rigorous and extremely well-documented alternative from the pen of Karl Marx.

A clear insight into the answer arises from Brenner's own characterisation of this alternative, in a term with which I take sharpest issue: 'fundamentalism' – an abusive description taken without reflection from the value debate of the 80s and whose actual function is as follows: to rule this view out as a serious one.²⁷

The term inverts reality: it would make Galileo a fundamentalist and his persecutors a body of scientists. If anything, a fundamentalist approach would say that a theory must be true regardless of the evidence if it is supported by doctrine. We find this not among the supporters of Marx's analysis but its detractors of whom Roemer (1979:380) is the archetype:

²⁷ Fine and Harris' (1976) usage crossed the Atlantic to Roemer (1979), from where it continually resurfaces. Sherman (1985) offers the following definition: "they [Shaikh, Weeks and Semmler] might be labelled fundamentalists, since they all agree that the fundamentals are all presented by Marx". One may of course define any term in any way one wants, but to the public it conveys a bigot, probably a terrorist, who ignores all evidence except scriptural authority. A wonderful way to promote comradely debate, and a wonderful incitement to disregard anything Shaikh, Weeks and Semmler actually say.

Responses to this claim, of Okishio and others, have been of three types. These are, first, what Fine and Harris (1976) call fundamentalist positions on FRP. Second, there are empirical discussions of whether or not the organic composition of capital is indeed rising. While this sort of investigation may be useful, it does not bear upon the *theoretical* issue of whether or not the rate of profit falls due to technical change. That is, either such investigation will be consistent with the Okishio conclusion, or it will not be; in the latter case, it would show the need for a different microeconomic argument of capitalist technical innovation; it would not, however, show Okishio's *argument* to be wrong. The empirical investigations, then, are certainly necessary, but they cannot provide refutation of a theory... Third, there are arguments in favour of the FRP position, against the Okishio model, but on the same analytical level: that is, by postulating microeconomic behaviour of capitalist technical innovation which will or may lead to a falling rate of profit.

The very strong assertion that empirical facts *cannot* refute a theory is quite extraordinary, and it is as surprising that it has passed unnoticed in the literature, as that the referees of this article accepted it for publication without comment. It would not be accepted by any scientific profession. To take just one example of where such reasoning would lead us: mediaeval arguments in support of the sun's motion around the earth were logically implacable, mathematically irrefutable, and completely false. To refute them one avails oneself of a device called a telescope. Nothing distinguishes Roemer's argument from theological proofs that God must exist because all arguments to the contrary lead to paradox. There *is* no other theoretical issue: if theory conflicts with fact, the task of theory is to find something better, not to cling to a false idea on the grounds that one cannot see what is wrong with it.

But Roemer closes off the road to theoretical advance. He says there is only one way to refute the Okishio conclusion: 'a different microeconomic argument of innovation'. This dogmatically excludes any possibility that another refutation may be discovered whose basis we don't yet know. If a theory conflicts with the facts, then all we can say is that one day we will find out why: nothing else can be inferred. Until Einstein, physics did not have the slightest inkling how to overcome the problems in Newton's theory of relativity; all it knew was that it did not explain the observed facts.

More centrally, the whole construction is naked: a mathematical theorem and a justly respected author have replaced facts as a source of evidence. Since the actual rate of profit verifiably does behave as Marx predicts, the job of any scientist is neither to castigate Marx nor deny the facts but to find where Okishio's theorem might be going wrong and how Marx managed to get it right, a course of action which Okishio himself has honourably pursued.

The most Roemer could justifiably say is that without an alternative theory, then although the facts refute Okishio, we still have no theory of these facts. Even the complete lack of an alternative cannot justify treating a verifiably false theory as a source of truth. But actually, such a stance is no longer justified, since such an alternative has been in the public domain for ten years.²⁸ The problem is that this alternative is not addressed in the literature, which proceeds as if it did not exist.

To the extent that economists endlessly repeat the catechism that Okishio has refuted Marx, interrogating neither the facts nor the refutations of Okishio, they function not as scientists but as dogmatists. They fail in two fundamental requirements of science; they do not confront the theory with the facts, and they do not confront it with the alternatives. We hope we have indicated that these alternatives exist, whether or not the economists are prepared to recognise and assess them. To the non-economists we must offer a straightforward word of advice; economics is too important to leave to the economists. The more independent and critical the stance taken towards economic orthodoxy by the social sciences, the more likely are genuine advances in knowledge.

²⁸ See Kliman (1988), Freeman (1995)

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