

viewed as representations of the process at lower levels of abstraction. Within the limiting process specified in the Marxist model, the Sraffian model defines the selection mechanisms for profits; and within the selection mechanisms specified in the Sraffian (and Marxist) accounts, the causal-agnostic model defines the range of concrete determinants of profits. What is incorrect about these models is not that they purport to represent real processes, but that they deny, in different ways, the more abstract levels at which these processes may be determined.

Third, the Marxist model provides us with a systematic way of introducing class struggle into the account of profit determination, at the level of both circulation and production. Furthermore, it does so in a way that sustains a definition of classes in terms of the social relations of production. While classes, understood in these terms, can be used in analysing the determinations in the Sraffian model as well, they play no organic role within that theory. In the absence of the Marxist model of determination, the classes within Sraffian theory could be no more than Weberian 'market classes'. If, on the other hand, we regard the Sraffian model as a specification of the Marxist model at a middle level of abstraction, then there is no difficulty in using Marxist class concepts in the empirical investigation of the elements in the model.

Finally, the Marxist model of determination of profits makes it possible to embed the specific analysis of profits within a broader social theory of structural limitations, selections, and transformations. On this basis, the theory moves beyond a positive account of the concrete determination of profits, and becomes part of a critique of the very structure of possibilities in the existing society.

Critique of Wright

1. Labour and Profits

Geoff Hodgson

The transfer of allegiance from paradigm to paradigm is a conversion experience that cannot be forced. Lifelong resistance, particularly from those whose productive careers have committed them to an older tradition of normal science, is not a violation of scientific standards but an index to the nature of scientific research itself. The source of resistance is the assurance that the older paradigm will ultimately solve all its problems, that nature can be shoved into the box the paradigm provides.

THOMAS KUHN

The Structure of Scientific Revolutions

Marxist theoreticians have been preoccupied with several key debates during the 1970s.* Perhaps the one that has drawn most attention is the controversy about value theory, in which one side has urged that drastic surgery is required on the body of theory laid down in *Capital*. Initially, the discussion was not primarily about acceptance or rejection of the labour theory of value, but it has since developed in that way. Opponents of the labour theory are perhaps more confident and intransigent. Its supporters are divided into groups ranging from repetitive fundamentalists to inventive and sophisticated defenders of its indispensability. Erik Olin Wright, in his contribution 'The Value Controversy and Social Research', comes close to the latter end of the spectrum. His graphic rigour, and his aversion to the fundamentalist habits of label-daubing the opposition or appealing to the hallowed

* In writing this paper I have been aided by discussions with Leo Panitch and by useful remarks by Ian Steedman on an earlier draft. Their help is acknowledged with gratitude. Responsibility for errors and omissions in the final version is, of course, entirely mine.

texts for support, make his article a refreshing change from other contributions on the subject. From the opposing side of the debate, however, there is a strong temptation to put a Kuhnian perspective on things, and to see Wright's article as a late but sophisticated attempt to shove the nature of capitalist reality into the old box of the labour theory of value.

Wright's Survey of Theories of Profit Determination

Wright discusses three accounts of how profits and prices are determined. For expository and other reasons he focuses on the central question of the level of profits. The first account of profit determination, which he calls 'causal agnostic', is that found in Marx's *'Capital' and Capitalism Today*, by Anthony Cutler, Barry Hindess, Paul Hirst, and Athar Hussain. This he regards as an inferior account since it fails to identify any causes of the profit level as more important than others. No cause, or set of causes, has a privileged status in their analysis of profits, the state of the weather being just as significant, and useful, in informing us of the processes at work as the state of the class struggle. Wright's diagrammatic illustration of the 'causal-agnostic' account of profit determination is depicted in his figure 1 (p. 39).

His second step is to move on to an evaluation of the Sraffian contribution to the theory of profits, first presented in Piero Sraffa's *Production of Commodities by Means of Commodities*, and discussed and elaborated in Ian Steedman's *Marx After Sraffa*. In the Sraffian scheme it is accepted that there are many determinants of the real wage and the 'socio-technical' conditions of production, including, in the work of most of its exponents, the class struggle. But once these determinants have played their role, the socio-technical conditions and the real wage alone determine the rate of profit in the system. The latter are the proximate causes of profits. Class struggle, for example, can still play a pivotal role in the dynamics of profit determination. But such causes have their effect on profits by virtue of their effect on real wages and socio-technical conditions only. Wright illustrates this Sraffian account of the determination of profits in his figure 2 (p. 42). Wright's preliminary critique of the Sraffian account includes some pertinent remarks on the difference between calculation and cau-

sality. If the socio-technical conditions of production and the real wage are sufficient to calculate the rate of profit in the system, they do not necessarily figure, Wright observes, as sufficient causes of the level of the rate of profit. This remark implies that there may be other causes of the profit level which, although redundant in the calculation of profits, play a full role as causes in the real world.

Third, Wright moves on to a discussion of previous Marxist accounts of the determination of profits: 'Traditional Marxist accounts share with Sraffian accounts a commitment to organizing the multiple determinants of profits into an ordered structure of determination. But they differ in assigning a privileged status to surplus labour (in the form of surplus-value) within the structural model of determination: in Marxist theory, real wages and technical conditions of production have their effects on profits by virtue of their effects on the creation of surplus-value. Other causes of variation in profits may be two steps removed from the final outcome. The weather, for example, may influence profits by virtue of its influence on socio-technical conditions and real wages; these, in turn, influence profits by virtue of their effects on surplus-value.' Wright's illustration of this basic model is shown in his figure 3 (p. 45).

Unlike many of the participants in the debate about value theory, Wright accepts that there is a fatal flaw in the traditional Marxist theory of profit determination. He agrees that it has been demonstrated, on the basis of Sraffian analysis, that it is possible to change the total magnitude of profits, or, presumably, the rate of profit, without any change in the amount of total surplus-value produced. This demonstration is based, partly, on a consideration of choice of production technique and has been discussed by Morishima and others.¹ Surplus-value, therefore, cannot be regarded as the proximate cause of profits. The traditional account of profit determination in Marxist theory must be either recast or abandoned.

Wright's Account of Profit Determination

Wright chooses to recast the traditional Marxist theory of value rather than abandon it. His crucial innovation is to introduce a more

¹ Michio Morishima, *Marx's Economics*, London 1973.

complex and diversified notion of causation, one in which there are different kinds of causal relations between elements in a theory. For his immediate purposes, in order to set up a first approximation to his recast version of Marxist value theory, Wright defines two different kinds of causation, or 'modes of determination': '1. *Structural limitation*, in which one structure or element systematically sets limits of possible variation on another structure or element. Within these limits, there is a variety of possible outcomes, but the limits themselves are determinate.

'2. *Selection of specific outcomes* from a range of structurally limited possibilities. In a sense, this is a mode of determination which establishes limits within limits. Depending upon the specific process being investigated, there could be several nested layers of such selection processes.'

The 'recasting' process then takes place in the light of these differentiated modes of determination. Real wages and socio-technical conditions 'select' the profit level. But surplus-value places a 'structural limitation' on it. In turn, surplus-value is 'selected' by the real wage and 'limited' by socio-technical conditions. Wright's diagram of this simplified Marxist account is illustrated in his figure 4 (reproduced as figure 1, p. 79).

Wright thus develops a model that involves a 'mutual interdependence' of surplus-value, real wages, technical conditions, and profits: 'surplus-value establishes the fundamental limits on the range of possible profits. With a given quantity of surplus-value, there is an absolute ceiling on the possible quantity of profits. When surplus-value is zero, no profits at all are possible; as surplus-value increases, the possible maximum profit also increases monotonically. Within these limits, however, both the socio-technical conditions of production and the real wage have a selection effect on profits.' (In making this assertion, Wright makes indirect and allusive reference to Morishima's 'fundamental Marxian theorem': that the profit rate is positive if and only if surplus labour, as defined by Morishima, is positive.² Wright thus recognizes the problem of ambiguity in the

² See M. Morishima, 'Marx in the Light of Modern Economic Theory', *Econometrica*, vol. 42, 1974, pp. 611-32, and M. Morishima and G. Catephores, *Value, Exploitation and Growth*, London 1978.

general definitions of embodied labour and surplus labour, and rests his account on the Morishima definitions, which cannot give negative values even in cases of joint production.)

According to Wright, therefore, for any given amount of surplus labour there is an upper and lower bound on the amount of profits produced: 'The amount of surplus-value, then, constitutes the explanation of those levels of profits that are impossible; the socio-technical conditions of production and the real wage explain—"predict"—which of the many possible levels of profits actually occurs.'

Several pages later Wright moves on to integrate his simplified Marxist model into a more sophisticated account of profit determination. To do this he introduces two additional modes of determination, and he grafts on the various causes that, in different ways, have an effect on socio-technical conditions and the real wage; he also indicates the effect of profits on other elements within the system. His diagram of this 'complex approximation' is depicted in his figure 6 (p. 54).

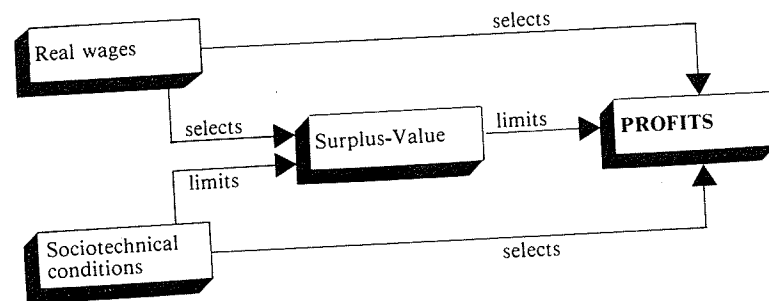


FIGURE 1

As can be seen in the various figures, the simplified 'first approximation' in figure 4 is contained within the 'complex approximation' in figure 6. The two do not contradict each other. In contrast, the traditional Marxist account in figure 3 is inconsistent with both figure 4 and figure 6.

It is both necessary and convenient to concentrate our critique of Wright's paper on the simplified model in figure 4 (reproduced above), for if flaws are found in it, they will also exist in figure 6. In doing this we recognize the value and importance of Wright's analysis of class structure and class struggle, which is elaborated in detail in his *Class, Crisis and the State*.³ Figure 4 is the core of Wright's attempt to recast Marxist value theory, and to its critique we now turn.

The Arbitrariness of Embodied Labour

Wright anticipates our first line of critical attack. But he does not give a true measure of its strength, nor provide an adequate defence against it. This first line of attack is based on a simple formal observation. In Wright's model, surplus labour is identified as the limiting factor on profits. But, as he himself is aware, if any 'factor of production' (or basic input, to use Sraffian terminology) is held constant, then it too will limit profits. For example, let us assume that energy is an input of the system. Energy will enter into the production of most commodities and also, perhaps, the production and reproduction of labour-power itself. Every commodity, including labour-power, will contain some amount of 'embodied energy'. The 'surplus energy' will be the net amount of energy coming from the energy sector into the rest of the economy (just as surplus labour is the net amount of labour-time transmitted after the reproduction and performance of labour-power). Profits are limited in the same formal manner by 'surplus energy' as they are by 'surplus-value'. We can therefore construct an 'energy theory of value' with the diagram in figure 4'. I do not mean to suggest seriously that such a theory of value would have the same meaning or explanatory power as the

³ Erik Olin Wright, *Class, Crisis and the State*, London, NLB, 1978.

labour theory, or that labour-power does not have special characteristics that are worthy of identification and must be understood if the inner workings of the capitalist system are to be explained. Labour-power is important, central, and unique. But we have to demonstrate this uniqueness and centrality, not assume it at the outset. At this stage the important point is to note that there can be no formal objection if we proceed from any other basic input of the system and view it as placing limits on profits. Wright's elaborate and elegant account does begin to look blinkered by the preconceptions of its author.

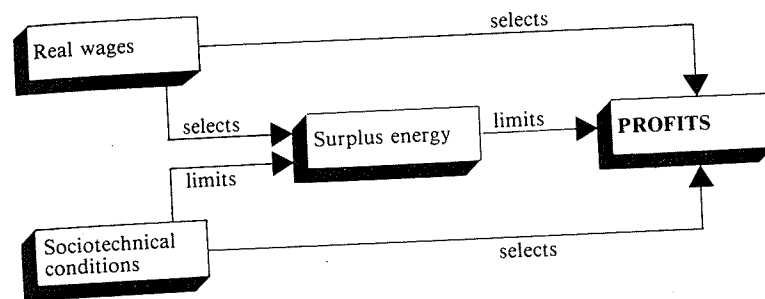


FIGURE 2
Figure 4'

The main argument in the previous paragraph can be restated in a more rigorous fashion. For a complete mathematical proof the reader is advised to consult a work by Bródy.⁴ The proof is discussed further in a subsequent book by Vegara.⁵ The essentials of the Bródy proof are as follows. The material inputs of a capitalist economy are

⁴ A. Bródy, *Proportions, Prices and Planning*, Amsterdam 1970.

⁵ Josep M. Vegara, *Economía Política y Modelos Multisectoriales*, Biblioteca Tecnos de Ciencias Económicas, Madrid 1979.

presented in the usual matrix form. One column (or row) is added to the n th position to represent the labour inputs in each industry, and one row (or column) is added in the n th position to represent the real wage, in other words, the 'inputs' in the domestic sphere of the economy. A zero occupies the diagonal at the n th position. This augmented matrix is sufficient (along with data for the outputs in the economy in the case of joint production) to determine prices and the rate of profit.

If we wish to calculate the amounts of labour embodied in each commodity we detach the n th column and the n th row, leaving the original material inputs. The embodied-labour values are calculated with a well-known expression that includes the truncated matrix and the vector representing the labour inputs. The point, however, is that we can formally carry out the same operation for any row and corresponding column. Detach, say, the forty-fifth row and the forty-fifth column. We assume that the forty-fifth commodity is, for example, lubricating oil. The forty-fifth column (or row) gives the inputs of lubricating oil. This vector, along with the new, truncated matrix, is used in the same expression to calculate the quantities of 'embodied lubricating oil'.

The point of this formal algebra is to demonstrate that the role of labour as a source and measure of value is indiscernible from that of any other commodity. Any other 'source' may serve as well in the formal determination of prices. The relative price system remains the same whether we start from labour or anything else. At the formal level there is simply no difference. (But we must repeat that this does not mean that there are no real differences between labour and the other inputs in the system.)

Wright's Defence and the Collapse into Circularity

In defence against the argument that any input could be chosen to supply the 'structural limitation' on profits, Wright adduces special reasons for selecting labour and surplus labour:

'The focus on surplus labour as the underlying process which establishes limits on profits . . . is itself derived from the class analysis of exploitation in general and of the specific forms of such exploi-

tation in capitalism. There is, therefore, an element of truth in the charge that the choice of surplus-value as a limiting condition is "arbitrary". It is arbitrary with respect to the specific problem of calculating profits, and if this was the only reason for a theory of profit determination then indeed there would be no grounds for choosing surplus-value over any other factor as a limiting condition. . . . But the choice is far from arbitrary with respect to a broader theoretical project—understanding classes and class struggle in terms of social relations of production, and linking such class struggles to the specific analysis of capitalist mechanisms of appropriating surplus labour through surplus-value and profits. It is because we are interested in understanding class relations and class struggle that we seek a model of determination of profits that allows us to link classes to profits, not because we have an autonomous interest in profits as such, independently of their social determinants and consequences. In these terms, the specific way in which one formalizes the model for the calculation of profits is conceptually subordinated to the qualitative theory of social relations within which profits acquire their social content.'

The same point is repeated, in slightly different terms, in a footnote: 'Because Marxists are subjectively committed to a certain set of values and thus have an interest in studying exploitation, an ideal-type model revolving around surplus labour is appropriate. In fact, the argument does not rest simply on the value preferences of the theorist, but on the realist claim that classes and class struggle, defined in terms of production relations, are the decisive social forces which shape social change. Classes are real, not simply analytical conventions. Surplus labour also establishes real limits on possible profits, not simply analytical limits.'

In short, then, we must focus on labour and surplus labour because it leads us to an examination of classes, class struggle, and exploitation. Classes are real, and they are the key elements in social change.

This leads us to the obvious question: how are classes defined? Wright attempts a definition: 'For our present purposes, the key point is that classes are defined above all by positions within production relations, not by their positions within market relations or other aspects of social relations. The decisive aspect of those

production relations centres on the ability of one class to force another class—the direct producers—to perform labour beyond what is needed for the reproduction of the direct producers themselves, and to appropriate the products of that “surplus labour”. In all class modes of production, the dominant class is defined by those positions which appropriate surplus labour; the subordinate class by those positions which have their surplus labour appropriated.’ (Emphasis added.)

The argument has now turned full circle. According to Wright, behind the need to focus on surplus labour is the need to examine classes; behind the examination of classes lie relations of production; and, fundamentally, these relations are about which class performs and which appropriates surplus labour. We can put the relevant question to Wright again: Why is surplus labour, and not surplus-anything-else selected out as the structural limitation on profits? Wright’s answer, it seems, is as follows. We focus on surplus labour because it helps us understand classes and class struggle in terms of relations of production. Classes, however, are understood in terms of their relation to the extraction of surplus labour. In Wright’s answer, ‘surplus labour’ and ‘classes’ are like two words in a badly designed dictionary. We look up one word and we find it defined in terms of the other, and when we look up the other word we are referred back to the first. Wright’s defence against the charge that the selection of surplus labour is arbitrary is thus nothing but a circular argument, in which the terms ‘classes’ and ‘surplus labour’ play leap-frog with each other through the crucial passages of his paper.

We can also note that Wright has similarly failed to give substantive support to his assertion that classes are ‘real’. In his terms, they are real only because they relate to the extraction of surplus labour. In the selection of surplus labour as the key category Wright thus falls into the Weberian mire that he himself detects along the route of his argument: ‘This . . . comes perilously close to a Weberian methodological stance on theory construction, namely that the categories we choose are strictly subordinated to the subjective preference of the analyst.’

Wright, however, is not aware that he has actually slid into the mire. The solid ground on which he believes to stand is nothing but a self-sustaining invention of his own mind, and not a support in the real world. The result is methodological chaos. We can simply adapt

Wright’s theoretical apparatus to fit in with our own preconceptions. Imagine the reaction of a modern ecologist to Wright’s essay. This person believes that the fundamental force in the world is the flow and transformation of energy and therefore understands the world in these terms. Wright’s apparatus can be accepted eagerly by the ecologist: ‘This shows that Sraffa is wrong!’ he cries. ‘There is a place for another cause. Surplus energy is the limit on profits. I believe this because it fits in with a true picture of the world as I understand it.’ We shall not pursue this line of argument further, by examining, for example, the reaction of a Christian evangelist to Wright’s scheme (the evangelist believing that profit is the result of and reward for pain).

Calculation and Causality

Wright’s first main assault on the Sraffian account of profit determination, as we have seen, is to point out that to assemble a set of factors necessary and sufficient to *calculate* profits is not the same as to assemble a set of *causes* of the profit level. At first sight this seems plausible, but on closer examination it is as empty as his justification for the selection of surplus labour.

In reply to Wright it must first be pointed out that he has not demonstrated causality in his own model. His attempt to distinguish three or four different types of causes, or ‘modes of determination’, is impressive, but does not help. In his scheme he asserts that surplus labour *limits* profits, and the nature of these limits are mathematical maxima and minima. So the allegation against Sraffa can be turned against Wright: to point out a factor, or set of factors, that *limit* profits is not the same as to point out a *cause*, of any type, of the profit level or of a range of possible profit levels. There is no difference here. Sraffa identifies a set of factors that are sufficient to calculate the precise level of profits; Wright identifies a factor (surplus labour) that is sufficient to *calculate* limits on profits. Both are calculations and not, at this stage, demonstrations of cause and effect. The only difference worth noting is that Wright’s calculation is a weaker and less precise version of the one provided by Sraffa; Sraffa’s is sufficient to provide an exact answer, whereas Wright’s is not.

To reinforce the point let us consider Wright’s diagram that is

alleged to show a relationship between surplus labour and profits, the former setting limits on the latter. This diagram is represented in his figure 5 (p. 48). According to Wright, surplus labour is the independent variable and profits are the dependent variable—dependent, that is, in the sense of being 'structurally limited' by surplus-value. But why is one a cause of the other? We are offered no reason. There is no argument in Wright's paper to prevent us making profits the independent variable and surplus labour the dependent variable. In other words, surplus labour will be structurally limited by profits, and profits will be the proximate cause of surplus labour and surplus-value. Wright's 'first approximation' can be changed, reversing the position of profits and surplus labour. This is done in figure 3 below.

Again, let me make my argument clear: I do not suggest that profits do, in fact, limit surplus labour, just as I do not seriously suggest an 'energy theory of value', nor propose that labour-power can be treated in the same way as any other commodity. The counter-examples, absurd as they may seem, are designed simply to demonstrate that Wright is assuming what he has to prove. He *assumes*

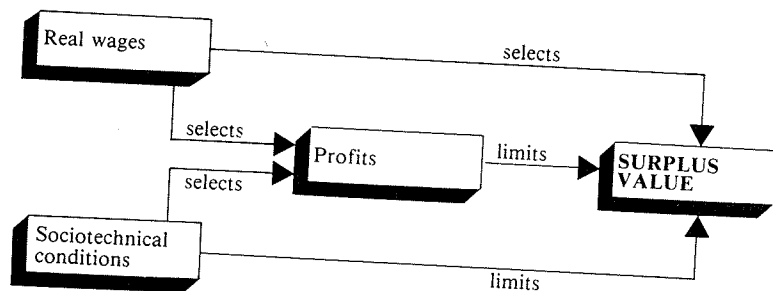


FIGURE 3
Figure 4"

that surplus labour is *the* cause limiting profits, and he *assumes* that there is a uni-directional, causal link between the two. He *proves* none of this. My point is to show that other analysts, using Wright's methodology, may well assume other plausible connections. The only problem with them is that they do not square with the Marxist preconceptions that are the very objects of dispute in the post-Sraffa debate. Wright's article may have been welcomed by those Marxists who were seriously worried by the impact of the Sraffa system on traditional Marxist theory. With its relative rigour and apparent elegance, it would appear to rescue the labour theory of value. But on closer inspection, Wright proves 'nothing. Despite claims to the contrary, he does not lay bare real processes in the real world: real chains of cause and effect. His work is nothing but a scholastic attempt to fit new theories into old boxes. But, as we shall argue, they simply do not fit.

Nested Modes of Determination

The next line of criticism, like the previous one, requires that we tackle Wright's methodology on its own terms. According to Wright, socio-technical conditions of production plus the real wage *select* the profit level; that is, no other factors are required to determine the level of profits. But also, according to Wright, surplus labour *limits* profits. This raises an obvious question: if selection is sufficient to determine the result, what then is the status of structural limitation? The level of profits selected will always be within the limits provided by surplus labour, because *by definition* the limits contain all the feasible profit rates for a given amount of surplus-value. So surplus labour is a 'cause' that plays no role, because the other causes act to determine the outcome. Surplus labour will never actually bring itself to bear upon the result. Wright has *defined* these limits in such a way that they are *redundant*.

In general, it is difficult to envisage a causal role for *structural* limits if other factors, through the process of *selection*, are entirely sufficient to determine the outcome. It is like saying that the height of *Homo sapiens* is caused, through 'structural limitation', by the thickness of the atmosphere. Certainly, humanoids could not survive on Earth if

they were ten miles high! The invention of structural limits is arbitrary for any real phenomenon, and it is completely erroneous simply to assume, as Wright does, that they play a causal role.

Wright's error is compounded, in this case, by the fact that the structural limits he has chosen—those laid down by given amounts of surplus labour—must lie outside any reasonable selected level of profits. This is because the limits are *defined* to include all possible rates of profit, as stated above. We have argued that a structural limit can be a cause only if it actually bears upon the outcome. In the case of surplus labour, however, this structural limit can *never* be a cause, because it *never* bears upon the result. It never does this because it never affects socio-technical conditions or the real wage. We are thus led to conclude that surplus labour does not affect profits either.

Causality in the Sraffa System

Let us examine the notion of causality implicit in the Sraffa system. At one level the Sraffa model is merely a mental construction, a 'thought experiment'. Read in this way it is certainly not devoid of meaning. For example, the prices that are derived in the system are the prices that are *logically* necessary to ensure an equalized profit rate. Prices and profits depend, logically, on socio-technical conditions and the real wage, and factors that influence them, *and nothing else*. These formal results enable us to order and arrange data about the real world, and they help us to skirt the trap of logical inconsistency when analysing problems of value and distribution. It is at this formal level that logical problems have been identified, by means of the Sraffa system, in the neo-classical theory of distribution and the neo-classical aggregate production function.

In logic, however, there are no causes or effects, merely assumptions and conclusions. To successfully criticize such a formal system only two courses of action are possible: to challenge the initial assumptions or to find a fault in the logic of the argument. A great deal of the misunderstanding about the Sraffa system lies in a failure to appreciate that the model is being used, most of the time, as a purely formal construction.

It is possible, however, to interpret the Sraffa system in various

ways, and to posit statements about the real world. It must be made clear—and this is another frequent source of misunderstanding—that many such interpretations are possible, even if only one of them is valid. The formal Sraffa system does not lead us automatically to any particular view of the production process, or, for example, to see the sphere of exchange as primary and that of production as secondary. All these things can be, legitimately or illegitimately, *read into* the formal construction, but they are not there at the outset.

I wish now to put forward a certain partial interpretation of the Sraffa system that will have something to say about cause and effect. It will be clear from the remarks above that there is no reason for all adherents of Sraffa automatically to accept what I say. They may wish to put forward a modified, or even a distinct, interpretation.

It is not for the sake of convenience or uniformity that Sraffa, like many other value theorists (including Marx), assumes an equalized rate of profit. An equalized, or general, rate of profit is assumed because there are real forces in a capitalist economy that tend to bring the rates of profit in different industries into line. These forces are the forces of competition. Marx himself makes this clear in several passages of his writings. For example: 'What competition between the different spheres of production brings about is the creation of the same general rate of profit in the different spheres.'⁶ This competition flows from the nature of capitalism itself, and prevails within that system: 'There is no doubt . . . that aside from unessential, incidental and mutually compensating distinctions, differences in the average rate of profit in the various branches of industry do not exist in reality, and could not exist without abolishing the entire system of capitalist production.'⁷ For Marx, then, the equalization of the rate of profit, the formation of a general rate of profit, is an 'actual process' corresponding to 'real phenomena'⁸ in the capitalist world. It is not simply a mental equalization, but one that corresponds to real processes outside the minds of economists. At the same time, Marx recognized that there may be barriers or limitations to the full equalization of the rate of profit, but he regards these as 'incidental'.

⁶ K. Marx, *Theories of Surplus-Value*, Part 2, London 1969, p. 208, emphasis removed.

⁷ K. Marx, *Capital* Volume 3, London 1962, p. 151.

⁸ *Ibid.*

Marx may have underestimated the barriers to a full equalization. This may be due to the fact that he did not perceive the results of monopolization under capitalism, and he wrote at a time when capital was fragmented into many small competitive units. Even if this is so, his account of profit-rate equalization is still relevant. The essence of capitalism is competition, and insofar as capitalism is competitive there will be forces tending to bring different rates of profit into line, even if an equal and general rate of profit is not formed. Insofar as there are barriers to this equalization, there is a modification or distortion of capitalism's fundamental character—it is capitalism near the brink of a transformation into an entirely different mode of production: 'The centralization of the means of production and the socialization of labour reach a point at which they become incompatible with their capitalist integument.'⁹

If capital is competitive and mobile, then it will flow to the industries and firms with higher rates of profit. This will cause an excess supply of certain goods, their price will be forced down, and the rate of profit in the formerly attractive industries and firms will be brought down. A general equilibrium will arise when rates of profit are more or less equal, and a general rate of profit is formed in the system. That is the *real* process, in my view, behind the *assumption* of an equalized rate of profit in the Sraffa system. Sraffa, therefore, is discussing a certain type of equilibrium state. However, the dynamics of the process are not discussed in Sraffa as they are in Marx. Causality in Sraffa has to be discussed in terms of comparative statics. This, of course, gives the exercise a limited scope, but it is not without value. A full dynamic analysis will expose other causal factors, but, to repeat our earlier warning, such factors have to be *detected*, and not simply imputed into the model.

Let us assume that in a certain capitalist economy, at a certain time, the forces of competition have succeeded in bringing about an equalization of the rate of profit. Things change, but ten years later the forces of competition triumph once more and a general rate of profit is formed again. However, it is quantitatively different from the rate of profit ten years before. What factors have *caused* such a

⁹ K. Marx, *Capital*, Volume 1, Penguin Books in association with New Left Review, Harmondsworth 1976, p. 929.

change in the rate of profit? Sraffian analysis shows us that the proximate causes are the socio-technical conditions and the real wage. There is no other proximate cause. It is not simply a question of calculation. These factors are *causes*, in the sense that we have described. They operate in the real world.

Marx, of course, held that embodied labour played a central role in the transformation of values into prices and the formation of a general rate of profit. The causal role of labour and surplus labour, however, is asserted rather than proved. Furthermore, for the reasons that are outlined in Steedman's book, labour and surplus labour cannot be regarded as causal factors in the same way and sense as the socio-technical conditions and the real wage. Embodied labour values are not sufficient, for example, to determine prices or the general rate of profit: the technical structure of production will also play a role. Steedman shows that in some circumstances the attempt to calculate the rate of profit from embodied labour values will give an incorrect answer, even if we add the necessary extra information. These arguments are clearly laid out in Steedman's book, and there is no need to repeat them here. What has to be added is an explanation of their significance in the light of Wright's remarks on causation. At the abstract level of analysis of Sraffa's *Production of Commodities by Means of Commodities* or Marx's chapter in *Capital* on the formation of a general rate of profit (volume 3, chapter 9), the Sraffian critique of the labour theory of value demonstrates that embodied labour values are redundant not only in the *calculation* of profits but also in their *causal determination*.

(It may be suggested, in response, that there is a role for embodied labour and surplus labour outside the level of abstraction discussed above. I am aware of no rigorous theory of the capitalist system that includes such a role. The reader may recall Anwar Shaikh's 'vindication' of Marx's solution to the problem of transforming values into prices.¹⁰ Shaikh shows that embodied labour values can be used as a first approximation to prices, under certain conditions, and after successive adjustments in the light of differences in the

¹⁰ Anwar Shaikh, 'Marx's Theory of Value and the "Transformation Problem"', in Jesse Schwartz (ed.), *The Subtle Anatomy of Capitalism*, Santa Monica 1977, pp. 106-139.

calculated rates of profit, these values can be gradually 'transformed', in an iterative manner, into prices. However, Shaikh does not succeed in showing that such a process occurs in the real world. Furthermore, there are an *infinite number* of 'first approximations' that can be used, in the same iterative process, to derive the same results. Conceivably, we could start with our old friend 'embodied energy' or even the number of letters in the name of the commodity when translated into Serbo-Croatian. Subject to certain conditions, all these 'first approximations' will lead us to the same end point. What matters in the iterative process is not the starting point but the process itself, and embodied labour plays no part in Shaikh's *process*. There is no evidence to show that this is anything more than a *calculation*; embodied labour values play no apparent role in the real dynamic of the capitalist world.¹¹)

Embodied Labour and Production

As if to reinforce his earlier assertion that surplus labour is important because it leads us to understand the role of classes, an argument that assumes what it had to prove, Wright makes the following point about the application of his recast version of Marxian value theory: 'Because surplus-value is seen as defining the absolute limits on profits, the central research question immediately becomes: what are the social processes which influence the amount of surplus labour performed? . . . the Marxist model also directs our research efforts towards those transformations of the socio-technical conditions of production that directly impinge on surplus labour. It is for this reason that the Marxist analysis of production revolves around the *labour process* as such, and not simply the technical input-output matrices of production.'

If casual reading of this passage gives a favourable impression at first glance, much will be due to the careful phraseology. Good Marxist words like 'social' and 'labour process' are contrasted with the formidable 'technical input-output matrices of production'.

¹¹ For a further criticism of Shaikh, see Heinz D. Kurz, 'Sraffa After Marx', *Australian Economic Papers*, June 1979, p. 55n.

Much of this is mere artistry. Surplus labour as such does not necessarily have any immediate associations, in the mind of the run-of-the-mill theorist, with a social process. A Marxist of technological-determinist hue would immediately focus on the technological determinants of surplus labour, not the social processes of production. There is nothing attached to the concept of surplus labour that leads us to the analytical haven of the labour process.

After all, we can calculate surplus labour only by reference to the economy as a whole. Surplus labour is not to be detected, whether directly or indirectly, as a phenomenal substance within the firm. The association of terms like 'surplus labour' and 'value' with 'production' and 'labour process' is little more than prejudice. Whilst our choice of categories does indeed influence our area and mode of theoretical investigation, it simply has not been demonstrated that terms like these necessarily lead to the area of study that Wright, myself, and others would agree is central: the sphere of production.

A study of the history of Marxist economic analysis will support these remarks. Since the publication of the first volume of *Capital* in 1867 there has been much discussion of embodied labour values. But although large sections of Volume 1 are devoted to the labour process, there has been little discussion of it in the literature. In his 1904 reply to Böhm-Bawerk's criticisms of Marx,¹² the highly regarded Marxist Rudolf Hilferding asserted the importance of the labour theory of value because it involves a 'social' rather than 'subjective' category. There is no substantial discussion of the labour process, and he does not assert that Marxian value theory leads us to regard this as central in the process of capitalist production. In the two unrivalled classics of Marxist economic theory to appear outside Germany or the Soviet Union since the death of Marx, Paul Sweezy's *Theory of Capitalist Development* and Ernest Mandel's *Marxist Economic Theory*, we find nothing more than scanty discussion of the labour process, despite these authors' adherence to the labour theory of value. In fact, most of the important literature on the labour process, such as Braverman's *Labour and Monopoly Capital*, has appeared only since 1970. It may be necessary to recast

¹² Reproduced in P. Sweezy (ed.), *Karl Marx and the Close of His System*, London 1975.

Marxian value theory, but it would be an indignity to rewrite the history of Marxian economic thought as well.

It is the view of this author, which may be noted in passing, that it is not the categories of embodied labour and surplus labour that are crucial in leading us to an understanding of the central role of the labour process, and of the unique features of labour itself. The crucial element in the Marxist theory of capitalist production is Marx's distinction between labour and labour-power. It is labour-power, the capacity to work, that is bought and sold on the market; but it is labour, the activity of work itself, that must be extracted for production to take place. The distinction between labour and labour-power draws us towards an examination of the processes of coercion and management that are utilized to extract this labour from labour-power. I have discussed the significance of this elsewhere,¹³ and it has been noted in an important article by Bob Rowthorn.¹⁴

Prejudices Against Sraffa

Wright assumes, wrongly, that categories like embodied labour and surplus labour automatically direct us towards a study of the labour process. He is also mistaken in asserting that the Sraffian categories deter us from such study and lead instead to concentration on market relations. According to Wright, the pivotal research question the Sraffa model generates is this:

'What are the determinants of the real wage and of the technical conditions of production? This leads immediately to two general objects of empirical study: the determinants of the market power of wage labourers and capitalists, and technological change. The first of these concerns would involve investigations of such things as . . . trade unionism . . . monopoly concentration . . . the role of the state . . . in regulating the market conflict between labour and capital . . . or the role of imperialism.' No other factors have been excluded from the last sentence. Two things are to be noted in this

¹³ G. Hodgson, 'Exploitation and Embodied Labour Time', *Bulletin of the Conference of Socialist Economists*, June 1976.

¹⁴ Bob Rowthorn, 'Neo-Classicism, Neo-Ricardianism and Marxism', *New Left Review*, No. 86, July-August 1974.

quotation. First, Wright carefully inserts the word 'market' in two critical places where it does not follow from the course of the argument. The passage would be no less valid if the word 'market' was deleted. We could even replace 'market', a derogatory term for some Marxists, by terms with the Marxist stamp of approval, and the argument would lose no validity. Replace 'market power of wage labourers and capitalists' by 'class power of wage labourers and capitalists at the point of production', and replace 'market conflict between labour and capital' by 'class conflict between labour and capital over the length of the working day and coercion of labour by capital to extract an ever higher output' and loud applause can be heard in the gallery. These things can be read into Sraffa, as easily as a predilection for the market can be read in to tarnish the Sraffa system by association. But the accredited Marxist interpretation of Sraffa is just as valid, for the length of the working day and the level of output do appear prominently amongst the coefficients of the Sraffa system. Wright's association of Sraffa with a concentration on the market is mere prejudice, nothing more.

This prejudice is manifest on more than one occasion. Such misinterpretations of Sraffa are so widespread that it is worth discussing them in more detail. In Wright we find passages like this: 'Within Sraffian theory, classes play a *systematic* role only in terms of the determination of the real wage, and the combatants in the class struggle are defined by their location within the market. All wage-earners, therefore, would be part of the working class, since the income of all wage-earners takes the form of a deduction from profits. . . . In Marxist theory, the concept of class is closely linked to the question of surplus labour. Classes are defined by the social relations of production, not primarily by market relations.' This is wrong, through and through. If Wright read Sraffa more attentively he would find that classes are not defined, and the results of market forces are taken as given. There is no explicit or implicit definition of class in terms of the market, production, property, or anything else. It is just as valid to say that in Sraffa profits are a deduction from wages as it is to say that wages are a deduction from profits. Both are false propositions, and neither is to be found in Sraffa. It does not follow from Sraffa, therefore, that all wage-earners are part of the working class. Wright can interpret the Sraffa system in one of several ways.

But he should not impute an obviously false interpretation in order to knock down the formal propositions of the system.

We have noted that Sraffa presents no definition of class. That is an important omission, and in my view class is indeed an essential socio-economic category. But it must also be noted that there is no clear and explicit definition of class in *Capital*. Marx moves towards such a definition at the very end of the unfinished notes for Volume 3. Of course, a focus on production and the labour process is clear in Marx, but Wright has not shown that this focus is inconsistent with Sraffa. The drift of his paper, that the recast Marxist theory of value leads to an appropriate investigation, or 'social research', into the labour process, whereas Sraffian theory does not, is supported by no serious or rigorous theoretical argument.

Summary and Concluding Remarks

Unlike some critics, Wright does not reject Sraffa, but instead tries to subsume his work into a modified Marxist model. This is done by asserting that there are elements of causality in the Marxist theory that can be integrated with the Sraffa approach and retain their bearing on the real world. We have argued that the elements of causality Wright wishes to retain are not causes in the real sense at all. Furthermore, his choice of 'causes' is somewhat arbitrary, and others could follow his example and invent a multitude of different causes of the same type. His attempt to justify the category of surplus labour as a proximate cause is based on a circular argument about classes that assumes what he has to prove. And finally, his suggestion that the Marxist categories alone add something because they direct us towards the important area of the sphere of production and the labour process is simply unfounded.

Wright's article, impressive as it appears at first sight, includes a dubious phraseology and a measure of unfounded fundamentalist prejudice. For example, consider the passage, quoted above, in which Wright asserts that 'surplus-value establishes the fundamental limits on the range of possible profits'. Such key passages are riddled with ambiguity. What does 'establishes' mean? Does it mean establish in thought, or establish in the real world? The latter interpretation is not demonstrated, but it is implied by such a word, with its associations

with real-world things like institutions and buildings. What does 'fundamental limits' mean? Limits that are narrower than other limits? If that is the assertion, then it is not demonstrated. What else could it mean? A solid sounding sentence, highly ranked for quotation and approval, is rife with ambiguity and bereft of rigorous demonstration. Stripped of these linguistic supports, his argument collapses.

On other occasions Wright constructs statements that are formally correct but suggest something erroneous. Consider the following: 'to the extent that the organic compositions of capital in highly integrated economies tend to be relatively homogeneous across sectors and the rate of accumulation tends to be close to the maximum, the limits on possible profits will be fairly narrow.' Formally, the passage is correct. But the words 'in highly integrated economies' are redundant. The statement would be true for *any* capitalist economy, highly integrated or not. Why is the phrase inserted? It is hard to avoid the supposition that it is put there to evoke this sort of response from the reader: (1) modern economies are highly integrated; therefore, (2) organic compositions of capital will tend to be relatively homogeneous across sectors, and if (3) the rate of accumulation tends to be close to the maximum, then (4) the limits on possible profits will be fairly narrow. Such a response, however, would be incorrect. Proposition (2) does not follow from (1). If we have a highly integrated economy, there is simply no reason to assume that organic compositions of capital are fairly uniform—the opposite could well be the case.

It is to be noted that our critique of Wright's argument has not involved a discussion of joint production, problems with negative surplus labour, and so on. In rather cavalier fashion, Wright dismisses these problems in a footnote. For our purposes, however, this does not matter, for our critique of Wright is not based on any assumption of joint production. The reader can assume the most 'well behaved' capitalist economy in the world; Wright's model still has its glaring faults and fails to apply. We have attacked it in its firmest citadel: the well-behaved, single product capitalist economy. If the model is measured against the more realistic world of fixed capital and joint production, it must face other problems as well, but we have no need to elaborate on them here.

It is sufficient to note that Wright's assumption that the real world

is well behaved and will conform to his single-product (and relatively uniform organic composition of capital?) model is reminiscent of the neo-classicist faith in the well-behaved aggregate-production function, despite the fact that the Sraffian critique of neo-classical distribution theory has shown that there are no reasons for assuming such special, 'well-behaved' cases. In response, many neo-classical economists hold to their aggregate-production function merely as an article of faith. It would be dangerous to retain 'structural limitation', and such a well-behaved causal relation between surplus labour and profits, for the same reason.

The faithful might find some solace in Wright's essay. It postpones the demise of the old paradigm when it is the new one that should be adopted and enriched with fresh scientific insight. To me, the state of value theory in the classical-Marxist/Sraffian tradition can be compared to the state of astronomy after Copernicus. The analogy should not be pushed too far: Sraffa is not Copernicus and neither Marx nor Adam Smith were Ptolemy. Common features, however, can be found. The Ptolemaic model was an elaborate construction designed to demonstrate the geocentricity of the universe. It involved a complex system of thirty-nine 'wheels' to 'carry' sun, moon, planets, and stars in their heavenly motion. The problem with the Ptolemaic universe, and similar labours of his Alexandrian colleagues, was not that of failure to make correct predictions, nor of failure to be of practical use: 'Hipparchus's Catalogue of the fixed stars, and Ptolemy's Tables for calculating planetary motions, were so reliable and precise that they served, with some insignificant corrections, as navigational guides to Columbus and Vasco da Gama.'¹⁵ The Ptolemaic theory was not refuted by evidence, nor made redundant through any failure to construct a practical view of the world. It was eventually displaced, after more than a millennium and a half had passed, by a different view, in which the earth moved around the sun and the stars were not requested to describe circles for the benefit of a static Earth.

What were the reasons for its displacement? The Ptolemaic system could claim to explain the universe in terms of elaborate sky geometry, of cycles and epicycles, centrics and eccentrics. It served

¹⁵ Arthur Koestler, *The Sleepwalkers*, London 1968, p. 70.

the purpose of elevating the Earth, and thereby its dominant species, humans, to the status of supreme being within the world of the Creator. It was resilient and impressive. But it was displaced because it failed to construct an adequate explanation of cause and effect. It was not the hint of a heliocentric universe in Copernicus, nor the telescope of Galileo, nor the ellipses of Kepler, that led to the abandonment of the Ptolemaic system. It was Newton's mechanics, in which motion through space is explained by three laws of motion, that crushed the Ptolemaic system. Nevertheless, if we wish, we can go on believing in Ptolemy even to this day, because there is no final proof of the validity of the Newtonian system.

An analogy is suggested with Sraffa and traditional Marxian value theory. The defect of the latter is not that it fails to make predictions, nor that it fails to be of practical use. As Ptolemy's Tables guided Columbus to a New World across the ocean, so Marx's labour theory of value led him to the labour process and to begin to examine the process of exploitation under capitalism. But that does not mean that Ptolemy's or Marx's theories are valid.¹⁶ Yet Wright and others continue to uphold the latter's labour theory of value. In an effort to reconcile it with new insights and arguments, he constructs an elaborate typology of 'modes of determination', analogous to the wheels of the Ptolemaic system. The result, however, is not science. In the words of Milton in *Paradise Lost*, it is an elaborate effort 'to save appearances':

'Hereafter, when they come to model Heaven
And calculate the stars, how they will wield
The mighty frame, how build, unbuild, contrive
To save appearances, how gird the sphere
With centric and eccentric scribbled o'er,
Cycle and epicycle, orb in orb.'

¹⁶ For an analysis of the labour process and exploitation without the labour theory of value, see my *Capitalism, Value and Exploitation*, Oxford 1981.