

The Value-Creating Capacity of Skilled Labor in Marxian Economics

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ABSTRACT: According to the most widely accepted explanation of the increased value-creating capacity of skilled labor in Marxian economics, an expenditure of skilled labor represents a simultaneous expenditure of both the worker's present simple labor and a *pro rata* share of all past labor spent on and by the worker acquiring the skill. First popularized by Hilferding, this solution to the so-called "reduction problem" has been elaborated and reaffirmed in recent years by several theorists. In assessing the validity of the Hilferding accounting procedure, though, little attention has been paid to the question of how the procedure interacts with Marx's theory of the value of labor-power to explain the production of surplus-value. An analysis of that issue reveals that the Hilferding approach is fatally flawed. It contradicts both Marx's explanation of the origin of surplus value and common sense, and it causes more theoretical problems for the labor theory of value than it solves. More generally, an analysis of the source of the theoretical difficulties encountered by the Hilferding procedure suggests that there may be no solution to the reduction problem which is simultaneously consistent with both Marx's theory of the value of labor-power and his general theory of value. That is, the reduction problem may be insoluble within the framework of Marx's version of the labor theory of value.

INTRODUCTION

The past decade has been one of vigorous debate among Marxists concerning the nature, validity, and relevance of the labor theory of value. The focus of this debate has been a set of related issues raised by post-Sraffian critics of the labor theory of value.¹ Other issues have also been discussed, however, and this paper concerns one of these, namely, the adequacy of traditional explanations of the increased value-creating capacity of skilled labor in Marxian economics.

Criticism of Marx's treatment of this issue originated with Böhm-Bawerk (1896). He charged Marx with circular reasoning in the section of *Capital* where the augmented value-creating capacity of skilled labor is first mentioned (Marx 1967, Vol. I: 44). Böhm-Bawerk's argument is that Marx explains the increased value of the products of skilled labor by reference to the greater value-creating capacity of that labor and then offers no explanation of that augmented value-creating capacity other than to indicate that it is demonstrated by the greater value of the products of skilled labor.

Marxists have generally acknowledged that, taken by itself, the passage cited by Böhm-Bawerk does not provide an adequate explanation of the value-creating capacity of skilled labor. They have not agreed, however, that the labor theory of value is trapped in tautology at this point. Citing hints in other parts of *Capital*, they have claimed that an acceptable explanation of the augmented value-creating capacity of skilled labor is implicit in Marx's analysis.

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In arguing this point, one school of thought has focused on Marx's contention that the rate of surplus-value will tend to be the same for skilled and unskilled labor. By accepting this assumption, they point out that the increased value-creating capacity of skilled labor can be directly calculated from the value of skilled labor-power.² Most commentators have rejected this method, though, on the grounds that it derives the value-creating capacity of labor from the value itself of labor-power, a procedure which Marx always criticized.

An alternative approach, popularized by Hilferding in his rejoinder to Böhm-Bawerk, has gained wider acceptance (see Hilferding 1904; Sweezy 1968; Rubin 1972; Meek 1973; Morishima 1973; Rowthorn 1974; Roncaglia 1974; Bowles and Gintis 1977; Gintis and Bowles 1981). According to the Hilferding approach, an expenditure of skilled labor counts as a simultaneous expenditure of both the skilled worker's own present labor and a proportionate share of whatever past labor was spent acquiring the skill. The augmented value-creating capacity of skilled labor is therefore seen as resulting from the fact that present and past value-creating simple labors are condensed in an expenditure of skilled labor.

Little has ever been said in criticism of this solution to the so-called "reduction problem." Even Böhm-Bawerk accepted it in principal, questioning only its empirical validity (Böhm-Bawerk 1896: 84–85). Then Morishima inspired a resurgence of interest in the issue by calling attention to a hitherto unnoticed theoretical corollary of the Hilferding approach. The corollary is that the rate of exploitation need not be the same for skilled and simple labor. In Morishima's view, this contradicts Marx's "two-class view of the capitalist economy" (Morishima 1973: 193). It also contradicts fairly clear assertions by Marx that the rate of exploitation will tend to be the same for skilled and simple labor.³

Morishima argues that this result is sufficiently problematical to warrant a rejection of the labor theory of value in Marxist economics. Those Marxists who have since addressed the issue, however, have accepted the idea of variable rates of exploitation with equanimity (Rowthorn 1974; Roncaglia 1974). Some have even welcomed the idea of accommodating variable rates of exploitation in Marxian economics, because it both eases and emphasizes the analysis of differential exploitation based on race, gender and nationality (Bowles and Gintis 1977). Thus, despite Morishima's questioning, the Hilferding approach still commands almost universal confidence among Marxists as a solution to the reduction problem.

It is my contention that this confidence is ill-founded. In this paper I will argue that the Hilferding approach is logically flawed, that it misconceives the nature of skill, and that it creates more problems for the labor theory of value than it solves. More generally, I will argue that the nature of the relationship between Marx's theory of the value of labor-power and his general theory of value makes it unlikely that *any* satisfactory solution exists to the reduction problem which is consistent with both theories.

My discussion begins with a brief review of Marx's theory of the value of labor-power. I then describe the Hilferding approach in enough detail to illustrate its treatment of the differential value and surplus-value creating capacities of skilled and simple labor. Following that, I offer an assessment of the adequacy of the approach.

Since my analysis requires frequent and mixed references to both the value itself of labor-power and the value-creating capacity of labor, I caution readers to be careful not to confuse the two concepts. The value of labor-power is the value equivalent of a worker's capacity to perform labor. Its concrete expression is to be found in wage rates. The value-creating capacity of labor is the amount of value which a worker is capable of creating in a given period of time with an actual expenditure of labor. Its concrete expression is to be found in the value of the commodities which a worker produces. It is the difference between the value of labor-power and the value-creating capacity of actual labor which, according to Marx, gives rise to surplus-value. By avoiding abbreviated references to either of the two concepts in my analysis I have tried to ease the task of distinguishing between them, albeit at the cost of some extra verbiage.

MARX'S THEORY OF THE VALUE OF LABOR-POWER

Marx portrays his theory of the value of labor-power as a straightforward application of the labor theory of value to the wage contract. This view is summarized in the following well known passage:

The value of labor-power is determined, as in the case of every other commodity, by the labor time necessary for the production, and consequently also the reproduction, of this special article (Marx 1967, Vol. I: 170–171).

In elaborating his theory, however, Marx adopts a somewhat different formulation according to which the value of labor-power equals that of the means of subsistence which a worker must normally purchase to reproduce his or her labor-power. Marx himself claims that the two formulations are equivalent, but recent discussions of the role of housework in the determination of the value of labor-power have shown that they are not (Secombe 1973; Harrison 1973; Bullock 1974; Gardiner, Himmelweit and Mackintosh 1975; Harvey 1976, 1983; Gintis and Bowles 1981).

The first formulation attributes the value of labor-power to the *total* amount of socially necessary labor required to reproduce the worker's labor-power. The second attributes the value of labor-power to only that part of this socially necessary labor for which the worker must pay a monetary equivalent. In short, the first constitutes a true labor theory of the value of labor-power, while the second constitutes what could more properly be termed an incurred-cost-of-production theory of the value of labor-power.⁴

For example, suppose it requires 2000 hours of simple unskilled labor over a worker's lifetime to produce his or her ordinary unskilled labor-power, with 1000 of those hours being embodied in purchased means of subsistence (food, clothing, shelter, etc.), while the other 1000 hours is performed by the worker him or herself for "free" (in the form of cooking, laundry, cleaning, etc.).⁵

According to a true labor theory of the value of labor-power, the lifetime value of simple labor-power would equal the value equivalent of 2000 hours of simple labor. According to the theory which Marx used in practice, however, it will equal the value equivalent of only 1000 hours of simple labor.⁶ If means of subsistence sell at their values, then the latter formulation equates the value of labor-power with the monetary cost of reproducing the commodity labor-power. It is in this sense that I refer to the theory as an incurred-cost-of-production theory of the value of labor-power.

Marx's explanation of the increased value of skilled labor-power, in comparison to that of simple labor-power, is quite straightforward:

In order to modify the human organism, so that it may acquire skill and handiness in a given branch of industry, and become labor-power of a special kind, a special education or training is requisite, and this, on its part, costs an equivalent in commodities of a greater or less amount. This amount varies according to the more or less complicated character of the labor-power. The expenses of this education (excessively small in the case of ordinary labor-power), enter pro tanto into the total value spent in its production (Marx 1967, Vol. I: 172).

Note that Marx here refers directly to "costs" and "expenses" rather than to the amount of labor required to produce the special skill. This is entirely consistent with the cost-of-production theory of the value of labor-power which he in practice elaborated. A genuine labor-theory of the value of labor-power would equate the extra lifetime value of skilled labor-power to the value-equivalent of *all* the labor required to produce the skill, regardless of whether or not it was compensated and thus involved an incurred "cost" or "expense."⁷

Elaborating our earlier example, let us suppose that it takes an *additional* 2000 hours of simple labor spent on and by a worker for that worker to acquire a special skill. Let us further assume that this labor, too, is evenly divided between that provided "free" by the worker him or herself, and that embodied in the purchased goods and services constituting the "costs" or "expenses" of special training.⁸

According to a genuine labor theory of the value of labor-power, the lifetime value of this type of skilled labor-power would equal the value equivalent of 4000 hours of simple labor (the total labor-time required to produce the workers's simple labor-power plus the additional labor-time required to produce the worker's special skill). According to the cost-of-production theory which Marx actually used, however, the value of this type of skilled labor-power is equated to the value equivalent of only 2000 hours of simple labor (the value of the means of subsistence required for the production of the worker's simple labor-power plus the value of both the means of subsistence consumed by the worker during the special training period and the value equivalent of the expenses incurred for special educational goods and services).

Once again, note that this second formulation equates the value of skilled labor-power with the value equivalent of only *part* of the total labor required to reproduce the skilled labor-power, that part for which a monetary equivalent must be paid.

THE HILFERDING APPROACH

The accounting principle suggested by Hilferding to measure the augmented value-creating capacity of skilled labor is an additive one. It defines an expenditure of skilled labor as a summation of all the expenditures of simple labor embodied in the laborer's skill. That is, skilled labor is seen as an expenditure of simple labor to which is added (1) a proportionate share of the worker's own past simple labor spent learning the skill, and (2) a proportionate share of the direct and indirect labor of others who contributed to the training process. If any of this past contributory labor was skilled, then it is resolved into units of simple labor by a similar technique. In Hilferding's words, an expendi-

ture of skilled labor, “signifies the expenditure of all the different unskilled labors which are simultaneously condensed therein” (Hilferding 1966: 145). A simple algebraic model of the Hilferding accounting procedure is provided in an Appendix to this article.

From this brief description of the Hilferding approach we can see that what it involves is essentially the same as what is involved in tracing the preservation of value embodied in means of production. In both cases value attributable to an expenditure of labor in the past is transferred to a final product through the productive consumption of the commodity in which the past labor is embodied, be that a machine or skilled labor-power.

Is it really accurate then to say that the Hilferding approach attributes an increased value-creating capacity to skilled labor? I think not. It would be more correct to say that it attributes a value-preserving capacity to skilled labor such as means of production possess.

In any case, since the Hilferding approach attributes all of the extra value emanating from the exercise of a special skill to labor expended in the past, this must include all extra surplus-value as well. For example, in accord with our earlier discussion, suppose that 2000 hours of special training labor has been embodied in a skill. According to the Hilferding accounting procedure, the value produced by a worker exercising that skill will consequently exceed that produced by an unskilled worker by 2000 hours over the course of a normal working lifetime. According to Marx’s theory of the value of labor-power, however, the value of the skilled worker’s labor-power will exceed the value of simple labor-power by the value equivalent of only that portion of the 2000 hours of training labor for which workers must normally pay a monetary equivalent. Suppose that this equals the value equivalent of 1000 hours. Thus, when the skilled labor-power is productively consumed the value equivalent of 1000 hours of simple labor will *appear* as extra surplus-value attributable to the exercise of the skill. In reality though, it is merely the unpaid portion of the past labor embodied in the skill.

If capitalists paid less for means of production than the value equivalent of all of the labor required to produce them, then the productive consumption of those means of production by unskilled workers would also appear to result in the creation of extra surplus-value. In that case, though, no Marxist would suggest that the unskilled workers had created the extra surplus-value. Instead, it would be asserted that unpaid labor had been embodied in the means of production, and that capitalists had realized this “stored” unpaid labor at a later stage in the process of production and exchange. But why shouldn’t the same line of reasoning be applied to the additional surplus-value which the Hilferding procedure attributes to an expenditure of skilled labor?

What really happens, according to the Hilferding approach, is this. Some of the labor embodied in a special skill does not cost workers a monetary equivalent. Hence, this labor does not add to the value of skilled labor-power. The full value which it would have created if employed in the production of any other commodity is, however, “stored” in the special skill. This “stored” value is recovered when the skilled labor-power is consumed. It appears to be additional surplus-value attributable to the exercise of the skill, but it is really just the value equivalent of the “unpaid labor” embodied in the skill.⁹

Seen in this light, the difference in the rate of exploitation for skilled and unskilled labor which results from the Hilferding accounting procedure is easily understood. According to the Hilferding procedure, the rate of surplus-value of skilled labor is, in fact, a weighted average of the rate of surplus-value of ordinary simple labor and what can be regarded as the rate of surplus-value "embedded" in the stored labor constituting the skill in question.¹⁰

If the "embedded" rate of surplus-value is higher than the ordinary rate for simple labor, then skilled labor will appear to have a higher rate of surplus-value than simple labor. If the "embedded" rate of surplus-value is lower than the ordinary rate, then skilled labor will appear to have a lower rate of surplus-value than simple labor. Finally, if the "embedded" rate of surplus-value equals that of ordinary simple labor, then skilled and unskilled labor will appear to have the same rate of surplus-value.

Reviewing our summary of the Hilferding approach, there are three points which should be remembered. First, the procedure does not really attribute any extra value-creating capacity to skill. It merely assigns to skill a value-preserving capacity such as means of production possess.

Second, any extra surplus-value which the Hilferding approach credits to an exercise of skill is actually the product of "unpaid" labor which has been embodied in the skill.

Third, the variability in the rate of surplus-value across skill levels which is a corollary of the Hilferding approach is a necessary product of the way in which the Hilferding approach interacts with Marx's theory of the value of labor-power. The Hilferding approach equates the extra value-creating capacity of skilled labor to the extra labor-time required to produce the skill, whereas Marx attributes the extra value of skilled labor-power to the additional incurred cost of acquiring the skill. As these two quantities bear no determinate relationship to one another, neither will the rate of surplus-value of skilled labor bear any determinate relationship to the rate of surplus-value of simple labor.

THE ADEQUACY OF THE HILFERDING APPROACH

Thus far I have not questioned the adequacy of the Hilferding approach. I have merely argued that the allegedly augmented value-creating-capacity which it attributes to skilled labor is analytically indistinguishable from the value-preserving capacity attributed to means of production in Marxian value theory. This may suggest that the theory needs to be reformulated so that a unified treatment of the value-preserving capacity of skill and of means of production could be achieved, but it does not call into question the adequacy of Hilferding's underlying conception of skilled labor as a concentrated expenditure of present and past simple labors.

Is this conception of skilled labor adequate? I believe it is not. The first problem I see with the conception is that it accounts for the augmented value-creating capacity of skilled labor in a logically different way than does the value-creating capacity of simple labor, without suggesting any justification for the distinction. Secondly, I think it misconceives the nature of skill. Finally, I believe its incorporation into the labor theory of value gives rise to far more serious theoretical problems than the one it is intended to resolve. Let us consider each of these points in turn.

The Logical Consistency of the Hilferding Approach

As we have noted, the accounting principle suggested by Hilferding is an additive one. He described it in the following terms.

In this single act of the expenditure of skilled labor a sum of unskilled labors is expended, and in this way there is created a sum of value and surplus-value corresponding to the total value which would have been created by the expenditure of all the unskilled labors which were requisite to produce the skilled labor-power and its function, skilled labor (Hilferding 1966: 145).

No one, to my knowledge, has questioned the reasonableness of this argument. What would our judgment of it be, however, if it were applied to simple rather than skilled labor? After all, an expenditure of simple labor can also be characterized as representing an expenditure of all the unskilled labors required for its production. Consider the following rephrasing of the Hilferding quotation:

In this single act of the expenditure of simple labor a sum of past simple labors is expended, and in this way there is created a sum of value and surplus-value corresponding to the total value which would have been created by the expenditure of all the past labors which were requisite to produce the simple labor-power and its function, living unskilled labor.

Could this proposition be accepted as proper in the context of Marxian value theory? I think not. Marx himself would obviously have rejected it as contradicting his fundamental claim that living labor is capable of creating *more* value than could all of the labors required to produce the commodity labor-power.¹¹

If Hilferding's formulation cannot be applied to simple labor, though, what justifies its application to skilled labor? If a given expenditure of labor spent producing simple labor-power results in a value-creating capacity greater than the value equivalent of that labor expenditure, then why should the very same expenditure of labor spent producing skilled labor-power result in a value-creating capacity exactly equal to the value equivalent of that labor expenditure?

The Hilferding approach conceives of the extra value-creating capacity of skilled labor as entirely *dependent* upon the amount of labor required for the production of skilled labor-power, while the value-creating capacity of simple labor is conceived as entirely *independent* of the amount of labor required to produce simple labor-power. Certainly this distinction requires some justification. What it amounts to is a claim that there is only one kind of value-creating labor in society, simple labor, and that the apparently augmented value-creating capacity of skilled labor has a logically different origin than does the "true" value-creating capacity of simple labor.

If there is some justification for this distinction, it needs to be stated. I question, though, whether any such justification could stand close scrutiny. My reason for believing this has to do with the second fundamental problem which I see with the Hilferding approach, namely, that it contradicts reality.

The Hilferding Approach and the Nature of Skill

The Hilferding approach conceives of skill as effectively non-labor-saving. According to this view, a skilled worker can create only as much extra value as

could be created by all of the unskilled labor expended in producing the special skill. Does this correspond to reality?

We observed above that, in the context of Marxian value theory, such an assumption would almost surely be regarded as false if it were applied to simple labor. There is no reason to believe that a worker's productive lifetime will tend to equal the labor-time required to reproduce his or her labor-power. Another way to say the same thing, however, is that there is no reason to believe that the lifetime physical productivity of simple-labor will tend to equal the physical productivity of the labor required to reproduce simple labor-power.

Is not the same true of a special skill? Is there any reason to suppose that the augmented physical productivity attributable to an acquired skill will tend to equal that of the training labor spent producing the skill? I can think of none, and yet that is what the Hilferding approach implicitly assumes.

This, I believe, is a fundamental flaw in the approach. A skill is an ability which does more than just store labor. It *saves* labor. An accounting procedure which categorically rejects this possibility strikes me as simply wrong.¹²

In this regard, it is interesting to compare the Hilferding approach with Marx's treatment of the differential value-creating capacities of more and less intense labor. Marx reasons that more intense labor is capable of creating more value in a given period of time because it constitutes a "condensation of a greater mass of labor into a given period" (Marx 1967, Vol. I: 410). He also argues that an increase in the intensity of labor will cause an increase in the absolute value of labor-power because of the additional "wear and tear" on the worker's body which it causes. In other words, he describes an hour of more intense labor as having an augmented value-creating capacity, while noting that the value itself of an hour's worth of labor-power thus consumed is also greater (1967, Vol. I: 524–525). In this respect, more intense labor is analogous to skilled labor.

How does Marx account for the augmented value-creating capacity of more intense labor? Quite simply, he assumes that it reflects the increased physical productivity of the labor. His specific argument is that capitalists will seek to increase the intensity of labor because the increased physical productivity of more intense labor, and hence its increased value-creating capacity, normally exceeds any increase in the value of labor-power thus consumed. There is absolutely no suggestion in this argument that the increased value-creating capacity of an hour of more intense labor bears any relationship to the amount of additional labor required to produce an hour's worth of labor-power so consumed.

I would argue that the augmented value-creating capacity of skilled labor exists for the same reason. Skilled labor creates more value in equal periods of time than does unskilled labor because it is physically more productive, and there is no reason to suppose that any determinate relationship exists between this increased physical productivity and the physical productivity of the extra labor required to produce the skill. Hence, there is no determinate relationship between the increased value-creating capacity of skilled labor and the value equivalent of this training labor.

As has often been noted, however, there is no easy way to measure differences in the physical productivity of labor. It is easy to compare the differential

value-creating capacities of workers embodying different levels of skill in producing the same physical product. We merely compare the physical productivities of the two types of labor and assume that if the more skilled labor produces twice as much in an hour, it has twice the value-creating capacity. The difficulty arises when we try to measure differences in the physical productivity of labor which is utilized to produce different products.

Precisely the same measurement problem exists, though, with regard to differences in the physical productivity, and hence the value-creating capacities, of less and more intense labor. Where the variation is among workers producing the same physical product, and using the same concrete labor process, the measurement of productivity differences attributable to the intensity of labor is easy; but how do we measure the difference when the comparison is being made between industries, or even between two different labor processes producing the same product?

Just as with skill level, no direct measures of labor intensity exist. For example, how can we measure differences in the intensity of labor on a Detroit assembly line and in a rural garage where auto repairs are performed; and thus, how can we measure the relative value-creating capacities of these two types of labor other than by reference to the relative value of their products, an identical procedure to the one which Böhm-Bawerk criticizes in reference to skilled labor. The theoretical difficulty which the existence of differentially productive labor poses for the labor theory of value is not limited to the problem of reducing skilled to simple labor.

The Hilferding Approach and the Labor Theory of Value

Even if all the logical problems thus far noted with regard to the Hilferding approach could be resolved, the theoretical difficulties which skilled labor (or more intense labor) create for the labor theory of value would not be overcome. To see this, let us consider whether the Hilferding procedure does in fact accurately reflect the commodity valorization process to which capitalist production gives rise.

For simplicity, we will assume throughout the following discussion that no pre-existing means of production are required in any production process. In other words, we will assume that all raw materials and tools are produced and totally consumed as part of the direct labor process itself. The same analysis could be carried out without the benefit of this simplifying assumption, but it would only complicate our discussion without advancing our purpose, which is to understand the effect of skill differentials alone on the valorization process.

Let us suppose that two commodities, "a" and "b," are produced under capitalist conditions using only simple labor, and that 100 hours of such labor is required for the production of either commodity. Assuming a uniform rate of exploitation in both industries, profit maximizing behavior on the part of capitalists, mobility of capital between the two industries, and price setting markets; then both the value (in Marxian terms) and the exchange-value of "a" will tend to equal that of "b," regardless of the absolute level of the rate of exploitation.

Now, let us suppose that an alternative method of producing commodity "a" becomes available using skilled rather than unskilled labor. Let us assume (1)

that the amount of training labor required to learn this skill would, if averaged over the entire productive lifetime of a laborer, add thirty minutes of past simple labor to each hour spent using the skill; and (2) that using this method, only 50 hours of direct skilled labor are required for the production of one unit of commodity “a,” instead of the 100 hours required using simple labor. Using the Hilferding method of commensurating skilled and simple labor, the production of “a” by means of this new method can thus be said to require the equivalent of 75 hours of simple labor — 50 hours of direct labor and an additional 25 hours of past labor stored in the skill.

How will the appearance of this new production technique affect the value and the exchange-value of “a” according to Hilferding’s line of reasoning? In other words, how will it affect the amount of socially necessary labor required to produce “a,” and how will it affect the rate at which “a” and “b” tend to exchange for one another?

The answer to both questions will depend upon whether or not producers adopt the new production technique, and that, in turn, will depend upon the respective values of skilled and simple labor-power. Let us consider why this is so.

According to our assumptions, skilled labor is twice as productive as simple labor in industry “a.” That is, a skilled worker is capable of producing in 50 hours what an unskilled worker would require 100 hours to produce. If the value of skilled labor-power of the requisite type is less than twice that of simple labor-power, and if labor-power tends to sell at its value, then capitalists will tend to adopt the new method of producing “a.” If, however, the value of skilled labor-power is *more* than twice that of simple labor-power, then the old method will continue to be used. Finally, if the value of skilled labor-power is exactly twice that of simple labor-power, then capitalists will tend to be indifferent between the two methods. Some will continue to use the old method. Others will adopt the new method. Thus, it is the relative value of skilled and simple labor-power that determines which method of producing commodity “a” capitalists will prefer.

What will the relative value of skilled and unskilled labor-power be? The answer is that we don’t know. The value of labor-power depends upon its incurred cost-of-production, and, as we have noted, these costs-of-production bear no determinate relationship to either the amount of labor required to produce the labor-power in question or to its physical productivity. All we can reasonably assume is that the value of skilled labor-power will be greater than that of unskilled labor-power. It could be more than twice as great, less than twice as great, or exactly twice as great.

If the value of labor-power is such that the new method of producing “a” is cheaper, and therefore comes to be preferred by capitalists, the amount of socially necessary labor required to produce “a” will gradually change from 100 hours of simple labor to 50 hours of skilled labor. If we accept the Hilferding commensuration procedure, this means that the amount of socially necessary labor required to produce a unit of “a,” and hence its value equivalent, would now equal 75 hours of abstract simple labor.

If, however, the value of labor-power is such that the old method of producing “a” continues to be preferred by capitalists, then the amount of

socially necessary labor required to produce a unit of "a" will also continue to equal 100 hours of simple labor. In this case, the value equivalent of "a" will be 100 hours of abstract simple labor, even though a method of production which is more efficient in value terms (according to the Hilferding accounting procedure) is available.

Finally, if the value of labor-power is such that producers are indifferent between the two methods of producing "a," then the amount of socially necessary labor required to produce the commodity, and hence its value, will be indeterminate. It would no longer be the value equivalent of 100 hours of simple labor, but neither would it be the value equivalent of 75 hours. If we conclude that it is the value equivalent of the average amount of labor actually spent producing a unit of "a," then the concept of socially necessary labor itself assumes a new meaning. It is no longer an *ex ante* factor tending to regulate a capitalist's choice of production method. Rather, it is an *ex post* calculation of the average amount of labor actually embodied in a commodity, an amount, moreover, which is determined, within bounds, by chance.

Acceptance of the Hilferding accounting procedure therefore gives rise to an analogue of the choice of technique problem which figures prominently in post-Sraffian criticism of the labor theory of value. Only here the problem arises not in reference to possible contradictions between Marx's value and price-of-production schemas, but within his value schema itself.

There is, however, a far more serious problem which follows from reliance upon the Hilferding accounting procedure. That is, the exchange of commodities will no longer be regulated by the amount of labor required to produce them. To see this, we need only consider how the rate of exchange between commodities "a" and "b" would be affected if the new method of producing "a" by means of skilled labor were adopted.

If, for example, the value of an hour of skilled labor-power is only 20 percent greater than the value of an hour of simple labor-power, capitalists will tend to abandon their old method of producing "a" in favor of the new method which uses skilled labor. Over time, the production cost of a unit of "a" will tend to equal the value of 60 hours of simple labor-power (50 hours of skilled labor-power with a value equal to 120 percent of that of simple labor-power has a value equal to that of 60 hours of the latter). Since the production of a unit of "b" will still require 100 hours of simple labor, its unit cost of production will continue to equal the value of 100 hours of simple labor-power.

As long as the old rate of exchange prevails, according to which one unit of "a" has the same exchange value as one unit of "b," producers of "a" who adopt the new method of production will enjoy windfall profits. The relative exchange values of the two commodities will, however, tend to change. Capital will flow into industry "a" from other industries. The supply of "a" will increase, and its exchange value will fall relative to that of "b." The adjustment process will continue until one unit of "b" tends to exchange for .6 units of "a," even though the Hilferding accounting procedure tells us that the relative value of a unit of "a" is .75 that of a unit of "b."

More significantly, if the relative value of skilled and simple labor-power were to change, then the relative exchange values of commodities "a" and "b" would also tend to change, regardless of whether or not any change

occurred in the relative amount of labor required to produce the two commodities as measured by the Hilferding procedure.

In short, the ratios in which commodities tend to exchange will not, under these circumstances, bear any determinate relationship to the relative amounts of labor required to produce them (as measured by the Hilferding procedure). Instead, exchange values will depend upon the relative costs of producing the two commodities, as determined by the relative values of skilled and simple labor power. Thus, the link between the socially necessary labor required to produce a commodity and its exchange value is severed.

To claim that the Hilferding accounting procedure defines the differential value-creating capacities of skilled and simple labor thus involves the abandonment of the far more fundamental Marxian claim that the exchange of commodities is regulated by their relative values. In light of this, Hilferding's proposed solution to the reduction problem can hardly be accepted as an effective defense of the labor theory of value.¹³

THE ROOT OF THE PROBLEM

In the preceding section I have tried to show that the Hilferding approach causes more theoretical problems for Marxian value theory than it solves. The same theoretical problems would surface, though, in any model of the increased value-creating capacity of skilled labor which allows for an indeterminate relationship between the augmented value-creating capacity of skilled labor and the augmented value itself of skilled labor-power. The reason for this is rooted in the fact that any such model allows for the existence of non-systematic differences in the rate of exploitation between industries.

The existence of differential rates of exploitation between industries has the same effect on industry profit rates as does the existence of variations in the organic composition of capital between industries. That is, profit rates will vary between industries if commodities sell at their values. A "transformation" of values into prices of production is therefore implied.

While it may seem that this merely complicates Marxian value theory without confronting it with any categorically new problems, the trouble is more serious than that. When deviations of prices of production from commodity values are based on variations in the organic composition of capital, it is still true that a determinate relationship exists between the amount of labor required to produce a commodity and its price of production (at least in the absence of anomalies associated with joint production or the use of multiple techniques). When prices of production arise because of non-systematic differences in the rate of exploitation, that is, when no determinate relationship exists between the value-creating capacities of various types of labor and the value itself of the corresponding types of labor-power, then the link between socially necessary labor and prices of production is completely broken.

The Hilferding accounting procedure gives rise to such results because it attributes the additional value-creating capacity of skilled labor to a factor (the quantity of labor spent acquiring a skill) which has no determinate relationship

to the factor which determines the extra value itself of skilled labor-power (the incurred cost of acquiring the skill). It is not a problem, however, that is uniquely associated with the Hilferding approach. The very same problem would arise, for example, if we attributed the extra value-creating capacity of skilled labor to its enhanced physical productivity. Only a theory which linked the value-creating capacity of labor to the value of labor-power would avoid the problem, but such a theory would constitute a repudiation of the labor theory of value as both Marx and Ricardo formulated it, for it would derive relative values from relative wages rather than from the relative quantities of labor required to produce commodities.

Marx's simple assertion that the rate of exploitation tends to be the same for skilled and simple labor is therefore less threatening to the labor theory of value. We have seen, though, that his theory of the value of labor-power is incompatible with such a presumption. It necessarily implies that rates of exploitation for skilled and unskilled labor will vary in entirely unsystematic ways, that is, without those differences being linked in any determinate way either to differences in the relative amount of labor required to produce skilled and simple labor-power or to the relative physical productivities of skilled and simple labor. Given this, it seems doubtful that *any* solution to the problem of reducing skilled to simple labor exists which is simultaneously consistent with Marx's theory of the value of labor-power and with the labor theory of value.¹⁴

CONCLUSION

Böhm-Bawerk believed that Marx's treatment of the value-creating capacity of skilled labor was the Achilles heel of his entire theoretical system. Marxists have long thought that they had proven Böhm-Bawerk wrong. I have tried to show that the most widely used line of defense against his criticism is deficient.

I have also tried to show that the theoretical difficulties associated with the reduction problem are more serious than has generally been recognized, and that they concern more than just skilled labor. They extend to the analysis of the augmented value-creating capacity of more intense labor, and I suspect they would also emerge in a careful exposition of the loosely-defined concept of international values. In short, the problem is a general one of accounting for the differential value-creating capacities of different types of labor which, for any reason, embody different levels of physical productivity.

We know that the product of a given quantity of more productive labor tends to exchange for the product of a greater quantity of less productive labor. In what proportions, however, will the exchange tend to occur? As Marx notes, that is something which is established by "a social process that goes on behind the backs of the producers" (Marx 1967, Vol. I: 44). The theoretical problem is to describe the "social process" which causes this principle to work in a logically and empirically satisfactory manner. If I am right in questioning the adequacy of Hilferding's solution to the problem, then the analytical validation of Marx's theory of value, even under the simplest of conditions, still remains to be accomplished.

APPENDIX

AN ALGEBRAIC MODEL OF THE HILFERDING ACCOUNTING PROCEDURE

A simple algebraic model of the Hilferding accounting procedure can be constructed using Meek's (1973) version of it as a starting point. His version is both simply and clearly stated, and it is conceptually equivalent to the models of others working in the Hilferding tradition.

To measure the value-creating capacity of a skilled worker, Meek proposes the following:

One may simply calculate the amount of simple labor (including his own) which was expended in training the laborer, and then average this out over the whole of his expected productive life. If p hours is his expected productive life, and t hours of simple labor have been expended upon him and by him during the training period, then when he starts work each hour of his labor will count (for the purpose of estimating the value of the commodity he produces) as $1 + t/p$ hours of simple labor (Meek 1973: 172).

If we adopt as our unit of account the amount of value created by an expenditure of one hour of socially necessary simple labor, then the total value created by an unskilled worker in his or her lifetime (TVC_u) will equal p units, while the total value created by a skilled worker in his or her lifetime (TVC_s) will equal $p + t$ units. That is:

$$TVC_u = p \quad (1)$$

$$TVC_s = p + t \quad (2)$$

As noted in the main body of the paper, this result is analytically identical to what would happen if an unskilled worker was assisted during the course of his or her lifetime with means of production embodying t hours of simple labor, except that in that case we would not credit the worker with having created the extra value. We would say that it was the product of past labor and had merely been preserved in the means of production.

Let us now use our simple model to calculate the mass of surplus-value attributable respectively to an exercise of simple and skilled labor. This will illustrate that all extra surplus-value which the Hilferding accounting procedure seems to attribute to the exercise of a special skill actually originates in unpaid past labor embodied in the skill.

To undertake this demonstration we must define respectively the value of simple and skilled labor-power. As explained in the main body of the paper, we will follow general practice and equate the value of labor-power to its incurred-cost-of-production, rather than to the value equivalent of all the labor required to produce it.

In the case of simple labor-power, let us assume that the lifetime value equivalent of a worker's purchased means of subsistence is equal to m units (again using the value created by a one hour expenditure of simple labor as our unit of account). Hence, the lifetime value of unskilled labor-power (VLP_u) can be expressed as follows:

$$VLP_u = m \quad (3)$$

In the case of skilled labor-power, let us assume that the value equivalent of the *extra* cost of acquiring the skill is equal to e units. We will define these extra costs as consisting of (1) the value equivalent of the cost of purchased means of subsistence required to maintain the worker during the special training period and (2) the value equivalent of expenditures on educational goods and services required for the special training (Cf. Rowthorn 1974). Thus, the lifetime value of skilled labor-power (VLP_s) can be expressed as follows:

$$VLP_s = m + e \quad (4)$$

The mass of surplus-value created during a worker's lifetime (MSV) equals the difference between the total value created by the worker (TVC) and the lifetime value of his or her labor-power (VLP). From equations (1) through (4) we therefore derive the following:

$$MSV_u = p - m \quad (5)$$

$$\begin{aligned} MSV_s &= (p + t) - (m + e) \\ &= (p - m) + (t - e) \end{aligned} \quad (6)$$

From equation (6) we see that the extra surplus-value seemingly created by skilled labor equals the difference between the value equivalent of *all* of the extra labor embodied in the skill (t) and the cost of acquiring the skill (e). In other words, a value equivalent of t hours of simple labor has been stored in the skilled labor-power, but a capitalist only has to pay the value equivalent of e hours in order to acquire the use of the special skill. Therefore, when the skilled labor-power is productively consumed, the difference between t and e units of value *appears* as extra surplus-value attributable to an exercise of the skill.

If t were equal to e , then skilled labor would appear to produce exactly the same mass of surplus-value as unskilled labor. This would be the case if a genuine labor (rather than a cost-of-production) theory of the value of labor-power were used. Then the extra value of skilled labor-power (e) would equal the value equivalent of *all* of the extra labor (t) required to produce the special skill.¹⁵

Having thus calculated the mass of surplus-value attributable to a lifetime expenditure of skilled and unskilled labor respectively, we can now calculate the rate of surplus-value attributable to each. This will show that any difference in the rate of surplus-value of skilled in comparison to that of simple labor will depend upon the rate of surplus-value "embedded" in the skill itself.

To illustrate this, let us first calculate the rate of surplus-value which is "embedded" in a special skill, designating it RSV_e . It should be emphasized that this is *not* the rate of surplus-value for either skilled or simple labor as it is normally calculated in Marxian economics. Rather, it is the ratio of "unpaid" to "paid" labor embodied in the skill of a skilled worker.¹⁶

In our model, the amount of labor spent acquiring a special skill is equal to t hours. The cost of this special training, however, equals the value equivalent of only e hours of simple labor. The amount of "unpaid" labor embodied in a skill is therefore equal to $(t - e)$ hours, and the lifetime rate of surplus-value "embedded" in the skill can be expressed as follows:

$$RSV_e = \frac{t - e}{e} \quad (7)$$

The conventionally defined lifetime rate of surplus-value for skilled and unskilled labor (RSV_s and RSV_u) will equal the lifetime mass of surplus-value created by each (MSV) divided by the lifetime value of each type of labor-power (VLP). From equations (3) through (6) we therefore derive the following:

$$RSV_u = \frac{p - m}{m} \quad (8)$$

$$RSV_s = \frac{(p - m) + (t - e)}{m + e} \quad (9)$$

By algebraic manipulation it can be shown that for the rate of surplus-value of skilled and unskilled labor to be the same, the rate of surplus-value "embedded" in the skilled worker's skill must equal the rate of surplus-value of unskilled labor. That is, RSV_s will equal RSV_u only if RSV_e also equals RSV_u .¹⁷

In practice this would mean that all of the simple labor embodied in a special skill would have to cost the worker acquiring the skill exactly what it would if it were purchased as simple labor-power. That is, the incurred cost of the special training (e) would have to equal the value of t hours of simple labor-power, since only then would $(t - e)/e$ (our expression for RSV_e in equation [7]) be equal to the rate of surplus-value of unskilled labor.¹⁸

There is no reason why this should be the case. The purchased means of subsistence used to maintain a worker during the training period will cost the worker more than the value of the labor-power required to produce them (assuming that the worker is the one who pays for them). The educational goods and services used in the training process will cost the worker either more or less than the value of the labor-power required to produce them, depending upon how much of their cost the worker is required to pay. This, in turn, will depend upon the outcome of class conflict over the financing of education (Cf. Rowthorn 1974; Harvey 1983).

The most reasonable assumption is probably that the working class itself bears most of the costs of special training. Given this assumption, the simple labor embodied in a special skill can be expected to cost more than what it would if it were purchased as simple labor-power. This means that the incurred cost of the training required to acquire a special skill (e) will generally be greater than the value of t hours of simple labor-power, and $(t - e)/e$ (our expression for RSV_e in equation

[7]) will be less than the rate of surplus-value of unskilled labor. If RSV_e is less than RSV_u , it can be shown algebraically that RSV_s will be less than RSV_u . In other words, the rate of surplus-value of skilled labor will be less than that of unskilled labor.¹⁹

The only way that the rate of surplus-value of skilled labor could exceed that of unskilled labor would be if the working class were successful in shifting a substantial portion of the costs of any specialized training they receive to the capitalist class. Then e might be less than the value equivalent of t hours of simple labor-power. RSV_e would consequently be greater than RSV_u , and RSV_s would be greater than RSV_u .²⁰

The character of the Hilferding approach's treatment of surplus value becomes even clearer if, for illustrative purposes, we adopt a genuine labor theory of the value of labor-power in our model. As observed above, e equals t in this case, and skilled labor no longer appears to produce more surplus-value than unskilled labor.²¹ Hence, the rate of surplus-value "embedded" in a special skill will equal zero (shown by setting e equal to t in equation [7]). Equation (9), which represents the lifetime rate of surplus-value for skilled labor is also simplified if e equals t . It can, in that case, be rewritten as follows:

$$RSV_s = \frac{p - m}{m + e} \quad (9a)$$

Comparing equations (9a) and (8), we see that the rate of surplus-value can be the same for skilled and simple labor, in this instance, only if $e = 0$. But then t would also have to equal zero, and this is impossible, since within the framework of the Hilferding approach a special skill is the product of past training labor and, hence, of a positive t .

A more noteworthy conclusion to be drawn from equation (9a) is that the greater the value of e , the smaller will be the rate of surplus-value. Since e equals t , this means that the greater the skill level of a worker, the smaller will be the rate of exploitation of that worker.

This result is easily understood if we realize that it arises from the same circumstance which causes profit rates calculated in value terms to decline when the organic composition of capital increases.

Marx reasoned that if more "dead labor" (in the form of means of production) is combined with a given quantity of "living labor" (the labor which utilizes the means of production), then the rate of profit will decline, because only living labor is capable of creating surplus-value.

Analogous reasoning can be applied to Hilferding's conception of skilled labor. If more "dead labor" (in the form of an acquired skill) is combined with a given quantity of "living labor" (the substratum of new simple labor which utilizes the skill), then the rate of surplus-value will decline. As in the case of declining profit rates, this is because only living labor can create surplus-value, whereas the skilled component of skilled labor is, according to Hilferding's line of reasoning, really just another accumulation of dead labor.²²

Logically, this characteristic of the Hilferding approach applies regardless of whether we define the value of labor-power synthetically, in terms of the labor required to produce it, or more conventionally, in terms of its incurred cost of production. In the latter case, however, this characteristic of the approach is obscured by the fact that some of the value attributable to the dead labor embodied in a skill *appears* as additional surplus-value when the skill is utilized.

NOTES

1. The post-Sraffians charge that the labor theory of value is both "redundant," i.e., unnecessary, and logically inconsistent. They further argue that nothing essential in Marxian economics need be lost by a rejection of the labor theory of value in favor of the alternative which they offer. Indeed, they argue that Marxist economics would be much better poised for further development if such a switch were made. The response to this criticism by defenders of the labor theory of value has not been unified. Indeed, the defenders' disagreements with one another have tended to be just as sharp as their disagreements with the post-Sraffians. A sampling of this debate can be found in Ian Steedman, Paul Sweezy, et. al. (1981).
2. The passage most frequently cited in this regard is the following:

All labor of a higher or more complicated character than average labor is expenditure of labor-power of a more costly kind, labor power whose production has cost more time and labor, and which therefore has a higher value than unskilled or simple labor-power. This power being of higher value, its consumption is labor of a higher class, labor that

creates in equal times proportionally higher values than unskilled labor does (Marx 1967, Vol. I: 197).

For an even clearer statement of Marx's view that the rate of exploitation will tend to equality for skilled and simple labor see Marx (1967, Vol. III: 142). See also Marx (1967, Vol. I: 197; Vol. III: 175). For a more detailed description of the method of reducing skilled to simple labor based on an assumption of equal rates of surplus value, and for references to the literature based on it, see Rowthorn (1974).

3. See note 2.

4. For more on this see Harvey (1983), where I argue that the ultimate determinant of the value of labor-power in Marx's analysis is neither labor nor cost-of-production but, rather, the class struggle. Be that as it may, the theory is cast in the form of an incurred-cost-of-production theory, and it is in that form that it is general rendered, even while it is universally termed a labor theory. I have therefore chosen to give the theory this form in my present analysis. My argument would be essentially the same, however, if either a true labor theory of the value of labor-power were adopted, or a theory according to which the value of labor-power was directly determined by the class struggle. For other assessments of Marx's theory of the value of labor-power see Harrison (1973); Seccombe (1973); Bullock (1974); Gardiner, Himmelweit, and Mackintosh (1975); and Gintis and Bowles (1981).

5. For simplicity I am abstracting from the more realistic assumption that most of this housework will in fact be performed by the worker's mother (during childhood) and, if the worker is male, by his wife (during adulthood). Regardless of who performs it, though, this housework will still include unpaid labor (see Harvey 1983).

6. To calculate weekly, daily, or other unit values, this lifetime value would have to be averaged over a worker's normal productive life. Whether the length of a worker's productive life should be seen as varying with skill level is unclear. On the one hand, the time spent in special training will, all other things remaining equal, reduce the skilled worker's productive lifetime relative to that of an unskilled worker. On the other hand, the expected productive lifetime of a worker will also vary with the extent of bodily wear and tear associated with different types of labor. In general, more highly skilled workers probably labor under less arduous conditions than do unskilled workers. They therefore probably live, or at least are able to work, for a greater number of hours over their lifetime. All other things remaining equal, this will cause the expected productive lifetime of skilled workers to exceed that of unskilled workers. Hence, the relationship between skill level and the expected productive life of a worker is indeterminate, even in direction. For simplicity, I assume that the expected productive life of both skilled and unskilled workers is the same.

7. It should be noted that, at this point in Marx's analysis, the cost of purchased educational goods and services can be regarded as equaling their value. If queried, Marx might very well have argued that it is the *value* of these purchased educational goods and services which enters into the value of labor-power rather than their market price or price of production. In any case, only those educational goods and services which are normally purchased rather than being produced for "free" at home would be counted. Since proponents of the Hilferding procedure have generally used the "cost" rather than the "value" of educational goods and services in their calculations, I have adopted that convention in the present analysis. To assume that it is the "value" rather than the "cost" of purchased educational goods which determines the extra value of skilled labor-power would not effect our analysis in any essential respect.

8. Once again, for simplicity, I am abstracting from the fact that much of the "free" labor embodied in a special skill will be spent by teachers paid by the state. Bringing the state into the picture would complicate the analysis, but it wouldn't change it in any fundamental way. As with housewives whose labor is only partially compensated (in value terms) by the means of subsistence included in the value of labor-power, so the value equivalent of an educator's labor will be only partially compensated by his or her wage, regardless of who ultimately pays the wage. Thus, even if we equate the value of labor-power to the "social wage" received by workers' net of taxes, it will still be the product of an amalgam of paid and "free" labor. For an interesting model which accommodates a good deal of this complexity see Rowthorn (1974).

9. When referring to "paid" and "unpaid" labor in this context, we are not using the terms as they are usually employed in Marxian value theory. We mean "paid" or "unpaid" from the perspective of a worker whose reproduction and training costs constitute the value of his or her labor-power. "Paid" labor, in this sense, is labor for which the worker must pay an equivalent. It is labor for which a value-equivalent therefore appears in the value of labor-power. "Unpaid" labor is labor

required for the production of labor-power for which no equivalent need be paid. It is labor for which no value equivalent appears in the value of labor-power.

For example, if commodities sell at their values, then the labor embodied in means of subsistence purchased by a worker for self-maintenance during a training period is "paid" labor, in the sense we are using the term here. This is so even though the workers who produce the means of subsistence themselves receive only part of the payment. The point is that the full value equivalent of the labor embodied in those means of subsistence appears in the value of skilled labor-power. On the other hand, that portion of a worker's own labor spent acquiring a skill which is in excess of that embodied in the purchased means of subsistence which he or she consumes during the training period would be "unpaid" labor, in the sense we are using the term here. The value equivalent of that labor does *not* appear in the value of skilled labor-power. Another example of "unpaid" labor, in this sense, would be that portion of the labor of the worker's teachers for which the worker does not have to pay an equivalent, either because the state has paid for the training, or because the fees which the worker pays are less than the full value equivalent of the teacher's labor (as would happen in any case, if the teacher were paid a fee equal to the value of the teacher's labor-power rather than to the value equivalent of the teacher's labor). (Cf. Rowthorn 1974).

10. This "embedded rate of surplus-value" is *not* the rate of surplus-value of the wage-labor expended in special training. It is the ratio of "unpaid" to "paid" labor embodied in the special skill, with the concepts of "unpaid" and "paid" labor being defined as explained in the preceding footnote.

11. Recognizing that Marx did not, in practice, equate the value of labor-power to the value equivalent of all the labor required to produce it, the issue becomes more clouded, but I believe our conclusion would be the same. To apply Hilferding's formulation to simple labor would require us to assume that the amount of labor required over a worker's lifetime to produce his or her simple labor-power tends to equal the worker's own productive lifetime. I can think of no warrant for such an assumption.

12. It might be argued that it is not the physical productivity of labor which is at issue, but its value-creating capacity, and that the concept of "socially necessary labor" allows for labors of different physical productivities to nonetheless produce equal values. In the next section of the paper, though, I show that the process whereby the socially necessary labor required to produce a commodity is determined contradicts rather than vindicates the Hilferding accounting procedure.

13. Even under the simpler conditions of non-capitalist commodity production, the Hilferding approach causes fundamental problems for the labor theory of value. Limitations of space do not allow a discussion of that case. It can be shown, however, that under conditions of simple commodity production, the actual exchange value of commodities will conform to the value they are assigned according to the Hilferding approach only if producers are indifferent as to when they receive compensation for an expenditure of labor (compensation in the form of either products they produce themselves or commodities received in exchange for the products of their own labor). In other words, the Hilferding approach works only if commodity producers exhibit no time preference for the receipt of real income. They must regard the present value of a commodity receivable in ten years as equal to the value of the same commodity today.

If commodity producers do exhibit a time preference for present over future income, then acceptance of the Hilferding approach leads to theoretical problems at least as great as those encountered under capitalist conditions of production. Thus, even under the simplest conditions, the Hilferding approach does not provide an effective defense of the labor theory of value against Böhm-Bawerk's criticism of it.

14. Nor is the problem one which exists merely on the level of theory. The tendency for effective rates of exploitation to vary in an unsystematic manner would be even greater in the real world than in the theoretical world of our analysis. Market competition among capitalists, to the degree that it exists, tends to equalize profit rates rather than rates of exploitation, but if competition is ineffective and profit rates do not exhibit a tendency towards equality, then effective rates of exploitation will vary even more than our analysis has suggested. Competition in the labor market, to the degree that it corresponds to theoretical assumptions, tends to equalize the return workers receive for the costs of reproducing their labor-power. This tends to equalize the rate of exploitation among workers with the same level of skill, but it does not tend to equalize rates of exploitation among workers embodying different levels of skill. In the real world, of course, the labor market functions far from perfectly. The rate of exploitation does not tend towards equality, even for similarly skilled workers, and variations in the rate of exploitation will consequently be even more extensive in practice than our analysis has suggested.

15. In that case, of course, m would also equal the value equivalent of *all* of the labor required to produce simple labor-power, and not just the value of the purchased means of subsistence required for that purpose.

16. See note 9 above.

17. If RSV_u equals RSV_s , then it follows from equations 8 and 9 that:

$$\frac{p-m}{m} = \frac{(p-m) + (t-e)}{m+e}$$

$$(m+e)(p-m) = m(p-m+t-e)$$

$$mp + ep - m^2 - me = mp - m^2 + mt - me$$

$$ep - me = mt - me$$

$$\frac{ep - me}{me} = \frac{mt - me}{me}$$

$$\frac{p-m}{m} = \frac{t-e}{e}$$

$$RSV_u = RSV_e \quad (\text{from equations 8 and 7})$$

18. If the incurred cost (e) of the special training required to acquire a skill equals the value of t hours of simple labor-power, then $(t-e)$ becomes an expression of the surplus-value created by an expenditure of t hours of simple labor, and $(t-e)/e$ equals the rate of surplus-value of unskilled labor.

19. This can be shown by substituting appropriate inequalities for the equalities used in note 17.

20. Again, this can be shown by substituting appropriate inequalities for the equalities used in note 17.

21. See equation (6) and the discussion following it.

22. If in equation (9a) we substitute c , the lifetime value of the constant capital consumed by a worker, for e , the value equivalent of the labor embodied in a skilled worker's skill, it becomes an equation for the lifetime profit rate associated with the employment of an individual worker. The expression $(p-m)$ denotes surplus-value (s); m denotes variable capital (v); and e becomes c , denoting constant capital.

REFERENCES

- Böhm-Bawerk, Eugen von. 1896. *Zum Abschluss des Marx'schen Systems*. Berlin. (Available in translation in Paul Sweezy, ed. 1966. *Karl Marx and the Close of His System*. pp. 3–118. New York: Kelley.)
- Bowles, S. and H. Gintis. 1977. The Marxian Theory of Value and Heterogeneous Labor: A Critique and Reformulation. *Cambridge Journal of Economics* 1: 173–192.
- Bullock, P. 1974. Defining Productive Labor for Capital. *Bulletin of the Conference of Socialist Economists* 9: 1–15.
- Gardiner, J., S. Himmelweit, and M. Mackintosh. 1975. Women's Domestic Labor. *Bulletin of the Conference of Socialist Economists* 11: 1–11.
- . 1975. Women's Domestic Labor. *New Left Review* 90: 47–58.
- Gintis, H. and Sam Bowles. 1981. Structure and Practice in the Labor Theory of Value. *The Review of Radical Political Economics* 12 (4): 1–26.
- Harrison, J. 1973. The Political Economy of Housework. *Bulletin of the Conference of Socialist Economists* 7.
- Harvey, P. 1976. *Marx's Theory of the Value and Price of Labor-Power*. Unpublished doctoral dissertation, New School for Social Research.
- . 1983. Marx's Theory of the Value of Labor-Power: An Assessment. *Social Research* 50: 305–344.
- Hilferding, R. 1904. *Böhm-Bawerk's Marx Kritik*. Wien. (Available in translation in Paul Sweezy, ed. *Karl Marx and the Close of His System*. pp. 121–196. New York: Kelley) 1966.

- Marx, K. 1967. *Capital*, 3 volumes. F. Engels, ed. New York: International Publishers.
- Meek, R. 1973. *Studies in the Labor Theory of Value*. London: Lawrence and Wishart.
- Morishima, M. 1973. *Marx's Economics: A Dual Theory of Value and Growth*. London: Cambridge University Press.
- Roncaglia, A. 1974. The Reduction of Complex Labor to Simple Labor. *Bulletin of the Conference of Socialist Economists* 9: 1–12.
- Rowthorn, R. 1974. Skilled Labor in the Marxist System. *Bulletin of the Conference of Socialist Economists* 8: 25–45.
- Rubin, I. 1972. *Essays on Marx's Theory of Value*. Detroit: Black and Red Press.
- Samuelson, P. 1971. Understanding the Marxian Notion of Exploitation. *Journal of Economic Literature* 9: 399–431.
- Secombe, W. 1973. The Housewife and Her Labor Under Capitalism. *New Left Review* 83: 3–24.
- Steedman, I., Paul Sweezy, et al. 1981. *The Value Controversy*. London: New Left Books.
- Sweezy, P. 1968. *The Theory of Capitalist Development*. New York: Monthly Review Press.

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