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**PROFIT AND COST IN MODERN POST-  
MARXIAN PROFIT THEORY: A CASE  
STUDY FROM VARIAN'S "INTERMEDIATE  
MICROECONOMICS"**

by

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**PROFIT AND COST IN “MODERN” POST-MARXIAN PROFIT THEORY: A  
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*ABSTRACT*

In this paper, I examine the treatment of competitive profit of professor Varian in his textbook on Microeconomics, as a representative of the “modern” post-Marxian view on competitive profit. I show how, on the one hand, Varian defines profit as the surplus of revenues over cost and, thus, as a part of the value of commodities that is not any cost. On the other hand, however, Varian defines profit as a cost, namely, as the opportunity cost of capital, so that, in competitive conditions, the profit or income of capital is determined by the opportunity cost of capital. I argue that this second definition contradicts the first and that it is based on an incoherent conception of opportunity cost.

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## ***Introduction***

This paper deals with the standard thesis that the profit of capital is the opportunity cost of capital, under competition. What I say about this thesis can be applied to the more general and equally standard thesis that, in the competitive equilibrium, the income of the factors is determined by their opportunity cost. My contention is that these two theses, one of which is intended to be a particular case of the other, are false and contradict the very notion of opportunity cost.

According to the notion of opportunity cost, in the competitive equilibrium, no allocation of the factors involves any opportunity cost, because the concept of competitive equilibrium logically implies that all the factors are getting the same proportional return. We can thus say that the concept of competitive equilibrium is the allocation of resources which involves no opportunity cost for any of the resources allocated. There is opportunity cost as long as we are not in the competitive equilibrium, and the existence of opportunity cost implies that the allocation of resources does not satisfy the conditions of a general competitive equilibrium.

The standard thesis that, in particular, the income of capital, profit, is determined by the opportunity cost of capital has its primary origin in the post-Marxian thesis that surplus value does not exist, that surplus value is an irrational concept that is logically incompatible with that of value simply. It also has its origin in the anti-Marxian and anti-Ricardian view that the effect of competition is not the equalization of the profit rate at a level which competition itself does not set, but the annihilation of profit at all. In “modern” post-Marxian value theory the only profit rate compatible with competition is zero, that is, the destruction of profit. This view is in line with the thesis that surplus value does not exist and the two theses have greatly contributed to taking “modern” post-Marxian value theory to the view that the only general theory of value is a theory of barter.

The theses that surplus value is irrational and that competition annihilates profit turn out to be very uncomfortable when it comes to profit theory and, especially, to profit maximization in the case of the competitive firm. The standard treatment typically begins by defining profit as the surplus of revenues over costs, that is, as the part of the value of commodities which is not any cost whatsoever, but ends saying that profit is a cost, that it is the opportunity cost of capital. On the one hand, profit is the surplus over cost; on the other hand, it is a cost, or rather, it is not any surplus. It is not easy to argue that profit does not represent a surplus value, but a cost, and, among other things, it clashes against common sense. The manoeuvre is carried out by forcing the notion of opportunity cost. In this paper I want to show that there is a contradiction at the very heart of “modern” profit theory and that one of the extremes of the contradiction has been established by another contradiction which consists in violating the notion of opportunity cost.

I have chosen to carry out this task in a textbook, so as to avoid the sometimes fastidious mathematical complications which consume so much time and do not contribute anything to clearing up the conceptual matters. I have chosen professor Varian’s textbook because it is the textbook with which Microeconomics is taught in my Department and because I just like it. The paper consists in a critical

commentary of some key passages of this textbook in which the contradictions and confusions that I want to show can be seen with acceptable clarity.

### *1. Analysis of Varian's Texts*

The absence of a notion of surplus exchange value gives rise to a recurrent contradiction which raises its ugly head whenever profit is at stake. On the one hand, we have the statement that profit is the surplus of selling-price over cost-price, the surplus of revenues over cost. This implies that profit is not any cost of any kind, but surplus over all the costs of whatever denomination. On the other hand, we have the statement that profit is the opportunity cost of capital, which implies that profit is part of cost-price, that profit is not any surplus over cost, but a cost itself.

The thesis that the profit of capital is the opportunity cost of capital rests upon two false statements. First, it rests upon an incoherent conception of opportunity cost. Secondly, it rests upon the false statement that competition kills profit. It is upon this false thesis that competition leads to the annihilation of profit (surplus value), Varian concludes that, under perfect competition, the value of output cannot be greater than the value of input. Then, it follows that there is no profit (surplus value) under perfect competition. But then the definition of profit as the surplus of revenues over costs collapses, for, under perfect competition, revenues cannot be different from costs. Not willing to cease to speak of profit altogether, the salvation is the thesis that the profit of capital is the opportunity cost of capital. On such a basis, the theory of profit and of production becomes a nightmare of contradictory and incoherent statements.

Varian introduces the conception of profit as opportunity cost right after defining profit as surplus over cost. Let us see how:

“In this chapter we want to study the profit maximization problem of a firm that faces competitive markets for the factors of production it uses and for the output goods it produces.

Profits are defined as revenues minus costs. Suppose that the firm produces  $n$  outputs  $(y_1, \dots, y_n)$  and uses  $m$  inputs  $(x_1, \dots, x_m)$ . Let the prices of the output goods be  $(p_1, \dots, p_n)$  and the prices of the inputs be  $(w_1, \dots, w_m)$ . The profits the firm receives,  $\pi$ , can be expressed as

$$\pi = \sum_{i=1}^n p_i y_i - \sum_{i=1}^m w_i x_i$$

The first term is revenue, and the second term is cost.” (Varian, 1993, 315-6)” (Varian 1993, 315).

Accordingly profit is not any cost, but all the contrary, namely, surplus over cost, that is, the part of the value of a commodity which does not represent any cost at all. Therefore,  $\sum_{i=1}^m w_i x_i$  includes *all the costs*.

“In the expression for cost we should be sure to include *all* of the factors of production used by the firm, valued at their market price.” (Varian, 1993, 316)

Of course; nobody would dispute this assertion. It means, as I just said, that  $\sum_{i=1}^m w_i x_i$  includes all the costs. Why does Varian make such a trivial remark? As we are about to see, because he wants to introduce the idea that profit is a cost, which is in contradiction with the definition of profit that he has just laid down. He writes:

“Usually this is pretty obvious, but in cases where the firm is owned and operated by the same individual, it is possible to forget about some of the factors.” (Varian, 1993, 316)

Forgetting to include some cost in total cost is not a theoretical issue and does not have anything to do with the conception of profit, which is the problem at stake.

“For example, if an individual works in his own firm, then his labor is an input and it should be counted as part of the costs. The wage rate is simply the market price of his labor –what he would be getting if he sold his labor on the open market.” (Varian, 1993, 316)

Varian wants to introduce the thesis that the profit of capital is the opportunity cost of capital. To this end, he first introduced the notion of opportunity cost in a remarkably equivocal way. Varian suggests that the profit of the capital invested in a firm owned by a single individual is but the wages of the labor of this individual. What it says, literally, is that, if you own a firm and you are the only partner in that firm and the only worker for it, you have to count your labor as an input. I do not know of anybody who would deny this. Varian goes on explaining the notion of opportunity cost:

“Similarly, if a farmer owns some land and uses it in his production, that land should be valued at its market value for purposes of computing the economic costs. We have seen that economic costs like these are often referred to as **opportunity costs**. The name comes from the idea that if you are using your labor, for example, in one application, you forgo the opportunity of employing it elsewhere. Therefore those lost wages are part of the cost of production. Similarly with the land example: the farmer has the opportunity of renting his land to someone else, but he chooses to forgo that rental income in favor of renting it to himself. The lost rents are part of the opportunity cost of his production”. (Varian, 1993, 316)

Therefore, the notion of opportunity cost is an *allocative* notion. The opportunity cost is the cost an opportunity, that is, the cost of a particular opportunity.

An opportunity can have a cost, obviously, if there are different opportunities, that is, if there are alternatives in the use of a resource. The opportunity cost of a given allocation of a resource is the difference between the yield of the resource when employed in that given allocation and the yield that the resource would yield if employed in the most productive allocation. The opportunity cost of some particular allocation of a resource of yours is what you forgo to earn (if, indeed, you forgo to earn something), the excess of what the resource would yield if employed in the best use and what it actually yields in its current use, which is therefore implied not to be the most profitable use. The opportunity cost of a given use of a resource is the cost of not optimizing, the excess of the greatest available return over the current return.

In other words: the substance of the notion of opportunity cost is that when you do not earn all that you could earn, you are losing the difference, even though you have positive gains. The loss of the difference is logically equivalent to the payment of this difference as investment; it is in this sense that the difference that you fail to get is a *cost* for you. The notion of opportunity cost arises as a natural consequence of the conception of rationality in terms of optimization. For the rational producer, it is not enough with making a profit, with employing his resources in a use that yields a positive return. The rational producer does not aim at making profit simply, but at making the greatest possible profit. If you do not get the maximum profit, you are not making the most of your resources, and what you cease to earn as a consequence of the non-optimal allocation of your resources can be viewed as an extra investment to get the same profit that the optimizing investor does; therefore, as an extra cost. Thus, there are opportunity costs to the extent that resources are not optimally allocated. The opportunity cost of a (non-optimal) allocation of a resource is the excess of the profit yielded by the optimal allocation over the profit yielded by the particular non-optimal allocation the opportunity cost of which we want to assess.

**“Opportunity costs.** The name comes from the idea that if you are using your labor, for example, in one application, you forgo the opportunity of employing it elsewhere. Therefore those lost wages are part of the cost of production.” (Varian, 1993, 316)

Yes, but the opportunity cost of the allocation of your labor to your firm is not the *wages* that you might earn in another firm, but the *excess* of the wages that you might earn in another firm over the wages that you earn in your firm. This means that, if the wages that you earn in your firm are greater than the wages that you might earn somewhere else, and if no greater wages are paid in the market, then the opportunity cost of allocating your work to your firm is *zero*. You do not lose the wages that you might earn somewhere else, as Varian mistakenly suggests: you are actually earning them and, in addition to them, you earn something more. The opportunity cost of allocating your work to your firm is *zero*. There is an opportunity cost for the guy who is selling his work not to your firm, but to the other firm that pays less than you for the same commodity, and nobody pays better than you.

If you earn less from working for another firm, then the current allocation of your labor involves a cost of opportunity, because you are not optimally allocating your labor. The opportunity cost of your non-optimal allocation of your working skills is the excess of what you would earn over what you currently earn.

We may illustrate the idea by reference to money. Suppose that there are two bonds of the same face value, one of which pays a 9% and the other one 8%. If you buy the 8% bond instead of the 9% one, this opportunity, or if you wish, this allocation of your money, involves an opportunity cost because you are not earning all you can earn. The opportunity cost of your current allocation of capital is 1% of the capital invested, because it is as if you were paying a 1% more for the bond that yields a 9% interest. You do not have to advance the money corresponding to this extra cost of \$1 in addition to the price of the bond; it is in this sense that *opportunity* cost is not a *direct* cost. But the final effect is the same as if you had purchased the 9% bond for as price \$1 higher than the face value. That is to say: for an investment of \$100, you can get \$109, but you actually get \$108. To invest \$100 and get \$108 produces the same result as if you invested \$101 and got \$109. This is why we can say that not allocating a resource to its best use involves an opportunity cost. What you cease to earn is as if you had paid more than the price of the investment.

I have appealed to money to make explicit the notion of opportunity cost because of a very frequent error. To show what this frequent error is, let us assume the following situation: you have to choose how to spend an evening. You have two alternatives: on the one hand, go to the movies; on the other hand, attend a concert. It is clear that if you go to the movies, you will not attend the concert, and the reverse: the two alternative allocations of your leisure time are mutually exclusive. This is taken to mean that the opportunity cost of going to the movies is not attending the concert, and the opportunity cost of attending the concert, not going to the movies.

However, the opportunity cost of going to the movies is not attending the concert, but the extra satisfaction that you might (or might not) get at the movies. If going to the movies is more satisfactory than attending the concert, then your allocation of leisure time involves no opportunity cost whatsoever, because you have allocated your resource to the best available use. It makes sense to compare two choices as far as those choices have something in common. Accordingly, going to the movies or attending a concert are compared in relation to the satisfaction that they produce in the consumer. The opportunity cost of not choosing the most satisfactory alternative is the surplus of the greatest available satisfaction over the current satisfaction.

According to the mistaken notion of opportunity cost, I incur in an opportunity cost even when I invest my money on the 9% bond; the opportunity cost, says Varian, is the forgone interest, that is, the 8% that I cease to make because I do not have enough money to also purchase the 8% bond. This is senseless, because I do not fail to make this 8%; indeed, when I allocate my money to the 9% bond, I am making the 8% interest that the other bond pays and, in addition to it, I make an extra 1%. Varian overlooks the fact that I cannot buy the two bonds, or work for two firms at the same time.. Rather than the opportunity cost of my investment on the 9% bond, 8% is the opportunity cost of not having the money required to buy the second bond, the one that yields 8%. The cost of the opportunity of not buying the 8% bond could be said to be, for instance, the cost of holding wealth in the shape of a car, the cost of not selling my car for money and not purchasing the second bond with this money. Keeping the car rather than investing its value on bonds involves an opportunity cost (if having a car is not as good as making a 8% interest), but purchasing the 9% bond rather than the 8% with my current stock of money does not involve any opportunity cost.

No factor has an opportunity cost simply; rather, a given amount of a factor allocated to a given use has an opportunity cost if the allocation is not optimal. Therefore, what has opportunity cost is a particular allocation of a given amount of capital or of labor to some use, and in relation to some optimal allocation. There is an opportunity cost involved in any use which is not the best use. The best use does not involve any opportunity cost, by the very definition of this notion.

If I work for my own firm, this allocation of my labor involves an opportunity cost in so far as I earn less in my own firm than outside of it. If, in my own firm I earn just what I would earn outside it, the opportunity cost of allocating my labor to my own firm is zero. Also the opportunity cost of allocating my labor to outside of my firm is zero. If two alternative uses of a factor yield the same return, neither of them involves any opportunity cost. There would be an opportunity cost just to the extent that my earnings fall short of what I would get outside of my own firm, that is, to the extent that I do not allocate my labor to the best possible use. Since I cannot work more than 24 hours a day, I have to devote my full working day to a given firm. What Varian actually defines is the opportunity cost of not working another 8 hours in another firm, but not the opportunity cost of working 8 hours for my own firm. If I get in my own firm what I would get outside it, the opportunity cost of the allocation of my labor power to my firm is zero, as it is that of allocating my labor power to the outside firm.

Varian defines the opportunity cost of not working for the outside firm, not the opportunity cost of working for my own firm. But the problem is to allocate my 8 hour day between alternative jobs; this means that it is out of the question to estimate opportunity cost on the basis that I work 16 hours a day. The choice of working 16 hours involves a new context for the estimation of opportunity cost, in which the amount of the factor to be allocated is not 8 units, but 16. If what is at issue is the opportunity cost of the allocation of my working day of 8 hours, the opportunity cost of not working for the outside firm is zero.

According to Varian, the profit of my capital is what I would get as worker in a firm not owned by myself. This thesis says, actually, that the profit of my capital is *not* the opportunity cost of my *capital*, but the opportunity cost of my *labor*. It is senseless as it implies that my profit is actually wages: it is value accruing to me because of my labor, not because of my capital. In other words: the profit of my capital has been defined by Varian as the opportunity cost of my *labor*, not as the opportunity cost of my *capital*, when the view that Varian intended to uphold is that the profit of my capital is the opportunity cost of my capital.

“Similarly with the land example: the farmer has the opportunity of renting his land to someone else, but he chooses to forgo that rental income in favor of renting it to himself. The lost rents are part of the opportunity cost of his production”. (Varian, 1993, 316)

To rent land of your property to yourself is nonsense. The opportunity cost of working on you own land rather than renting it to another investor is not the rent that this investor would eventually pay to you, but the excess over rent that you may earn by not remaining idle. What has opportunity cost is the allocation of you time to your leisure rather than to labor, not the allocation of your land, because the choice



under discussion is among renting your land to a third party and cultivating it yourself. As long as land is efficiently cultivated, you get the same rent, which means that neither renting your land nor cultivating it yourself involves any opportunity cost. What we are really talking about is the opportunity cost of the alternative allocations of your labor.

“The economic definition of profit requires that we value all inputs and outputs at their opportunity cost. Profit as determined by accountants does not necessarily accurately measure economic profits, as they typically use historical costs –what a factor was purchased for originally– rather than economic costs –what a factor would cost if purchased now” (Varian, 1993, 316).

This text may be politically correct, but is extremely confused. It is trivially true that “the economic definition of profit requires that we value all inputs and outputs at their opportunity cost”; indeed, profit was defined as the surplus of revenues over costs, and all Varian wants to do is to warn us that we should not forget any cost; especially, that we should not forget to compute the opportunity cost of the factors under the total cost in relation to which profit is a surplus value.

Accountants do not “necessarily accurately” measure economic profit, says Varian, because they do not measure inputs and outputs at their opportunity cost, and they do not do so because they value inputs according to historical cost instead of economic cost. Are they wrong in so doing? Varian does not answer.

It is to be observed, however, that the distinction between historical and economic costs has nothing to do with opportunity cost; in other words: what accounts for the possible difference between historical and economic cost is not opportunity cost. The point of the distinction between historical and current (or economic) cost is to make a realistic judgement about the current value of the assets of a firm on the basis of available information. This is not the point of opportunity cost. By the way, I am not sure that accountants, as a rule, value inputs at historical cost, but I will not press on this.

What Varian is suggesting is, rather, that profit in his own definition of profit as the surplus of revenues over costs is, actually, not any surplus, but a cost. In other words: Varian’s style looks clumsy because, in actual fact, he is stating contradictory theses: on the one hand, profit is the surplus of revenues over cost, that is, profit is not any cost; on the other hand, profit is the opportunity cost of capital, that is, profit is a cost.

The problem in the definition of profit as the surplus of revenues over cost was, according to Varian, that there are some cost which are easy to forget. The easiest to forget seems to be the opportunity cost of capital. Indeed, in his own definition of profit, revenues cannot be different from costs, because, as Varian explains, whatever difference there is between revenues and costs is, actually, the forgotten opportunity cost of capital.

According to this notion of profit, profit is the opportunity cost of the allocation of a given capital to a given particular firm. As I said, this contradicts the

notion of profit as surplus over cost, but this is not all: it even contradicts the very notion of opportunity cost

To see why, remember the peculiar situation in which the capital of some firm is entirely owned by someone which, at the same time, is the only worker of the firm. The surplus of the revenues accruing to this firm over the total cost incurred to produce this output is the profit of the firm. To explain what the profit of this firm is, Varian' argument takes a strange detour and starts by warning us not to forget the opportunity cost of inputs. We should not forget that the individual works for his own firm, so we have to take into account the opportunity cost of his allocation of labor. What is the opportunity cost of it?

“The wage rate is simply the market price of his labor –what he would be getting if he sold his labor on the open market.” (Varian, 1993, 316)

That is to say: the individual in question would earn exactly the same wages in any other firm. Then, what is the cost of the opportunity of allocating his labor to his own firm? It is clearly zero. If the labor supplied by the individual in question has a uniform price in the open market, then all the allocations yield the same return. Accordingly, what Varian is saying is that the current application of the labor of the individual involves no opportunity cost.

Very well (or very bad), but Varian warned us not to forget the opportunity cost of inputs. We have already checked labor and seen that we do not have to worry about any opportunity cost in the current allocation of labor. Now, what about capital? After all, what is at issue is the profit of capital, isn't it? But Varian does not say a word about it. But, if we apply the same mistaken logic as Varian applied to labor, we are to say that we should not forget the opportunity cost of capital. The opportunity cost of capital ought to be the market price of capital, what the owner would get if he invested his capital in any other firm.

As in the case of labor, however, to say that the profit of capital in some firm is determined, that is, equal to what capital would earn in any other firm amounts to saying that the opportunity cost of the allocation of capital to this firm is zero; that is to say: that capital has been optimally allocated and yields profit at the same rate in all its alternative uses. Let me stress, again, that what capital would earn in any other use is not the opportunity cost of the current allocation of capital; the opportunity cost of an allocation of capital is the excess of what it can yield over what it currently yields.

In a situation in which all the alternative uses of capital or labor yielded the same return, the notion of opportunity cost would be out of place, because if all the uses yield the same profit, all the uses of the factor yield the same return, which leaves the notion of opportunity cost out of place. To say that my wages in my firm measure the opportunity cost of the allocation of labor to my firm because I would get exactly the same wages if I worked for any other firm means that the allocation of my work to my firm involves no opportunity cost altogether. It is sure that what determines the wages I get is not the opportunity cost of the allocation of my labor to

my firm, because, as my labor gets the same wages as in any other use, opportunity cost is inexistent.

The view that profit is the opportunity cost of capital implies that the earnings of the owner of capital are a cost. This raises the question: a cost for whom? Certainly, not for the owner of capital who pockets profit. If something is a cost for somebody, it cannot be an income for him. For all I see, there is a contradiction in saying that the *income* of the owner of capital is the *cost* of his own capital. It makes sense to say that labor is a cost for the owner of capital but an income for the worker. What we never say is that labor is a cost for the worker at the same time that it is an income for him, or that labor is a cost and an income for capital. But, surprisingly, we say exactly this about capital: if we say that the profit of capital is its opportunity cost, we are saying that the income of capital is the cost of capital. In my opinion, however, it is senseless to say that the owner of capital *earns* the *cost* of his capital; if profit is a cost for capital it must be an income for labor, but, for all I know, nobody has upheld such a view. Thus, it is senseless to say that capital *earns* its opportunity cost; the correct statement would be that capital *loses* its opportunity cost. The *earnings* of capital cannot be *costs* of capital.

The view that profit (in the competitive equilibrium) is actually the opportunity cost of capital leads to the following contradiction. The problem solved by the single competitive producer is to determine the amount of output such that profit is maximized. But profit maximization is logically equivalent to cost minimization. Since profit is a cost, it turns out that , profit maximization implies the maximization of, at least, one cost. If profit is the opportunity cost of capital, then profit maximization becomes logically equivalent to cost *maximization*, not to cost *minimization*. Is not this a contradiction? Likewise, minimization of the cost of capital implies minimization of profit. Is not this a contradiction?

There still is another interesting to way to understand the flawed logic that leads to the thesis that normal profit is the opportunity cost of capital. Consider the standard textbook production function where output is a function of capital and labor. The first-order partial derivative of the production function in relation to capital is the marginal product of capital; likewise, the first-order partial derivative of the production function in relation to labor is the marginal product of labor. As it is well known, if the production function is well-behaved, the two first-order conditions for the maximization of profit are that the marginal product of capital is equal to the interest rate and that the marginal product of labor is equal to the wage rate.

Under competitive conditions, where constant returns to scale must prevail and where output cannot be sold at a price higher than its cost-price, the total output is exhausted by the profits of capital and the wages of labor. The Euler Theorem can be used to state this idea in formal terms. The value of output is equal to the value of input, which has two parts: the value of the labor contributed by the owners of the labor-power and the value of the capital contributed by the owners of capital. Since each factor gets an income determined by its productivity, it follows that each factor shares in output according to its contribution to output. Wages, being the value of the labor contributed to output, is a production cost. Likewise, profit, being the value of the capital contributed to output, is a production cost. The relation between labor and capital is a partnership in which the two factors stand on the same footing and

collaborate to produce and output in which they share according to what they have contributed.

If the value of output is made up of the contributions of labor and capital, what is the point of profit maximization? And of wage minimization? Wages are a cost, and since profit maximization implies cost minimization, it follows that profit maximization implies wages minimization. Is the problem of the rational producer to maximize the value of the “contribution” of capital? Why is it rational to maximize one contribution and minimize the other? Are not both of them “contributions”? Why not maximize the value of the contribution of labor and say that the rational producer maximizes wages? Indeed, why maximize a cost at all? As long as profit is conceived as a cost, rather than as a surplus over cost, paradoxes like these are inescapable.

### ***Conclusions***

1) There is a contradiction in standard profit theory between the conception of capital as the surplus of revenues over costs and the conception of capital as the opportunity cost of capital.

2) The standard thesis that the profit of capital is the opportunity cost of capital is based on an incoherent notion of opportunity cost.

3) In the competitive equilibrium, the income of the factors is not determined by opportunity cost; at most, it is determined by the condition that there must not be any opportunity cost.

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