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PAIN-COST AND OPPORTUNITY-COST.

IN defending the standard theory of value against the attacks of the Austrian economists, Professor Macvane uses the following language:—

The classical conception of cost may not be without flaw, but it has at least the merit of addressing itself to those features of production that men must always and everywhere *feel* as cost. The cost that comes home to producers in the form of tired muscles and tedious waiting for the enjoyable fruits of labor, is not one that finds expression in terms of utility or value. It looks to the production of things that have utility and value: it is itself, however, the conscious sacrifice of present ease and enjoyment for the sake of obtaining "utilities fixed and embodied in material objects." And, after all has been made that can be made of the Austrian theory of cost [which regards cost as depending upon the value of the products], this other very real cost remains to be considered. It will refuse to be dropped out of the economic horizon so long as men regard labor and waiting as burdensome sacrifices. Finally, the observed tendency of value to conform to cost in this sense will have to be explained by economists; and those who maintain that value is fixed by marginal utility have still a good deal of explaining to do under this head.*

This passage is quoted as illustrating or suggesting the imperfections of both the classical and the Austrian conceptions of cost. In a later part of the present paper an attempt will be made to defend the marginal utility theory in its relation to costs, but it must be conceded that Professor Macvane's criticism is well taken. If all the elements of production, including the different classes of labor, have their values determined through the value of their products, it is evident that a very important subject is left out of consideration, or at most left quite in the background; namely, the quantity of unpleasant sensations which the production of the different commodities requires. This most vital element of cost, which comes from

* "Marginal Utility and Value," *Quarterly Journal of Economics*, April, 1893, p. 269. See also "The Austrian Theory of Value," by the same writer, in the *Annals of the American Academy of Political and Social Science*, November, 1893.

"tired muscles and tedious waiting," is considered by Professor Patten the only element that deserves the name of cost.* It is largely through the reduction of this pain-cost in proportion to the utilities produced that economic progress is manifested.

That this discomfort element of cost deserves more careful attention on the part of economists is unquestionable, but I think that Professor Macvane is wrong in considering cost in this sense the general basis of the ratios of exchange in modern transactions. A scientist receives twenty-five dollars for delivering a lecture, and pays the same amount to a laborer for constructing a drain from his cellar. May we then expect that the scientist and the laborer have suffered the same amount of disagreeable sensation in performing their respective services? Of course, we must not stop with the consideration of the disagreeable feelings (if there were such) experienced in merely delivering the lecture. The ability of the scientist is doubtless due in part to extended training, and this training may have been unpleasant and wearisome. If so, some small fraction of this pain must be added to the immediate discomfort of preparing and delivering the lecture. Thus in some such cases we might find a considerable pain-cost on the part of the lecturer; but, if our scientist deserves that name, and enjoys good health, he would probably report that every part of his preparation and service gave him pleasure rather than pain, and that he limited his efforts in one direction, not on account of the pain which accompanied them, but because they interfered with more fruitful opportunities in other directions. When all the discomforts involved in rendering the twenty-five dollar services are added together, if the laborer proves to suffer the most, it does not necessarily follow that his pay will tend to rise relatively to that of the lecturer.

But it may be said that the services of the scientist bring a high price because his special ability is rare, and the scarcity interferes with the economic forces which would otherwise

*"Cost and Expense," *Annals of the American Academy of Political and Social Science*, May, 1893. Waiting, however, is excluded from cost by Professor Patten.

be operative. This is undoubtedly true, but the theory of value which omits the element of scarcity has but slight application in the economic world. What class of labor, of land, of capital goods, can be supplied without limit? A limited supply is always given as one of the primary requisites for value. So long as the supply of every grade of labor and service is limited, and limited largely by conditions which the difference in price cannot overcome, there can be no direct relation between the pain involved in production and the exchange value of the product. The mere fact that different grades of labor receive different rewards for the same amount of painful effort tends to increase and perpetuate the inequality, by giving the higher grades the greater opportunity for self-improvement. We ought not to speak of the higher grades of labor as having a monopoly value; for they are not united under one control; but they have an advantage over the lower grades because they are more efficient. The complicated processes of modern production make it difficult to compare the pain involved in making different commodities; but, if we consider the pains endured in productive labor by the different people of our acquaintance, and compare the pains with the values produced, we shall certainly find that the rule of equal values for equal pains is not the law which actually determines exchange ratios. The fact is too obvious to need further illustration.

Not only does Professor Macvane seem to be in error when he considers "the cost that comes home to the producers in the form of tired muscles and tedious waiting" as the criterion of exchange value, but he also appears to me wrong in attributing such a doctrine to the classical theory of value. To be sure, when Adam Smith regarded labor as the true measure of value, he referred to the subjective cost which the laborer sustains in laying down "his ease, his liberty, and his happiness." But, when quantity of labor was made the basis of exchange ratios, a different conception was taken up; and quantity of labor referred to its efficacy as well as to the pain that was involved. An extract from the *Wealth of Nations* and another from Ricardo's *Political Economy* will make the point clear.

But it is not easy to find any accurate measure either of hardship or ingenuity. In exchanging, indeed, the different productions of different sorts of labor for one another, some allowance is commonly made for both.*

In speaking, however, of labor, as being the foundation of all value, and the relative quantity of labor as almost exclusively determining the relative value of commodities, I must not be supposed to be inattentive to the different qualities of labor, and the difficulty of comparing an hour's or a day's labor in one employment with the same duration of labor in another. . . . The estimation . . . depends much on the comparative skill of the laborer and intensity of the labor performed.†

John Stuart Mill took a slightly different though similar position when he observed (Book III. chap. iv., iii.) that things "which are made by skilled labor exchange for the produce of a much greater quantity of unskilled labor," and that "the relative wages of the labor necessary for producing different commodities affect their value just as much as the relative quantities of labor." It was left for Cairnes to give the first extended consideration to the relation of different grades of labor to value, but the passages quoted above are sufficient to show that the classical economists did not regard pain-cost as the regulator of exchange ratios. If we turn to Marshall, who presents the classical theory in its most advanced form, we find the following statement:—

It is commonly said that the tendency of competition is to equalize the earnings of people engaged in the same trade or in trades of equal difficulty; but this statement requires to be interpreted carefully. For competition tends to make the earnings got by two individuals of unequal efficiency in any given time, say a day or a year, not equal, but unequal; and, in like manner, it tends not to equalize, but to render unequal, the average weekly wages in two districts in which the average standards of efficiency are unequal.‡

Perhaps too much space has already been taken to establish a point which, when plainly stated, very likely neither Professor Macvane nor any one else would deny; but, if cost in the form of disagreeable sensations is not the basis of the ratios

* *Wealth of Nations*, Book I. chap. v.

† Ricardo's *Political Economy*, chap. i. sect. 2.

‡ *Principles of Economics*, p. 578, second edition.

of exchange, it is of great importance that we recognize the fact, so that we may look unhesitatingly for a more satisfactory solution of the problem.

That the exchange value of commodities which are subject to free competition tends to correspond with the cost of production has been recognized from the beginning of economic theory, and must in some sense be true. But what is commonly summed up in the term "cost" is not principally the pain of weariness on the part of the laborer, and of long delay in consumption on the part of the capitalist; but the cost consists for the most part of the sacrifice of opportunity. A certain man cannot afford to keep books at \$100 a month. Why? Because he can earn \$200 as superintendent of the shops. Another or the same man cannot afford to work over six days in the week, because such action would deprive him of important opportunities for pleasure and advancement. A farmer cannot afford to use a certain lot for pasture, because it yields him greater profit as meadow. The laborer stops work at a certain hour, not simply because he is tired, but because he wants some opportunity for pleasure and recreation. That which gives a man strength in his demand for higher pay is the fact that he is able to secure higher pay elsewhere. By devoting our efforts to any one task, we necessarily give up the opportunity of doing certain other things which would yield us some return; and it is, in general, for this sacrifice of opportunity that we insist upon being paid rather than for any pain which may be involved in the work performed.* The poor woman who can earn no more will work hard and late for a dollar; but, when an increased demand for her special ability gives her other opportunities, she will ask for better terms.

It has often been observed that even the most common

*At first thought, one might suppose that, to an ambitious person, the sacrifice of an opportunity would cause pain, and thus render the distinction between pain-cost and opportunity-cost of little importance. No doubt the real loss or abuse of an opportunity would be painful to a sensitive mind, but to choose the best of a number of mutually excluding opportunities should cause no regrets! To the healthy mind nothing is detracted from the pleasure of a chosen course of action by the fact that another course approximately as good might have been chosen. Rather such an alternative would often add to one's enjoyment by relieving anxiety. It is only when, by mistake, one has chosen the less profitable course that the loss of opportunity becomes painful.

unskilled labor is not all painful. The wages given for the first hour of a day's work are not paid on account of any discomfort endured; but the laborer secures just as much pay for the first hour as for the last, because it could be utilized for other purposes to just as good advantage. His power for doing work is an opportunity to him which he cannot afford to transfer to his employer without some return, whether the work be burdensome or not. The pain involved in a day's work depends for the most part upon the health and disposition of the laborer. It plays an important rôle in the theory of subjective value, but has little to do with power in exchange. The subjective feelings of different individuals are not easily compared, but the economic opportunities which a man sacrifices by pursuing a certain course of action are more capable of objective measurement. These sacrifices of opportunity are what constitute the principal part of the costs of production which determine normal exchange values.

We may hope that, through the moral, physical, and economic improvement of mankind, the direct painfulness of productive labor may some time be eliminated. Remorse for wasted opportunities would still remain, and misfortunes would come laden with grief; but no one would need deliberately to subject himself to painful sensations for the sake of a livelihood. Though such were the condition of our economic life, yet productive effort would involve the sacrifice of certain opportunities for the sake of others, and the ratios of exchange would still tend to correspond to the sacrifices of production. The day is short, life itself is short, one's powers are limited, and one's possessions are seldom as large as he would like. Our opportunities, therefore, whether for pleasure, for work, or for acquisition, must be economized. It is not only our right, but it is our duty, to yield none of these opportunities without securing an adequate return. The return may be in the general form of money, or it may be in recreation, direct happiness, or the pleasure which comes from helping others and the consciousness of rectitude. In one form or another, we should insist upon a return from the opportunities which are at our disposal. That people do com-

monly demand an adequate return for opportunities sacrificed is the fact which lies at the basis of our ratios of exchange.*

But, when we once recognize the sacrifice of opportunity as an element in the cost of production, we find that the principle has a very wide application. Not only time and strength, but commodities, capital, and many of the free gifts of nature, such as mineral deposits and the use of fruitful land, must be economized if we are to act reasonably. Before devoting any one of these resources to a particular use, we must consider the other uses from which it will be withheld by our action; and the most advantageous opportunity which we deliberately forego constitutes a sacrifice for which we must expect at least an equivalent return. The sacrifice of waiting, which some writers take so much trouble to establish as a justification of interest, is almost entirely of this kind. Mr. Wanamaker, wishing to lay by something for the support of his family, has his life insured, and pays the premiums. The insurance company, if honest, has no desire to hurriedly consume the wealth that is thus placed in its hands. Why, then, is interest required upon the mortgage in which the company invests the money? It is because the possession of the capital constitutes an opportunity of some kind which the company is unwilling to forego without adequate reward. If the opportunity is not utilized in some way, the best welfare, not only of the insurance company, but of society in general, will suffer. The hardships incident upon excessive saving have an important effect upon the supply of capital, but the interest actually paid is gauged by the opportunities foregone rather than the pain endured.†

*In a torpid state of society, such as that manifested by some uncivilized races, but little attention is given to opportunities. All labor is irksome, and its cost is a pain-cost. On the other hand, in emphasizing [our duty to utilize our opportunities, I would not be thought to justify the extortions which unbalanced competition often renders possible. We should use our opportunities for helping others as well as ourselves.

†An interesting question arises as to whether there is any pain-cost corresponding to interest. As already stated, Professor Patten maintains that there is none. See the *Theory of Dynamic Economics*, Part IX., and an article entitled "Cost and Utility" in the *Annals* for January, 1893. Professor Patten is doubtless correct in assigning the pain-cost to the production of the capital rather than to abstinence from its immediate consumption; for, after the capital has been ac-

It is often said that rent does not enter into cost and price. From a certain standpoint, and with many limitations, the saying is true; but it is not always easy to find the no-rent margin or to fully convince ourselves that the price is determined there. The difficulty is obviated by considering the opportunities sacrificed in making a particular use of a particular piece of property. As a matter of fact, all business men consider the rents which they pay as a part of the expense which the price of the products must cover. In selecting a farm to work or in locating and managing a manufactory, the thrifty man chooses between higher rent and less labor or lower rent and more labor, between more capital or more labor, and between workmen of greater skill or a larger number of unskilled laborers; and all these choices are made with a view to rendering the cost of production as low as possible, in order to compete successfully with rival producers.

The use of a fruitful piece of ground for a particular purpose is as truly a sacrifice on the part of the entrepreneur, or of society in general, as the employment of a laborer, so long as both the land and the wages could otherwise be profitably employed. If all labor is included in cost, there is no reason for excluding the use of land; for, as we have seen, labor is principally an opportunity-cost instead of a pain-cost.*

quired, the question of abstinence is a choice, for the most part, between two pleasures rather than a question between a certain amount of suffering and the resulting reward. Yet, inasmuch as some positive discomfort is incurred, not only for the sake of the capital, but also for the sake of the interest alone, so far we must recognize that there is an element of pain in the cost for which interest is the reward. The pain element may be slight; but, if it were reduced to zero, much more capital would be saved. We may easily imagine a man who fully intends to build a new house with some savings which he has accumulated, but who, while waiting for the sake of more interest, endures some positive mortification in entertaining his friends in his present dilapidated quarters. If saving were carried very far, many pains of this character would be incurred; and, finally, cold and hunger might be suffered for the sake of future abundance. It is evident, I think, that the painfulness of saving as well as of producing capital helps to limit its accumulation, and that some such pain, actually endured, enters into the cost of producing commodities.

Since the above note was written, the cost of the marginal saving which is just offset by interest has been well brought out by Mr. T. N. Carver, in the *Quarterly Journal of Economics* for October, 1893.

*Professor Macvane may object to these thoughts, as he does to those of Dr. Von Wieser, on the ground that they relegate cost "to the region of the might have-beens"; but such is the very nature of costs, except in so far as they con-

To refer the ordinary expenses of production to the opportunities which must be paid for is but a short step. We must still explain how these opportunities originate, and upon what principles their relative strength is determined.

It would be well at this point to classify economic opportunities; but, as this article aims to give only the most general outline of a theory of cost, it will merely be said that some opportunities are for direct enjoyment, while others are for acquisition of wealth; some give the power of exploiting society without creating any additional utility, while others involve a real service to society fully equal to the return which can be secured; some are due to the institution of private property, patents, and other legal restrictions, while others are inherent in the nature of production with limited resources, and must be operative even under a socialistic régime. In all these opportunities we find the one common element,— a power to satisfy want. It is to utility, in connection with the limitation of supply, that we must turn for an explanation of the fact that one man earns more than another with the same exertion, that one piece of ground rents for more than another of the same size, and, in short, that the expenses of production and the ratios of exchange do not correspond to the pain-costs involved. Given a certain number of men having a certain uniform degree of efficiency, economic forces will naturally draw them to the positions where their ability is most needed. Some of the men will satisfy more urgent needs than others; but, having uniform ability, they will, in general, receive the same pay. The urgency of the need for the last man of this class fixes the pay for all. The pay represents the marginal utility of the class of labor in question.* When one

sist of direct pain. I spend a dollar for an excursion. The excursion becomes a reality, and its utility is enjoyed; but what the excursion really cost me—the utility that would otherwise have been derived from the dollar and the time—must always remain uncertain. I hire out for a year, and enjoy my salary; but just what enjoyment I sacrifice by not waiting for a better offer can never be fully known. These opportunity-sacrifices must always have the unreal character of might-have-beens, but they come near enough to existence to have the controlling influence over objective exchange values. We need no other excuse for considering them in our theory of value.

* It should be noted that, in accounting for prices or exchange ratios, all needs and utilities must be expressed in terms of the unit of purchasing power. Under

of the men engages his services, he is presumably sacrificing an opportunity of earning the marginal utility rate of pay, and no more.

The same principle applies to the other factors of production. Given a certain amount of homogeneous free capital for investment, some of it is urgently needed, and would be in demand, though the rate of interest were one hundred per cent.; but, the supply being adequate to the trustworthy demand down to five per cent., five per cent becomes the rate for all.* If a man loans his capital, it is presumably an opportunity of loaning it to some one else at five per cent. that he thereby foregoes. The same principle applies to the use of land. Given a certain number of city lots having equally advantageous positions: if free competition has full play, the ground rents will be the same for all the lots, though some of them happen to be used for much more important purposes than others. The land upon which the factory is built brings no more rent than that occupied by the laborers' dwellings, because, if a higher rent had been asked, the factory could have been placed elsewhere just as well. Like the other factors of production, the use of land also is prized in accordance with the law of marginal utility. When short periods of time and changing conditions are under consideration, the same principle must be resorted to for an explanation of the amount of income to be derived from a piece of fixed capital which cannot readily be replaced or which is out of date or dilapidated.†

Thus we find the tenets of the classical economists leading us inevitably to the tenets of the Austrian school. The values

the present system of economic life, not the wants which are really most urgent, but those which are represented by the largest purchasing power, are satisfied first. The so-called marginal utility to society therefore is really no definite utility at all, but a definite amount of money which would be offered for the last increment of the supply. The lack of purchasing power may cause needs to remain unsatisfied which are much more urgent than those felt by the marginal purchaser.

*Of course, differences of risk, trouble, and many special considerations are here neglected.

† An excellent account of the relationship between long and short periods in respect to the income derived from different forms of fixed capital is to be found in Marshall's *Principles of Economics*, Book V., chaps. v. and ix., of the second edition.

of the factors of production are imputed to them on account of their marginal utilities. It is readily seen that the utility of the means of production depends upon the utility of the products, and the position taken by the Austrians is thus vindicated.*

If we look upon society as a whole and all productive activity as a whole, only the pain endured appears as cost, and all the opportunities are found upon the side of the reward;† but, as soon as we look more closely upon our varied resources and the individual activities of economic life, we discover that many of our good opportunities are limited in number and extent, so that before devoting the opportunity to a particular activity it behooves us to consider from what other uses we are thus withholding it. Such consideration gives rise to the conception of opportunity-cost. It is not only for the painfulness of labor and waiting that we insist upon being rewarded, but also, and more largely, for the opportunities foregone in accepting a certain line of action. Opportunity-cost thus becomes the chief force which determines the prevailing ratios of exchange. But economic opportunities depend upon the power to satisfy want, and their values are imputed to them through the principles of marginal utility. The commonly accepted view that the normal values of goods that are produced under free competition correspond with the relative expensiveness of their production will doubtless remain as the most ready means of accounting in a general way for the ratios of exchange, but the sacrifices of opportunity which determine the expenses of production must find their explanation upon the side of utility.

Before closing this article, something more should be said in regard to the relation of the two forms of cost, or of cost and sacrifice as Professor Patten denominates them, in determin-

* Space will not be taken here to describe the processes through which the marginal utility of any much used factor in production is derived from the marginal utilities of its products. For a treatment of this subject the reader is referred to Böhm-Bawerk's *Positive Theory of Capital*, Book IV. chap. vii.; or to *An Introduction to the Theory of Value* by William Smart, chaps. xii. and xiii.; or, still better, to *Der natürliche Werth* by Dr. Friedrich von Wieser, Part I. Division 3.

† This thought is well brought out by Professor Patten in the articles referred to above.

ing objective values. Does the expense of producing a commodity tend to correspond to the sum of the two elements, or is it determined by the sacrifice of opportunity alone? No universal answer can be given. If the production of a certain commodity is of itself disagreeable, so that those engaged upon it feel the discomfort, then an extra wage will, in general, have to be paid in addition to that which the same workmen could obtain elsewhere; but, when the element of pain arises from individual peculiarities, it has no direct effect upon the expenses of production. The wages, salaries, and interest demanded will depend upon the opportunities to be sacrificed. The increasing painfulness of labor and abstinence, when carried beyond certain limits, has an important ultimate effect upon the expenses of production; but it is exerted only indirectly by limiting the supply of the agent in question.

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