LAND RENT AND THE PRICES OF COMMODITIES

I

"Corn is not high because a rent is paid," said Ricardo, "but a rent is paid because corn is high..... If the high price of corn were the effect, and not the cause of rent, price would be proportionally influenced as rents were high or low, and rent would be a component part of price. But that corn which is produced by the greatest quantity of labour is the regulator of the price of corn; and rent does not and cannot enter in the least degree as a component part of its price." And by way of special warning to the living and unborn men who were to ponder his words, our author inserted here a footnote: "The clearly understanding this principle is, I am persuaded, of the utmost importance to the science of political economy."[1]

In this analysis, according to Jevons, "that able but wrong-headed man, David Ricardo, shunted the car of Economic science on to a wrong line, a line, however, on which it was further urged towards confusion by his equally able and wrong-headed admirer John Stuart Mill."[2]

Mill followed Ricardo's analysis closely in his chapter, "Rent,"[3] but in the chapter entitled, "Summary of the Theory of Value," he says, "But when land capable of yielding rent in agriculture is applied to some other purpose, the rent which it would have yielded is an element in cost of production of the commodity which it is employed to produce."[4]

Jevons says of this: "Mill edges in as an exceptional case that which proves to be the rule."[5] Then follows a vigorous analysis in which it is argued that the possibility of alternative employments makes land rent a causal factor in the pricing of commodities. Further to make his point, Jevons insists that rent and wages are identical in their relation to prices.

It is the thesis of this paper that the position of Jevons is sound. Nothing is clearer, however, than that the Ricardian analysis has long been part of fundamentalism in economics. It gives a logical unity and simplicity to the price structure which is delightfully satisfying; and in economic speculation, as in the broader philosophical analyses, unity is so comforting that truth may unwittingly be sacrificed. The Ricardian position, too, has had the advantage of an early start. If an idea once gets a footing in any field of thought, its immortality is well

[1] *The Principles of Political Economy and Taxation*, ch. II.
[2] *Theory of Political Economy*, preface, p. lvii.
[3] *Principles of Political Economy*, bk. II, ch. XVI, sec. 6.
[4] *Ibid.*, bk. III, ch. VI, sec. 1, point ix.
[5] *Theory of Political Economy*, preface, p. liii.

nigh assured. The teachers of each succeeding generation say it over to their students, and write it down in their books. It may rather easily be revised; but only frequent and persistent attacks will overcome it.

Thus Jevons fought a losing fight against Ricardo. Despite his popularity a generation ago, his ideas on this point did not gain currency. The logical beauty of the Ricardian analysis and the inertia of the accepted idea were too much for Jevons.

A little later, Patten, as noted by Davenport,[6] cogently presented the idea held by Jevons; and more recently, Hobson, Johnson, Davenport, Taylor, and Cassel have all argued against the Ricardian position.[7] It had begun to seem that at last the ancient doctrine had been adjured, and that its soul might be permitted to wander in the limbo of forsaken gods without further suffering the stings of criticism. But not so. Now comes evidence that it still lives in the affection of three economists: Fairchild, Furniss, and Buck. These men not only retain the orthodoxy of old—they argue for its validity. And what is more, they do this in a book[8] that is deservedly having wide adoption as a college text. This means that the doctrine in question will be given a still further lease on life. Hence this paper.

The question at issue is not merely an academic one. For example, if the tariff commission is investigating the cost of producing wool, with a view to determining the price that should prevail, ought the rent of sheep land to be included as a causal factor? What of the charges of a public utility, should the rent of its land be reckoned as rate determining? If a merchant says that he must charge $7 for a hat because of the rent that he has to pay, is he logical? But aside from all practical questions, solely for the sake of truth, what is the causal relation? Does it run from prices to rent or from rent to prices? Or sometimes in one direction and sometimes in the other?

The position of this paper is that whenever land may be used for any one of two or more purposes, the rent that might be derived from one use is a factor in determining whether it can profitably be devoted to some other use. If land will command a rent of one dollar per acre as pasture land for cattle, the price of wool and mutton must be sufficiently high to equal this sum, in addition to meeting all other expenses, in order to warrant the use of land for the raising of sheep. That is, the rent which can be received in the alternative use is one of the factors that determine the supply of sheep and thus the prices

[6] *Economics of Enterprise*, p. 189; Patten, *Theory of Dynamic Economics*, p. 78.

[7] Hobson, *Economics of Distribution*, pp. 121, 125; A. S. Johnson, *Rent in Modern Economic Theory*, pp. 78-82; Davenport, *Economics of Enterprise*, pp. 186-192; Taylor, *Principles of Economics*, ed. IX, pp. 317-318; Cassel, *A Theory of Social Economy*, pp. 271-274.

[8] *Elementary Economics*, Macmillan Co., 1926.

of wool and mutton. The rent from the cattle use cannot be left out in computing the cost of producing wool.

If, however, land can be used only to produce sheep, then the rent of that land will be determined by the price of wool and mutton. Or, if the rent from the sheep use is $1.50 per acre and the rent from the most profitable other use of that land is $1 per acre, only a rent of $1 causally affects the price of sheep. The price need be only high enough to yield a rent of $1 in order to permit the land to be used for sheep pasture.

Consider wages. Are they causal in relation to prices? The general answer is in the affirmative. What is the line of causation? Clearly, a wage does not give value to a commodity. Value arises and a price is set only because of scarcity relative to demand. If a wage is causal, then, it is so because it serves to limit supply. Suppose that cabinet makers can earn five dollars per day making chairs. In that case the supply of tables must be scarce enough to permit a wage of five dollars per day, if tables are to be made. The wage that can be secured at one task is causal in relation to the wage of another task, and, hence, causal in relation to the price of any one product. If, however, no alternative is available to any of the persons in a given employment, the causal relationship will be reversed and the wage will be determined by the price of the product.

Isn't this the case with land? If there is only one possible use, the causal relation runs from the price of the product to rent. But with alternate uses—with corn and wheat competing—the price of wheat is a factor in determining the supply of corn, and consequently the price of corn, and *vice versa*. Or, more accurately, it is the net return, or rent, from wheat rather than the price of wheat that is a factor in determining the price of corn.

More fundamentally, the prices of final products reflect back to determine the prices (costs) of the instruments used in their production. The Ricardian dictum is certainly sound when paraphrased to read: prices are not high because wages are high, but wages are high because prices are high. Likewise the statement is true if *rent* is substituted for *wages*. But while the prices of labor products taken together determine wages, any one wage serves to regulate the wage in alternative employments, and hence the prices of the products therein. The lines of causation run back from prices and then transversely from one line of work to another, in so far as laborers may engage in any one of two or more tasks. The producers of any commodity must reckon market wages as causal in determining the price at which they can afford to undertake production. The supply of the given article must be so limited that its price can be high enough to cover the wage cost, or it cannot be produced. Each article must compete with other articles

for the labor force necessary to its production. This analysis is no less valid in terms of land rent. Substitute the word *rent* for *wages* and the argument will be in no way impaired.[9]

If the analysis is made less fundamental, if it begins, where production begins, with the entrepreneur, what is the difference between wages and rent? The answer is that there is no difference. The outlays that the entrepreneur must make for wages, land rent, and other necessary items are all the same to him. If he cannot sell his product for enough to cover them all, not excepting land rent, he cannot undertake production, or if he does, he will find himself in the hands of the referee-in-bankruptcy.

Consider the merchant who for a century has been scoffed at by the economists for saying that the rent which he pays has an effect upon the prices which he charges. If the poor merchant had gone to college and studied economics, he would know better. He would know then that he could look a professor in the eye and justify his price of $7 for a hat on the score of high wages, interest, taxes, contributions to the community chest, and that portion of his rent which goes to pay for the building which he uses; but he would know better than to include the rent for the land upon which the building stands. That portion of his outlay—the land rent—he would understand, does not help to determine, but results from, the price of the hat. And he would know, further, if he had studied economics, that the explanation of all this is found in the simple fact that the price of the seven dollar hat is determined out on the far flung fringe of things where land rent is not, but where all other expenses are even as they are in his store.

But not having been trained in the art of metaphysical distinctions, and being of the realistic school of philosophers, he contemplates all of the outlays that he must make, and figures that hats must sell at $7, if he is to hold the site, building, clerks, and the favor of the banker and the church against the competition of those who would make these instruments bring forth cigars, diamonds, or hosiery. Where, pray tell, is the merchant's error? How can the competitive price for the use of the land differ from the competitive price for the clerks in its effect upon the price of hats?

II

Fairchild, Furniss, and Buck, to whom reference has been made, are true to orthodox analysis in pushing the price-making forces out to, and up to, the no-rent margin. To quote from them:

> The cost of the *marginal units* determines the selling price of a given quantity of produce. We can discover this marginal cost on both the intensive and the extensive margins of cultivation; but it will simplify the

[9] *Cf.* Cassel, *op. cit.*, 274.

problem if we first focus attention on the extensive margin..... The cost of production on this marginal land then controls the selling price of any given kind of produce. But there is no rent returned to the cultivator of the marginal land; hence, economic rent cannot be one of the elements making up that cost which determines price.[10]

This is very faulty analysis, albeit Ricardian. The error comes from a wholly inadequate conception as to the sources of the marginal increments of a product. The price of any good is determined by the total supply of it in view of the total demand for it. The increment of supply, if any, that comes from no-rent land is an element in the total supply and hence affects the price. But any producer who would leave a given line of production in the event of an adverse price change is on, or at, the margin in that line of work. There are thus marginal producers all along the line, rather than just on marginal (no-rent) land, as the argument under consideration implies. Some of the growers of corn on land that might be used for a dozen other crops may be far closer to the margin of not producing corn than are any of the farmers who are cultivating no-rent land.

This aspect of marginality deserves special emphasis. We have too long thought of marginal producers in terms of those persons and firms that are barely able to keep out of the clutches of the sheriff. The significance of the margin concept in production arises out of the shiftings that are ever taking place among the productive agents in order that the kind and volume of goods produced may be kept in line with changes in the demand of consumers. At any time, that person, firm, or instrument of production is marginal in a given line of work if an adverse price change in the product in question, or if a price advance in an alternative field of production, would cause a shifting away from the line of work under consideration. Such a transfer from the production of one article to the production of another may be made by the most efficient producer, as well as by the least efficient one. If "Twenty per cent" Jones should turn from the production of neckties to the production of collars, this would as clearly indicate that Jones was formerly marginal in neckties, as the cessation of the production of neckties by "Ne'er-do-well" Smith, when the price fell and he went to the poorhouse, would be evidence of his former marginality.

This analysis has not much point where highly specialized equipment is involved as, for example, in the generation of electricity. In such cases, marginality and inefficiency run hand in hand. But the analysis applies without question to the case of agriculture, which is under consideration. The farmers who are on the margin of transference from one crop to another are as vitally marginal for the one crop as those who are at the extensive margin. And from the point of view of

[10] Vol. II, p. 130.

price determination, the margin of transference is of transcendent importance as compared with the old standbys—the extensive and the intensive margins.

It is clearly on high grade, rent-bearing land rather than on low grade, no-rent land that the marginal increments of supply, which are effective in altering prices, are found. These increments, be it noted, are not the small portions of the various crops that are produced at the intensive margin; they are the harvests from the fields that may be used for any one of two or more crops. Certainly, the farmers who are using rent-yielding land can turn from one line of production to another far more easily than the farmers on no-rent land can forsake it and take up a non-agricultural employment. Further, the shifting of crops on good land can also be accomplished far more easily than no-rent land can be put under cultivation, particularly the no-rent land that is now available in this country. It seems inconceivable that the extension of production to, and away from no-rent land is of significance in altering the year-by-year output of any one crop, as compared with the alterations in its volume as a result of turning from other crops to its production, or away from it to the production of other kinds of farm produce.

III

More than ample confirmation of this point, if any is needed, is found in the statistics of agriculture for this country. Consider the following table which gives the decrease or the increase in the acreage of eight important crops in the United States, for the last three years for which data are available.

TABLE 1. ACREAGE OF EIGHT MAJOR CROPS FOR SPECIFIED YEARS, SHOWING INCREASE OR DECREASE IN ACREAGE FROM PRECEDING YEAR[11]
(In thousands of acres)

Crop	Acreage				Change in acreage from preceding year		
	1921	1922	1923	1924	1922	1923	1924
Wheat	63,696	62,317	59,659	52,364	—1,379	—2,658	—7,295
Corn	103,740	102,846	104,324	101,076	—894	+1,478	—3,248
Hay	58,769	61,159	59,868	61,451	+2,390	—1,291	+1,583
Oats	45,495	40,790	40,891	42,756	—4,705	+191	+1,775
Cotton	30,509	33,036	37,123	41,360	+2,527	+4,087	+4,237
Barley	7,414	7,317	7,835	6,858	—97	+518	—977
Rye	4,528	6,672	5,171	4,019	+2,144	—1,501	—1,152
Potatoes	3,941	4,307	3,816	3,348	+366	—491	—468
Total acreage	318,092	318,444	318,777	313,232			
Combined increases in acreage of designated crops					7,427	6,274	7,595
Combined decreases in acreage of designated crops					7,075	5,941	13,140
Total change in acreage for the eight crops					+352	+333	—5,545

[11]Data from *Agricultural Year Book, 1925,* United States Department of Agriculture.

This table presents only a partial picture of the farm acreage in the United States. It contains no reference to any of the minor crops, including pasturage, nor to sorghum which exceeds potatoes in acreage. In fact, there are about three times as many acres in farm land in the United States as are accounted for in the table, and almost twice as many acres as given in the table that are either in crops or in pasturage suitable for crops. Furthermore, the data given are estimates rather than accurate records of crop acreage; but, accepting them as reliable, they show that significant changes took place in the number of acres devoted to these eight crops during the specified years. There were over seven million fewer acres devoted to wheat in 1924 than in 1923, over three million acres less put to corn, and at the same time over seven and one-half million acres increase in the amount of land used for hay, oats, and cotton. It is apparent that these changes do not mean that ten million acres of wheat and corn land at the extensive margin were abandoned, and that seven million acres of other no-rent land were brought under cultivation and used for hay, oats, and cotton. At least the major part of the changes in the acreage of these eight crops came about because farmers distributed the acres under cultivation differently in 1924 than in 1923.

The total decrease in the acreage of these eight crops from 1923 to 1924 totalled over five and one-half million acres. In accounting for this large decrease, it must be remembered that only one-third of the farm area of the nation is devoted to these crops. Hence, the transference of land to other uses in 1924 could easily account for the decrease in the acreage of the designated crops. But if the liberal assumption were made that half of the five and one-half million acres decrease in the land used for these crops came as a result of abandoning no-rent land, this would represent less than one per cent of the acreage devoted to these eight crops, and would thus not have been of any appreciable price significance in view of the amount of land transferred from one use to another.

In 1922 there was an increase of 352,000 acres in the eight crops as compared with 1921. The change from 1922 to 1923 was a still smaller increase. The transference of land from the many other farm uses to the cultivation of these crops again affords a ready explanation of the changes for these two years. But if these increases came solely because of the extension of the margin of cultivation, the addition was of but little significance, as it represents less than one-tenth of one per cent of the acreage for the eight crops.

The conclusion seems to be amply warranted that the year to year changes in the acreage of the different crops comes about because of the transference of land from one use to another, rather than from the additions to or the subtractions from the amount of land in use as a

result of extending cultivation at the no-rent margin or abandoning no-rent land that has been in use. If this is true, the price of a product is not "determined by the marginal units at the extensive, no-rent, margin."

What of the intensive, no-rent, margin? Are the alterations in the intensity of cultivation such that the volume of output is affected sufficiently to "determine" price? The *Agricultural Year Book of 1925* gives the average yield per acre for the principal crops from 1909 to 1924, inclusive, and the average price received for each of them. It also shows the "percentage reduction from full yield per acre from stated causes" for these crops. These "causes" are listed as twelve in number, with a thirteenth "other and unknown causes." Eight of the twelve are subdivisions of "adverse weather conditions" and the other four are plant diseases, insect pests, animal pests, and defective seed. The adverse weather conditions are given credit for almost the whole of the reduction from full yield. In none of the reports is there any suggestion that the reduction from full yield, during any one of these sixteen years, was due at all to a decline in the intensity of cultivation on account of a low price. If the "other and unknown causes" are price changes, their influence is shown to have been infinitesimal, as it was as high as one per cent in only a few cases. Evidently, the crop reporters and the statisticians in the Department of Agriculture are not aware of any change in the intensity of cultivation from year to year on account of price changes; evidently, they do not know that price is "determined at the intensive, no-rent, margin." But despite the fact that they are unaware of this relationship, their data may be examined with profit to see if any variation in intensity of cultivation can be discovered.

Corn is a crop that can easily be cultivated more or less intensively. The accompanying table (p. 227) shows the significant data for corn in this respect.

These data are not highly accurate. "Yields per acre are estimates based upon reports of one or more farmers in each agricultural township.... in some cases revised in the following year." The percentage reductions from full yield are "reported by crop correspondents." But taken as they are given, the data are interesting. After the influence of weather and insects is accounted for, the "full yield" per acre (column 3) shows a monotonous uniformity for the sixteen years, although the price of corn varied greatly during this period. The average year to year change in full yield is only 1.3 bushels. The margin of possible error due to the crude data used is probably enough to account for this variation in yield. The adjusted full yield may thus be regarded as unvarying from year to year. Indeed, there is some

TABLE 2. YIELD OF CORN PER ACRE, PERCENTAGE REDUCTION FROM FULL YIELD, AND PRICE FOR SPECIFIED YEARS[12]

Year	Average yield per acre bushels (1)	Percentage reduction from full yield due to specified causes (See text) (2)	Full yield, derived from columns (1) and (2)[13] bushels (3)	Price per bushel received by producers, Dec. 1 cents (4)	Price per bushel corrected for wholesale price index of non-agricultural commodities[14] cents (5)
1909	26.1	29.6	37.3	58.6	
1910	27.7	26.0	37.4	48.0	47.1
1911	23.9	33.7	36.2	61.8	64.4
1912	29.2	26.3	39.5	48.7	48.7
1913	23.1	38.9	37.9	69.1	65.8
1914	25.8	30.6	37.4	64.4	66.4
1915	28.2	29.9	40.3	57.5	56.9
1916	24.4	34.7	37.5	88.9	64.4
1917	26.3	33.8	39.8	127.9	70.3
1918	24.0	37.7	38.7	136.5	72.6
1919	28.9	25.4	38.5	134.5	67.6
1920	31.5	15.9	37.5	67.0	27.8
1921	29.6	18.7	36.5	42.3	25.2
1922	28.3	23.0	36.8	65.8	39.2
1923	29.3	23.4	38.0	72.6	42.5
1924	22.9	39.7	38.0	98.2	60.6

reason for believing that the crop reporters compute the percentage reduction from full yield by assuming a normal full yield, which is regarded as being the same year after year. In so far as this is done, the conclusion is strengthened that farmers do not alter the intensity of their cultivation from year to year and thus influence price in this way; for if this were done, we should expect the crop reporters to be aware of it.

It may, however, be argued that these data do show a causal relationship between price for one year and the intensity of cultivation for the following year. In almost every case, a rise or a fall in the price for one year as compared with the price for the preceding year, whether the actual prices or the prices adjusted for changes in non-agricultural prices be used, is accompanied by a rise or a fall in the actual yield for the following year. But reference to the percentage reduction from full yield suggests that the causal relation runs from the effect of weather and insects to actual yield and from yield to price, rather than from price in one year to yield in the following year. Almost without exception, an increase in the degree to which adverse conditions affect the crop is accompained by a rise in price, and *vice versa*.

[12] *Agricultural Year Book, 1925,* page 788.

[13] Average yield ÷ (100 minus percentage reduction).

[14] *The Agricultural Situation,* U. S. Agric., Vol. X, no. 2, p. 9. On five year base, Aug. 1909-July, 1914 = 100.

In other words, the actual yield varies from year to year with the weather conditions and the influence of insects, plant disease, etc., and not because of variations in the intensity of cultivation. It should perhaps also be noted that a high price for corn during one season might be a causal factor in an increased yield per acre for the following year, not by influencing farmers to cultivate more intensively, but by causing them to put their best fields to corn, or to transfer land from pasture to corn. Hence, if there were a correlation between yield and price after allowing for the influence of weather and insects, this would not be proof that the intensity of cultivation varies with price.

Furthermore, entirely apart from the above data, it does not seem reasonable to believe that farmers normally vary the intensity of their cultivation according to the price of the product. They usually try to produce as much as they can without regard to the price that prevails, except that occasionally a crop may not be harvested because the price is extremely low. Further, farmers never know until the crop has matured what price they will be able to get; and the beacon of hope spurs them on even if the chance of a good price is very slim. Then, too, the definite prospects of a low price would, in many situations, prompt the farmer to take increased care in order that his income might the more nearly equal his requirements.

The writers for trade journals may slip in their economics sometimes, as schoolmen do, but they generally have an eye for the realities. Did any one ever read from one of them a statement like this? "Owing to the low price of wheat that has prevailed for the past few seasons, the farmers on no-rent land are forsaking it, and the other farmers may be expected to cultivate wheat less intensively this season. As a result the supply of wheat will be reduced." Do they report that cotton will be grown less intensively and no-rent cotton land abandoned this coming season, as a result of the extremely low price of cotton; or that farmers will more widely diversify their crops?

IV

All this may be merely an elaboration of the obvious. Perhaps no one would wish to defend the position that the year by year variation in the supply of the different crops is due either (1) to the extension or contraction of the total acreage of cultivated land at the extensive, no-rent, margin of cultivation, or (2) to the variation in the intensity with which farmers cultivate their lands, rather than to the transference of land from one use to another.

But it is upon the validity of this thesis that the Ricardian doctrine of pricing which is sponsored by Fairchild, *et al.*, depends. If the argument in this paper is sound, this suggested thesis cannot be

successfully defended, since the increments of supply that are significant in making up the total supply of any one agricultural product are found at the margin of transference from this one to other crops, and not at the extensive and the intensive, no-rent, margins. In other words, if the position of this paper is well taken, the major proposition of Ricardo, as phrased by Fairchild, Furniss, and Buck,—namely, "the cost of production" at the no-rent margin "controls the selling price of any kind of produce,"—is false; and, consequently, the deduction from this,—"hence economic rent cannot be one of the elements making up that cost which determines price,"—is also false.

There is a rough relationship between the price of an agricultural product and the cost of producing it at the no-rent margins. In the long run, and broadly speaking, the two tend to be approximately the same; but the causal relation moves from price to cost at the no-rent margins rather than in the opposite direction. With the price set by the equation of supply and demand forces, of which the supply at the margin of transference is of prime importance, the cost at each of the no-rent margins is then roughly adjusted to the price, through the extension or withdrawal of productive effort at this margin. This is, however, much more clearly the case in respect to the extensive margin than it is to the intensive margin. Methods of land utilization are highly traditional. While there is a tendency for farmers to cultivate each parcel of land up to the intensive margin, there is also a tendency for them to follow traditional methods without regard to the making of nice adjustments. It is this latter tendency that has the upper hand. The realization of the former is hoped for by theoretical economists rather than seen by practical farmers.

The general principle of utilization is the same for city land as for agricultural land. It is through the operation of the innumerable productive units at the margin of transference that supply in any one line is determined and the price of the product set. The margin of transference is thus the Hamlet in the play of the price-making forces. The extensive and the intensive margins are minor characters that take their cue from the star. Further, and in conclusion, an important element in the making of choices at the margin of transference is the prevailing land rent. It is thus causal in the pricing of commodities.

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