Is the Rent-Collector Worthy of His Full Hire?∗

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The answer is No.

I. Statement of the Theorem

Allyn Young and Frank H. Knight have set straight the Marshall-Pigou fallacy that all increasing cost industries ought to be socially penalized: Young and Knight point out that the bidding up of rents to factors scarce to an industry are “transfer” costs to society; and, further, that such rents have to be charged if social efficiency is to be achieved. Otherwise land will get non-optimally utilized; fishing seas and roads may become overcrowded.

I take this all to be standard doctrine. Charging rents serves an efficiency purpose for a laissez faire or communistic society, even if we do not want any class called landlords to receive an income from rents.

The problem I pose here is this:

Suppose that “landlords” are not made to give up any of their rents to laborers.

∗ This paper was written in February 1962 but not published. In the meantime, Professor Martin Weitzman (then at Yale, now at M.I.T.) has independently originated a similar theorem and applied it brilliantly to the enclosure movement. Cf. Martin Weitzman and Jon S. Cohen, “A Mar jian Model of Enclosures,” July 31, 1962, unpublished. I owe thanks to the National Science Foundation for financial aid, and to Kate Crowley for editorial assistance.

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†† General diminishing returns and stunted conditions—the latter because it is obvious that latifundia (large estates) could wipe out the last fish couple and permanently impoverish fishing labor.

Can it be true that the service these landlords create in improving the allocation of labor will be more than enough to pay their own charges and still leave labor better off than before?

Were the answer to this Yes, labor would find it advantageous to vote unanimously for the institution of landlordism if the only alternative was that no rent would be charged by anyone. The present theorem states that Yes would be the wrong answer.

Under the conditions postulated, the rent collected by landlords always represents more than the extra output society thereby achieves, so in a certain sense, rent collection subject to no tax represents a subtraction (if not “exploitation”) of labor.

I present this theorem not primarily for its interest as a political economy, but it may have some implications for welfare analysis and it is a beautiful example where intermediate reasoning can establish what first appears to be a formidable problem viewed merely as cold mathematics.
II. A Test Example

Following in Robert L. Bishop's tradition at M.I.T. I set in January 1982 the following examination question for first-year graduate students. A village owns given amounts of grade A and grade B land. The average physical product schedules for corn of identical labor on the two types of land are given by

\[ \text{APP}_A = 6 \frac{L}{2} \frac{1}{A} \] and \[ \text{APP}_B = 6 \frac{L}{2} \frac{1}{B} \]

The total number of available identical labor is L = 6. The village uses the land as communal property dividing the lot to give each man an equal produce. Then at Ricardo's advice they charge rent (giving it back in an equal social bonus). Explain the reasons for this advice; derive the numerical value of the proposed rent; show in what way and by what amounts each villager will end up better off.

The good student, leading Ricardo Knight's insight, answers as follows. Prior to the collection of rent, labor overcrowded the good land, with equilibrium being at the point where average corn product was equalized on all lands used. (Five L4 and one L4 gave a wage rate of 550 corn per worker and a total output for society of that much times the labor supply, or 33 corn in all.)

After the collecting of rent, the marginal product per worker is lower and the marginal productivity of labor is lower than in the case without rent. The shift of labor to the poor land, where its marginal product was higher, does not increase its total output. (Arithmetically, with 4 and 2 for L4 and L4, the wage is now at the equated marginal product of 4 each per worker; the "residual rents" on the A and B land are 8 and 4 corn respectively. The total wage plus rent bill now adds up to 34, the amount over 33 being attributable to the efficiency aspects of rent collection on allocation. Notice, however, that the total social pie has gone up, the amount that wage labor now ends up getting at wages has gone considerably down. This straight-line case therefore is one instance confirming my theorem that the total rent always subtracts more from product than efficiency adds.)

III. Literary Proof

We can begin with the case of but two plots of land, because that is simpler and because, fortunately, the case of any number of plots yields to essentially the same reasoning.

Before rent is charged, labor divides itself on the two plots so as to equalize their real wage rates at a common average labor product level. When the marginal products are unequal, it is evident we can add to total product by switching labor from the low to the high marginal-product areas. After land is appropriated by rent collectors, they will charge rent and ensure that the new configuration ends up with a common wage level at the new equalized marginal products. Thus, in the new situation total output will have been increased by the new efficient allocation of labor. At the initial

allocation of labor the respective marginal labor products will be equal to universal diminishing returns, each be less than their respective average products and hence less than the equalized wage level.

To compare the new and old wage rates, it is crucial to realize that the plot which has gained labor will, by the law of diminishing returns, end up with a lowered marginal product. But its initial marginal product was already shown to be less than the initial average-product wage rate. Hence, we have proved that the terminal marginal-product wage rate is definitely inferior to the initial average-product wage rate. This completes the proof that rent-collecting has definitely lowered pure wage income.

The generalization to any number of land plots is fairly simple. First, we have the configuration yielded by the wage at equated average products; second, that yielded by the wage at equated marginal products. Except in the singular case so easily disposed of, there will be at least one plot of land that has had positive labor added to it. Hence, the proof from the two-plot case directly applies: On such a plot, the terminal marginal product wage is less than (or equal to) its initial marginal product, which is less than the initial average-product wage.

Q.E.D.

Figure 1

In Figure 1a, \( w^* \) at A is less than \( w \) which is less than \( c \) at \( w^* \)--as can be seen at a glance. [Figure 1b shows a borderline case in which the strong diminishing returns assumption has been relaxed on Land B, and where the rent triangle above B just matches the increment of total social-product triangle below BA.]

The singular case, in which the equating of average products happens to coincide with the equating of marginal products, can be easily disposed of. In the case rent-collecting does not add to output at all, so, of course, collecting positive rent must lower wage incomes. (Alternative proof: Initial \( \text{APP}_A > \text{Initial MPP} = \text{nominal MPP}. \) In the limiting case of everywhere-uniform-horizontal marginal productivity curves, there will of course be no rent when private property and no change in anything.

That the ultimate loss in wages can be indefinitely large and the property rent be quite in excess of any function performed by the rent collector is shown by an example where the two plots have Co$1 = $2 functions with the same negligible segment on labor, but with proportionally constant diminishing returns. In that case landlords get 99.9% of the product for achieving little or no improvement of the total product.
IV. Graphical Formulation and Proof

The good student presents the following graphical solution to the problem: First, he adds the average product curves horizontally; then he intersects the resulting curve with an inelastic labor supply schedule. The intersection gives him the common wage level and from the original individual curves he deduces the initial labor allocations and products. To get the terminal allocations, he adds the individual marginal product curves horizontally, again he finds the intersection of the vertical labor supply curve with this new aggregate curve, thereby getting the new common wage and so forth. (All this is rather like the Systema-Rosssell graphs for discriminating monopoly.)

For the two-good case, the Jevons-Wickless diagram of Fig. 1 is even more convenient, and of course straight lines are not necessary.

V. Mathematical Formulation

To illustrate the power of economic intuition, one might present the following equivalent problem to an expert mathematician to see how rapidly he can solve it.

Theorem: We are given a non-negative strongly-curved monotone and smooth function $Q_i(x)$ each with the property that $Q_i''(x) < 0, x > 0$. Then $w^{**} < w^*$, where:

$$w^* = Q_i(x_i^*) = \frac{Q_i'(x_i^*)}{x_i^*} = x_i^* > 0,$$

and:

$$w^{**} = Q_i(x^{**}) = x^{**} = \frac{Q_i'(x^{**})}{x^{**}} > 0.$$

The mathematical problem would look even more formidable if we replaced the above equalities by the following type of inequalities of modern programming type $w^{**} \geq Q_i(x^{**})$, $x(w^{**} - Q_i(x^{**})) = 0$, and so forth. Yet the theorem and proof would still be valid.

VI. Final Word

I draw no deeper welfare implications in this paper. Some may wish to note that here is one of the innumerable examples that can show the arbitrariness of those old new-welfare arguments which used to say: "If situation II could be better than situation III for everyone with proper compensating redistributions being made, then whether or not [I] such redistributions (or tributes) are made, society should overtly select II over I." Pareto-optimality is never enough.

Competitive Pricing and the Centralized Market Place

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Many economists have for some time been vociferous in urging increased freedom of competition upon the securities industry. Until recently this was advocated almost exclusively for the benefit of the general investing public. But it becomes increasingly apparent that such measures have become important and perhaps even critical for the welfare of the securities industry and some of its leading institutions. Paradoxically, the industry is in danger of becoming the most potent victim of the arrangements which many of its constituents have defended so adamantly.

On the slightest provocation mankind always seems prepared to attempt to improve upon the prices and the allocation of resources that would otherwise be produced by an unhampered market mechanism. We set ceilings on rents and interest rates and floor on farm and public utility prices. We attempt to eliminate all latitude on railroad fares and brokerage commissions, presumably setting them at levels that represent a compromise between some ideal of justice and the economic pressures and necessities.

The issues raised by the attempt to impose "just prices" in brokerage and else-

where have long been with us, and most economists since the last decades of the eighteenth century have generally taken the view that except under very special conditions, usually in times of some sort of emergency, attempts to improve upon the market's pricing are very likely to fail, and that whether they fail or not they are likely to impose heavy costs on the community.

In sum, we economists believe that supply and demand generally takes its revenge upon those who would defy it. Moreover, the punishment often fits the crime. For example, floors on prices imposed to protect the consumer all too often transfer much of the supply activity into the hands of the black marketer who, since he must be paid for bearing the risk of punishment in addition to his other supply costs, ends up charging prices higher than those which would have prevailed in the absence of intervention. Rent controls, designed to make housing more accessible, in the long run succeed only in drying up the supply. As was once remarked by a noted Swedish economist (not by any means right wing in his persuasion) "rent control is not quite as effective as bombing in destroying a city, but the two come remarkably close." A major theme of this discussion is the nature of