WAGES IN EXCESS OF MARGINAL REVENUE PRODUCT

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I

The principal purpose of this paper is the assembly and theoretical formulation of a number of cases where workers, organized formally or informally, can raise employee compensation in both short- and long-run well above their marginal revenue product to the employer without risk to the level of their employment. The list of cases will not be original. Many of these cited have been suggested by recent studies in labor economics[1]; further research may be expected to increase the total number.

In none of the instances to be treated here need reliance be placed on "frictions," "immobilities," or "ignorance," however important these may be in practice. Neither are kinks assumed in average product functions, to be reflected in discontinuities of the corresponding marginal products.[2] We do not discuss possible increases in physical productivity springing from higher living standards or improved worker morale. We do not discuss possible increases in marginal revenue product arising from decreased monopoly power of the employer in selling his product (or alternatively from increases in the product price).

We concern ourselves rather with special problems raised by "all-or-none" collective bargaining, by approaches thereto, by profit-sharing plans, and by labor participation in management. In many of these cases, wages can be raised above marginal revenue product by transfer into the pockets of labor of employer profits from "monopolistic exploitation"[3] of labor and other productive services.

[1] Particularly suggestive has been an essay by Nathan Belfer and Gordon Bloom, "Unionism and the Marginal Productivity Theory," in Richard A. Lester and Joseph Shister (eds.), *Insights into Labor Issues*, chap. 8, pp. 238–266.

[2] For an elaborate discussion of these discontinuities, see George Stigler, "Production and Distribution in the Short Run," *Journal of Political Economy*, June 1939, pp. 305–327, reprinted in American Economic Association, *Readings in the Theory of Income Distribution*, chap. 6, pp. 119–142.

Much of the evidence adduced by critics of "marginalism," notably by Professor Lester, involves little more than short-run discontinuities in marginal product functions, within which wages may be varied (i.e. by bargaining) without effects on employment. Cf. Richard A. Lester, "Shortcomings of Marginal Analysis for Wage-Employment Problems," *American Economic Review*, March 1946, pp. 63–82, and "Results and Implications of Some Recent Wage Studies," in Lester and Shister, *op cit.*, chap. 6, pp. 197–225.

[3] Acceptance of this term may brand the writer as hopelessly old-fashioned, in view of the strictures against it by Professor E. H. Chamberlin and Mr. Gordon Bloom, who require intent to exploit as of the essence of exploitation. The writer prefers to judge by results rather than intent—an ethico-legal difference too wide in import for settlement in economic footnotes!

Chamberlin's article, "Monopolistic Competition and the Productivity Theory of Distribution," has been reprinted as chapter 8 of the later editions of *The Theory of Monop-*

In others, the profits of "monopsonistic exploitation" of nonlabor resources may be taken over by labor within a competitive product market. In a third group, the incidence of the wage increase may fall on monopoly profits outside the employing industry, or upon economic rent. In a fourth, cooperant factors may be depressed to compensation levels below their own marginal products. In a fifth and final set, wages in excess of marginal revenue product are paid from windfall profits in competitive industry, whose expansion is thereby checked.

II

Perhaps the most important device used by organized labor to achieve these results is the "all-or-none" collective bargain in some overt or tacit form. "All-or-none" contracts result from bargaining processes in which the wage paid and the numbers to be employed are set in a single agreement. These bargains may be distinguished from price bargains, in which the size of the work force is left to employer discretion once the wage rate is agreed upon. When "all-or-none" bargains and contracts are introduced into the picture, a significant modification of received theory is required. This modification should prevent the uncritical acceptance of marginal productivity doctrines even in their expanded form (which takes account of imperfect competition),[4] much as imperfect competition itself should insure against uncritical acceptance of "supply and demand" in the explanation of price.

Not only in wage theory and labor economics, but also in other economic processes involving bilateral monopoly, much of our existing theory is imperfectly applicable. Nonlabor illustrations include "collective bargaining" between shippers and railroads regarding commodity freight rates, or between independent "planned economies" in international trade. Neoclassical economics portrays a process of maximizing incremental advantages at several margins; hence the names "incremental" or "marginal" economics. The corresponding transactions

olistic Competition, pp. 177–190, and as chapter 7 of American Economic Association, *Readings*, *op. cit.*, pp. 143–157. Bloom's essay, "A Reconsideration of the Theory of Exploitation," has been reprinted in American Economic Association, *Readings*, *op. cit.*, pp. 245–277.

[4] The marginal productivity principle may be stated mathematically in two forms: Let a be a factor of production, and x the product; p_a and p_x are the respective prices. The elasticity of demand for the product of the single employer is η_x; the elasticity of supply of factor a to the same employer is e_a. The marginal physical product of a in producing x is x_a. In this terminology, we can derive, as a corollary of profit-maximizing by the employer:

$$p_a\left(\frac{e_a + 1}{e_a}\right) = x_a p_x \left(\frac{\eta_x - 1}{\eta_x}\right) \quad \text{or} \quad p_a = x_a p_x \frac{e_a(\eta_x - 1)}{\eta_x(e_a + 1)}$$

which is the principle in expanded form.

The simplified version ordinarily found in elementary textbooks assumes pure competition on both product and factor markets. Both η_x and e_a become infinite, and we have simply

$$p_a = X_a p_x$$

which has proved an easy target for institutional criticism.

in the real world, on the other hand, have come in increasing measure to include "all-or-none" bargains with much more inclusive content than the theoretical models. In "all-or-none" bargains, prices and quantities are determined simultaneously, with little or no room for incremental adjustments at margins. "All-or-none" bargaining may be carried out openly and undisguised, or it may pose as price bargaining within an institutional framework which effectively prevents quantitative adjustments or renders them highly expensive. (A variety of ways in which this may be done on labor markets are cited below.)

No elaborate mathematical apparatus is required to represent the all-or-none bargain and its effects. A union making such a bargain need pay little attention to marginal productivity considerations in setting either the wage or the quantum of employment. The only general restriction is that terms be sufficiently advantageous to tempt the employer to hire "all" rather than "none." (In certain abnormal short-run situations, even this may be unnecessary. For example, if the employer is forbidden legally to close his plant, or if state "full employment" policies require assumption by taxpayers of "fair" wages which private enterprise cannot or will not pay, "none" is not a meaningful alternative.) It will in practice be wiser union policy, at least in high-wage industries, to leave a margin for profit sufficient to avoid discouragement of new firms and contraction of plant capacity by firms already in operation.

Under what sorts of circumstances does a wage rate exist which is higher than marginal revenue product and which can be paid to a given work force without eventually forcing the employer out of business? In models where all industries are perfectly competitive and no economic rent is paid—to cite one case—no such wage would seem to exist. Here total product is exhausted as a condition of long-run equilibrium when each productive service (including the entrepreneurial) is paid its marginal revenue product, which equals the value of its marginal physical product.[5] Wages in excess of this amount lead to losses, and eventually drive the employer out of business.[6] This is a "goose and golden egg" problem. What types of situations eliminate it?

Study, discussion, and observation have suggested some half-dozen such types. They are listed and discussed briefly in the paragraphs immediately below. Additional types may be proposed by others. It is assumed throughout that the union is strong enough to have eliminated previously any direct monopsonistic exploitation of its members.

[5] Demonstration of this result goes back to Wicksteed and the Lausanne School, whose particular proofs are not regarded today as generally valid. Cf. Henry Schultz, "Marginal Productivity and the General Pricing Process," *Journal of Political Economy*, Oct. 1929, pp. 505–551; J. R. Hicks, *Theory of Wages*, appendix i: Mrs. Joan Robinson, "Euler's Theorem and the Problem of Distribution," *Economic Journal*, June 1934, pp. 398–414; George Stigler, *Production and Distribution Theories: The Formative Period*, chap. 12, pp. 320–387.

[6] If a wage increase reduces the return to implicit or entrepreneurial factors (even temporarily, pending entrepreneurial withdrawal from business) below their marginal productivity, we would have in fact "exploitation of employers" by labor, quite as suggested by Belfer and Bloom, *op. cit.*, p. 240.

1. Perhaps the most obvious and clear-cut type of imperfection which permits of wages exceeding marginal revenue product involves monopolistic exploitation not only of labor but of other factors as well. Here marginal revenue product falls short of the value of marginal physical product; a surplus is left, which may constitute monopoly profit. Under these circumstances, an all-or-none bargain may achieve for an aggressive union on a permanent basis a share in these monopoly profits, whether obtained by a monopolistic employer or by a trade association in the employer's industry. All-or-none bargaining gives the lie to the plausible denial of the adequacy of labor organization as a defense against monopolistic exploitation. (The denial, that is to say, is plausible if we assume price bargaining exclusively.)

2. Allied to monopolistic exploitation are widespread windfall profits in competitive industry, such as follow the introduction of an innovation and characterize the prosperity phase of an inflationary boom or cyclical process. Forced payment of wages above marginal revenue product, which equals the value of marginal physical product under pure competition, operates in this case to forestall the potential expansion of output and employment that would otherwise have been anticipated, but it does not actually decrease output or employment unless carried too far. This case is significant particularly in that it illustrates the possibility of permanent gains by labor through all-or-none bargaining in purely competitive industry.

3. The employer may be a monopsonistic buyer of some nonlabor factor of production—as is a large meat packer on a livestock market, or a large cigarette company in buying tobacco. He may make substantial monopsony profits through exploiting this position. These monopsony profits can be tapped by organized labor through all-or-none bargaining, with a wage set above marginal revenue product without fear of contraction. In this case, it should be noted, the gains of organized labor are obtained indirectly at the expense of the factor monopsonistically exploited. Livestock raisers (or tobacco farmers, in our hypothetical illustrations) are then subject to monopsonistic exploitation for the indirect benefit of packing-house or tobacco workers as well as the direct benefit of meat packers or cigarette companies. Organized labor is then in the position of indirectly exploiting other factors of production. The amount of exploitation need not be affected by all-or-none bargaining. There is no evidence that livestock raisers or tobacco growers are either better or worse off under monopsonistic exploitation for the indirect benefit of organized labor than under the same sort of exploitation for the direct benefit of the employer.

4. Allied to the monopsony cases are others involving public or private rationing or allocation of nonlabor factors, such as bank credit, steel, or the like. If the employer earns 10 per cent at the margin on capital borrowed at 6 per cent, but is refused additional credit at any interest rate, an increment of 4 per cent at the margin is available for tapping by organized labor on an all-or-none contract, precisely as though it had resulted from monopsonistic exploitation of capital.

5. The employer (or his industry) may pay an economic rent to some nonlabor factor specialized to the firm or industry, and available to it only in fixed supply (zero elasticity). An increase in wages, combined with an all-or-none contract,

can force the employer to substitute labor for the specialized factor, even against the dictates of maximum profit.[7] It might be more remunerative for the employer to substitute in the opposite direction in consequence of the wage increase, but the all-or-none bargain effectively prevents such substitution. Being required to hire "excess" labor, the employer puts it to the best use he can, substituting it for other resources whenever possible and permitted. When labor is substituted for the specialized resource, the demand for the latter would decline.[8] Under our hypothesis of inelastic supply, the rent of the specialized resource would fall sharply, until the incidence of the wage increase would fall completely upon rent.

6. An allied case involves exploitation of the employing industry as purchasers of some nonlabor factor of production specialized to this industry and produced under monopolistic conditions. The effect of a wage increase combined with all-or-none provisions may then be similar qualitatively to the effect discussed in the preceding paragraph. The wage increase, like a tax, could be shifted partially backward to the monopolized factor. Labor would be substituted for the monopolized factor rather than being paid in idleness. The demand for the monopolized factor would fall. Both its output and price would follow, and the cost of the all-or-none bargain would be paid in part from the monopoly gains of the resource-producing industry. The shift would not in general be complete (as distinguished from the preceding case) unless marginal cost in the resource-producing industry were highly inelastic, as under conditions of production at physical capacity.

III

Forthright all-or-none contracts, which fix simultaneously wage rates and job numbers, are relatively rare in current American labor relations practice. Both in America and elsewhere, however, provisions of equivalent import are finding their way into collective agreements between employers and employees. Other such provisions may be imposed by law, by custom, or by illegal means. Certain of these equivalents or approximations are considered in this section: annual wage contracts, dismissal wage provisions, and restrictive working rules. Once again, the list does not profess exhaustiveness.

1. The "annual wage" is interpreted by many writers, including notably Professor Wassily Leontief and his followers,[9] as differing in name only from the all-

[7] By requiring the maintenance of employment, the union would doubtless prefer to force an increase in output, hence in the demand for nonlabor factors as well. In a competitive industry, however, increasing labor cost is hardly an approved method for inducing increased production. Individual firms may be cajoled or coerced into expansion, but the decline of the industry as a whole can be prevented only by the intervention of economic growth or by offsetting reduction of other cost factors.

[8] How can this decline in demand for the specialized factor be reconciled with its unchanging physical productivity? The reconciliation appears to take the following form: Use of the specialized resource (beyond a certain point) would involve the employer in wage payments to workers who would produce nothing. The *net* marginal value product of the specialized resource would then fall, after deduction of these wage payments as additional costs.

[9] W. W. Leontief, "The Pure Theory of the Guaranteed Annual Wage Contract," *Journal of Political Economy*, Feb. 1946, pp. 76–79. Belfer and Bloom, *op. cit.*, pp. 254–256, are in agreement.

or-none contract. Such conclusions are certainly justified insofar as the four following provisions are to be found in particular agreements:

a. The contract states with some precision the number of employees covered by the annual wage guarantee.

b. This number includes substantially the employer's entire working force.

c. The wage guaranteed approximates that which would be earned under continuous full employment.

d. Annual wage guarantees cover periods longer than a single year, or are renewed periodically as a matter of course.

Many existing annual wage contracts fall well short of these marks in one or more respects. Many of them leave the employer wide discretion as to the number of workers he should retain at the outset of the year. Others apply only to an inner core of senior workers, largely immune against dismissal in any event. In others, the wage guaranteed is only a small fraction of the wage earned under full employment. Most plans are subject to annual renewal, so as to restrict for only limited periods the employer's right to reduce his work force. It is either a forecast or an exaggeration to characterize all such plans as all-or-none contracts. However, a really satisfactory "annual wage" contract from a union viewpoint would certainly justify Leontief's conclusions.

2. Provisions for "dismissal wages" or "severance pay" operate unequivocally to penalize employers economically for reductions in their work force.[10] Their effect is therefore to induce retention of employees for prolonged periods when their productivity drops below their wages. They do not, however, require the employment of such workers in the first instance.

In extreme cases, noneconomic as well as economic penalties may be called into play. Legislation forbidding dismissals except for cause or with government approval was enacted under the Nazi regime in Germany in 1933. Here criminal penalties (imprisonment) replaced the economic in checking any operation of marginalist economics. The German code in fact exceeded the all-or-none contract in its severity. It forbade employers to retire from business without official permission, thus removing largely the alternative of "none."

Japanese experience provides a variant on the same theme. The quasi-feudal obligations of employers toward employees induce them in their capacity of "lords of the factory" to continue payment of employees whether or not there is work for them—indeed, even when they are striking for wage increases.[11] The gruesome Shimoyama murder (Summer 1949) followed immediately upon the dismissal of several thousand excess workers by Mr. Shimoyama, President of the National Railways Corporation of Japan. Shimoyama's fate illustrates the consequences of violating Japan's unwritten labor code.

Labor racketeering may also be mentioned in this connection. One of its forms is the forced padding of payrolls with "workers" who may never appear, or whose

[10] Compare Belfer and Bloom, *op cit.*, p. 251, on the subject of dismissal wages.

[11] For this information I am indebted to Professor Shichiro Matsui of Doshisha University, Kyoto, currently (1948–49) studying and lecturing in the United States under the auspices of the Institute for International Education.

"marginal productivity" may be zero (or even negative). Another is a compulsory though informal all-or-none contract for bona fide workers at exorbitant wages (which include a "kick-back" to the racketeer). Here criminal coercion overcomes marginal productivity. Economic, common, and statute law are violated simultaneously. Although labor racketeering is prevalent in a number of American trades, we may turn to China for a particularly flagrant and large-scale contravention of productivity economics. In the disturbed conditions of 1945–48, cotton mills were forced to continue meeting payrolls with no raw cotton on hand and with workers completely useless, by employee threats to wreck the plants unless wage payments were continued as usual.

3. Working rules of various sorts, introduced into labor relations either by formal contracts or by traditional practices, effectively raise wages above marginal revenue product by applying all-or-none methods a bit at a time, to particular segments of a firm's operations.

Working rules may fix the proportion of workers to product, as those of the Musicians which require a certain number of union members be hired in connection with radio broadcasts of phonograph records.[12] More commonly, the ratio required is one of union workers to other factors (usually fixed capital of some sort). The "full-crew" regulations of the Railway Brotherhoods fall into this category. In the first instance, the all-or-none nature of the restriction is obvious, and a strike is threatened if the "none" alternative is chosen. In the second instance, the device may be equally effective if the use of the capital instrument is necessary (as are locomotives to the railroads and presses to the printing trades).

Economists by and large have lagged in adjusting marginal analysis to the existence of rules like these. If the ratio of labor to product or to capital is fixed by law, agreement, or custom, it clearly becomes impossible to vary individual factors in the manner supposed by conventional theory. In technical parlance, factors of production cease to be "compensatory" or "substitutional" even in the long run, and assume a "limitational" character. Their returns cannot be explained by marginal productivity reasoning alone; recourse must be had as well to the concept of rent in the generalized form developed by Vilfredo Pareto at the turn of the century.[13]

(An alternative interpretation: "compensatory" factors of production, between which substitution is possible, are redefined by working rules as hybrids or composites, within which returns to components depend largely on bargaining strength.)

When associated with such phenomena as working rules, the distinction be-

[12] Belfer and Bloom, *op. cit.*, p. 249 f., interpret the activities of the Musicians in the same manner.

[13] For the distinctions between "compensatory" and "limitational" factors see Henry Schultz, *op. cit.*, pp. 508–529, 545–551; J. R. Hicks, "Marginal Productivity and the Principle of Variation," *Economica*, Feb. 1932, pp. 79–88; Henry Schultz and J. R. Hicks "Marginal Productivity and the Lausanne School," *ibid.*, Nov. 1932, pp. 285–300; N. Georgescu-Roegen, "Fixed Coefficients of Production and the Marginal Productivity Theory," *Review of Economic Studies*, Autumn 1935, pp. 40–49, together with the references to Pareto's *Cours* and *Manuel* there cited.

tween "compensatory" and "limitational" productive services assumes a social significance which it lacks otherwise. It will not do any longer to consider all factors compensatory, even in the long run, as is suggested by Professor Stigler.[14] Discussion of limitational factors has run almost entirely in terms of possible technical requirements of production processes, and on this level Stigler is probably correct. The problem takes on new and broader economic meaning when studied in the light of rules which render factors limitational by artificial means, without regard to the technical possibilities of substitution.

IV

Aside from all-or-none contracts and approaches thereto, at least two other sets of devices may raise employee compensation well above its contribution to employer net revenues at any margin of employment. The first of these devices is profit-sharing. The second is direct labor participation in industrial management.

There is a wide variety of profit-sharing plans in American industry, differing among themselves in many respects. All, however, purport to divide among workers, over and above wages which presumably do not exceed their marginal revenue product, a certain sum related to the employer's book profits. No offsetting deduction is included for the coverage of book losses. In competitive industry, the bonus or supplement is uncertain and unreliable except in periods of boom. In monopolistic industry, however, it may become an expected feature of industrial operation and enlist labor support for the preservation of the employer's monopoly power and position.

It is immediately obvious that wage-plus-bonus may exceed marginal revenue productivity if the plan is a generous one. (It need not do so if the plan is niggardly and the employer possesses significant monopsony power.) Assuming a generous management—or at least a management which esteems its employees as highly as its stockholders—wage-plus-bonus may exceed marginal revenue product quite substantially in boom years under competitive conditions. The same may be true more systematically in monopoloid industries (including industries practicing monopsonistic exploitation on factors other than labor).

Having made this point, there seems little more to add, inasmuch as organized workers resort but rarely to the profit-sharing device in their efforts to raise compensations above marginal revenue product. The device makes its appearance more frequently as a management gesture, sometimes even as an anti-union move. Workingmen, or at least their more outspoken leaders, distrust the uncertainties involved, as well as the somewhat periodic nature of most bonus payments. They distrust employer bookkeeping as well, and frequently feel themselves getting somewhat less than they have been promised or could obtain by greater militancy. Left-wingers in their ranks fear the "class-collaboration" entailed by profit-sharing, and the more enlightened economically disapprove the entangling alliances with monopoly required for steadiness and certainty in bonus payments.

[14] George Stigler, *Production and Distribution Theories*, *op. cit.*, pp. 367 f., 380.

V

Much more important than profit-sharing as a union device are various proposals for increased labor and union participation in the traditional prerogatives of management. The most important of such prerogatives, for our present purposes, include decisions as to the size of the work force, the scale of operations, and the nature and prices of the firm's products.[15]

The sociological and political implications of union demands for participation in management have been stressed by labor economists, personnel specialists, industrial psychologists, and allied experts, somewhat at the expense of the earthy economic ones. Participation in management elevates the worker from his previous status of "second-class citizen" within the employer's plant. It shifts industrial life toward a political democracy, and away from an army camp. It gives the worker a voice in the framing of policies which he considers more significant to him than most matters dealt with in aldermanic chambers, state legislatures, or the United States Congress. And so it goes.

One need not dispute these points, or their paramount importance in labor relations, to consider in addition the direct economic consequences of employee participation upon, for example, the firm's level of output and employment. The effect is comparable with that of the all-or-none bargain. Any upper limit set by marginal revenue productivity is lifted completely and permanently. It is questionable what (if any) other roof is substituted, short of the complete starvation of nonlabor factors,[16] once the practice becomes general.

As Professor Reder has pointed out most recently,[17] marginal productivity analysis depends quite strictly upon profit maximization. It requires profit maximization *both* in the sale of products *and* in the hire of factors. (Maximization on factor markets alone leads to *proportionality* between marginal revenue product and marginal factor cost for all productive services. Maximization on the product market as well supplies a unit factor of proportionality, and transforms the relationship from a proportional to an absolute form.)

When labor representatives share its prerogatives, management ceases to be a matter of maximizing simple money profits over any period whatever, regardless of its previous status. The change tends to be concentrated in its dealings with productive services, labor above all. When management no longer aims at maximum profit in its dealings with labor, marginal productivity analysis applies on the labor market neither in its absolute nor in its relative form. There is a systematic departure from profit maximizing, and definitely in the interest of labor. The formal "entity" to be maximized under these conditions is not profits alone but some increasing function of profits, wages, employment and industrial peace. It is therefore to be expected that wage rates, employment, or both will be

[15] For fuller discussion of many of these issues, see Neil W. Chamberlain, *The Union Challenge to Management Control*, chaps. 4–5 esp. pp. 82–100. An unpublished doctoral dissertation by F. F. Suagee (Univ. of Wisconsin, 1948) covers much of the same material, stressing the long-standing historical background of the problem.

[16] Compare Maurice Dobb, *Wages*, p. 150 f.

[17] M. W. Reder, "A Reconsideration of the Marginal Productivity Theory," *Journal of Political Economy*, Oct. 1947, pp. 450–458.

greater than they would have been with profits maximized exclusively without regard to wages and employment. In any systematic departure from profit maximizing—higher wages, higher employment, or a combination of the two—we may expect wages exceeding the marginal revenue product of whatever quantity of labor may be employed.

If labor representatives also have a voice in determining production policy, output may sometimes be increased (to provide greater employment) and product price lowered (to assure its sale), as compared with the profit-maximizing case. Labor participation may have the same effect as antimonopoly legislation in counteracting monopoly power and increasing output to the competitive optimum or even beyond. (Persistence conditions for these output effects, it may be noted, are somewhat more restrictive than those listed above for persistence of

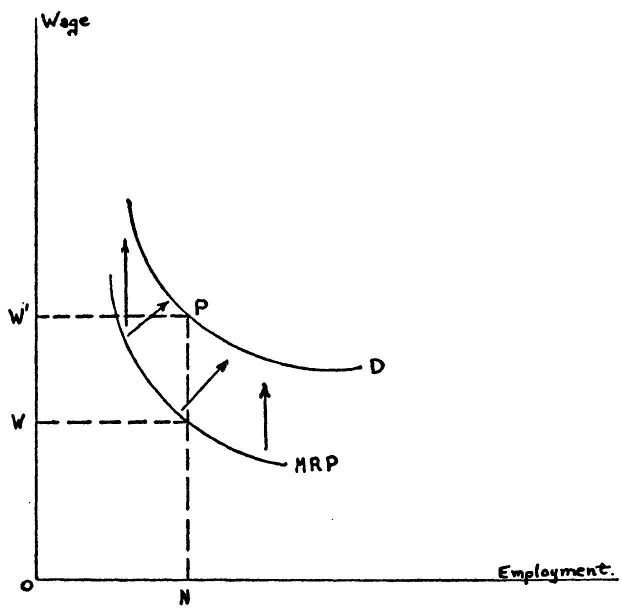

FIG. I

wages in excess of marginal revenue product. In particular, reliance cannot be placed on the operation of Paretian rent, which affects distribution but not output.)

VI

A single simple diagram will serve as a focus for much of the argument of this paper. Its axes are conventional. The horizontal measures labor in man-months or man-years. The vertical, in the money dimension, measures cost and productivity. The marginal revenue product function is labeled MRP. It slopes downward. According to conventional theory, it represents the employer's demand curve for labor. If N men are to be employed by this firm, the employee compensation per period is W.

Wages may, however, rise above the marginal productivity level W to a higher level W′ by any of three methods:

1. If there is all-or-none bargaining, the employer must choose between points O and P. P lies above MRP, but if it is in fact preferable to complete shut-down at O, the N men will be employed at wage W′. The employer's demand curve for labor remains at MRP, but becomes irrelevant in the face of the all-or-none tactics of the union.

2. If there is profit-sharing, the entire demand for labor is moved *upward* (vertical arrow) from MRP to D, by the amount of the bonus payment, which we suppose to vary with employment and output. For N men, the total employee compensation (wage plus bonus) is again W′.

3. If there is employee participation in management, the demand curve for labor is again shifted from MRP. We presume the shift to the same curve D as in case 2, purely for the sake of simplicity. The shift this time, however, is a complex one, involving both increases in wage rates for given employment and in employment for given wage rates. It is denoted on the diagram by diagonal arrows. The formal results are the same as in the preceding case, but the rationale is different, as is shown by the different slope of the arrows.

VII

We have indicated the power of organized labor to raise wages above any limits set by marginal revenue productivity, without threat to its employment. We have also cited several conditions under which the divergence can persist as a characteristic of long-run equilibrium, and not simply as a disequilibrium or frictional matter. In general, these conditions involve the sharing of the employer's monopoly (or monopsony) profits or the exploitation of other productive services (including possibly the employer himself). The last-named result requires the artificial creation of compound factors of production, within which labor is a limitational factor and the bargaining theory holds sway.

To show the possibility of an occurrence is one thing. To show its conceivable persistence is a second. To show its economic or social desirability is a third, and quite a different matter. In developing the possibility of wage payments in excess of marginal revenue product, we have not assumed their desirability along the familiar line of "Labor Can Do No Wrong." Rather we have left the issue in abeyance until this final section, which is in the nature of a postscript.

Equality between factor prices and the (social) value of their marginal physical productivities is one of the received necessary conditions for a welfare optimum in the allocation of scarce resources.[18] Increases in labor remuneration within the differential between its (private) marginal revenue product and the (social) value of the marginal product would seem all to the good, further increases all to the bad.

But this is an arrant oversimplification, even ignoring differences between private and social productivities. For one thing, distributional effects should not be ignored in an imperfectly competitive society. In such a society, wage payments

[18] A. C. Pigou, *The Economics of Welfare*, p. 549; A. P. Lerner, *The Economics of Control*, pp. 96–99; M. W. Reder, *Studies in the Theory of Welfare Economics*, p. 32 f.

in excess of marginal revenue product (and value of marginal product as well) reapportion to some extent the gains of monopoly, monopsony, and-or economic rent in a fashion conforming more closely with equalitarian sympathies than do their most obvious alternative. If they are achieved through labor participation in management, such payments may also go hand in hand with increased output and lower prices in industries not purely competitive.

The complications of the last paragraph have been generally favorable to wage increases in excess of marginal revenue product. Other complications intrude on the negative side, as well as upon the clear picture presented by oversimplified welfare economics. Thus wage setting above marginal revenue product will usually lead, in purely or monopolistically competitive industries with large numbers of employers, to withdrawal of firms, reduction of outputs, and increases in product prices. It may induce reduction of investment, lower interest rates, and a delusion of "economic stagnation." In monopolistic and monopsonistic industries, it can provide workers a tangible and substantial stake in the maintenance of their employer's monopoly power against either economic or legal pressures.

To what welfare or policy conclusions, then, is it possible to arrive? At very few, unfortunately, of a blanket character. (Welfare economics has not differed so greatly from other branches of economics in its fruit-light ratio as Professor Pigou anticipated in 1912.) Our welfare and policy conclusions depend in part upon the incidence of the wage increases, and in part upon the nature of the industry under consideration. To make matters worse, the two criteria are interrelated.

When we are dealing with a competitive industry, where marginal revenue product and the value of the marginal physical product are equal, it may seem a safe generalization on welfare grounds to disapprove a wage rate in excess of marginal revenue productivity. Even here, however, exceptions should be made to to allow for the possibility of its incidence falling upon economic rent or upon the monopoly profits of some other industry.

When we are dealing with a monopolistic industry, the incidence and effects of a wage in excess of marginal revenue productivity require more detailed examination. The conclusions which follow are offered as tentative, preliminary, and (perhaps inevitably) subjective:

If the incidence of the higher wages is upon economic rent or upon the monopoly profit of another industry, it may be regarded as desirable on equalitarian grounds as in the competitive case. One might, however, prefer to see the rent or profits reduced in other ways.

If the incidence of the higher wages is upon monopoly or monopsony profits in the employing firm or industry, considerations of equality suggest favorable conclusions, although again other means to accomplish the same end may be preferable. When output and employment are increased concurrently with wages, the favorable impression is strengthened. When, on the other hand, the effect is provision of mass support for monopolistic practices, the favorable impression is weakened, perhaps to the point of reversal. Equality is obtainable through fiscal processes. It should not be used as a bribe in bolstering the monopoly power of "good" employers over the consuming public.

If the incidence of the higher wages falls upon consumers in lower output and higher prices, there is a presumption of undesirability on welfare grounds. This may occasionally be mitigated by equality considerations if the commodity produced is a genuine luxury, but hardly otherwise. Organized labor, particularly in skilled categories, is no longer a pauper class vis-a-vis consumers in general in the American economy.

If the incidence of the higher wages falls upon another productive service through the erection of artificial indivisibilities and the operation of Paretian rent, an unfavorable presumption holds once more, this time on strict welfare grounds. The other factor is being underemployed or forced into less productive employment in favor of organized labor. In either event, it is being wasted economically in whole or in part. If this other factor happens to be unorganized or weakly-organized labor, the effects on equality may be undesirable as well. If the other factor is capital or entrepreneurship, these secondary effects are less probable, but there may be depressing repercussions on total investment and economic progress throughout the economy if this pattern of incidence becomes widespread.

A final paragraph, a postscript to a postscript: Whether wages are above or below "marginal productivity" in any of its several senses, the incidence of their changes should receive in economic discussion more attention than they generally do. Whether there be rents, windfall profits, or monopoly gains out of which wages *can* be increased is only part of the point, perhaps the less important part. The question raised should be a broader one, in at least two respects. (1) *Will* increases be paid in fact in this manner? (2) Does not policy suggest the reduction or elimination of such rents or profits in the public interest, rather than their cultivation as pools for increasing the wages of strategic groups of organized workers? Is not another of the welfare conditions equality of price with marginal cost?