

THE EFFORT BARGAIN

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THE purpose of this article is to examine managerial beliefs about financial incentives, to discover what light they can throw on wage bargaining, and to discuss the issues which these implications raise for wage theory.

ASSUMPTIONS IN WAGE INCENTIVES

The use of payment by results rests on three assumptions: that effort intensity can be varied, that in work the financial motive is most important, and that the most effective or only way of harnessing this motive to increase effort is by the use of a system of payment by results. Only the first of these assumptions can be taken as factually established. The second is usually taken as self-evident, though

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The belief that worker productivity is higher under a piece or incentive wage than under the time system of wage payment rests on purely empirical grounds. The logic of this result has never been fully explored. Through interviews with management and union representatives, the author of this article has attempted to examine the underlying assumptions of incentive wage systems in the context of worker-management relations. Certain implications of the analysis for wage theory and wage bargaining are also discussed.

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on closer inspection certain qualifications are added to it. The third assumption, although it appears to follow from the other two, introduces a new element. If one assumes that effort intensity can be increased and that money is the most important motive for effort, then it seems logical that one should use money as an incentive to extra effort. But the mere payment of more money, the proponents of payment by results maintain, is not a sufficient condition for increasing effort; extra earnings act as an incentive to additional effort *only* if they are geared to effort by a system of payment by results. Under time rates, the proponents argue, effort intensity is determined independently of earnings, so that "increased pay on day rates would not change effort."¹

The problem of gearing effort to earnings is not as simple as it would appear. Most piece-rate systems fix the piece-rate price in relation to a weekly wage value. Total weekly earnings and the price per unit of output, when taken together, represent an output target, because a given piece-rate price determines the amount of output that is required to make up the weekly wage value. The flaw is that

¹Statement made by the managing director of a medium-sized firm. Compare D. H. Robertson, *Economic Fragments* (1931), p. 11. "Under time work there is no precise correspondence between the hourly wage and the rate of expenditure of effort. If the hours of work are fixed, therefore, there is no particular reason why a rise in the rate of wages should furnish any inducement either to increase or diminish the rate of expenditure of effort."

effort intensity is defined only indirectly; there is no assurance that in practice it will coincide with that implied in the wage-value and piece-rate price, so that management has no guarantee that the worker will produce the output expected.

The latter consideration raises the question why proponents of payment by results should be so confident of the effectiveness of financial incentive schemes. It seemed useful, therefore, to conduct a series of interviews with management and union representatives² on the

²Forty-five representatives of management and 15 trade unionists were formally interviewed. These included top executives (directors or managing directors), other executive ranks (works or production managers, personnel managers, company secretaries), and a few time-study officers. The trade union officials were national and branch officials and factory shop stewards. The interviewees were asked to express their views on a number of set questions and were encouraged to supply additional information. The amount of information received from the various respondents differed greatly because they were not all equally conversant with the subject and because certain questions were not applicable to the practices with which they were acquainted. No statistical analysis of the replies is therefore possible. The type of information given, however, showed a striking similarity of opinions; even the views expressed by the trade unionists followed the same basic pattern of response. The evidence suggests that the use of financial incentives is associated with a specific system of beliefs which incorporates the three assumptions just described and certain other generalized notions which will be discussed later.

The respondents worked for firms ranging in size from 27 to 17,000 workers, engaged in the manufacture of a wide variety of products, such as chemicals, metals, engineering and electrical goods, vehicles, textiles, food and drink. The degree of unionization varied greatly; some managers stated there were no unions in their firms or that they did not have official shop stewards; others adhered to national agreements with or without belonging to employers' federations; a few plants had negotiated factory trade union agreements.

Methods of payment used ranged from day rates and straight piece rates, fixed by rate fixers by rule of thumb, to highly sophisticated time-study systems of standard minute or incentive bonus payments, based on individual or group performance; none, however, used progressive in-

problem of effort standards and their determination.

The first point that emerged from these interviews was that it is practically impossible to obtain a definite answer to the seemingly straightforward question of whether the introduction of piece rates results in increased effort and thus raises output.³ This is due to the difficulty of isolating the effect of financial incentives from the effect of changes in methods of production and technical factors.

Although they could not provide factual proof, nearly all the management representatives interviewed expressed the opinion that payment by results is effective in raising labor productivity and that there are different standards of effort for time rates and for piece rates.⁴

centive schemes. Most firms used several different methods of payment side by side. Thirteen firms had made recent changes, introducing or refining incentive schemes, and a number were expecting to make further changes.

³In a further attempt to explore this question, 200 firms were approached by letter, and 50 firms were visited; but this did not reveal a single case where the effectiveness of incentives could be isolated and measured.

The experiments conducted by Wyatt probably still represent the only positive results obtained on this question. The interesting point is that he found that the response to financial incentives differed with the type of work. When 10 girl operators engaged on the unwrapping of toffees were switched from a time rate to a bonus and then to a piece rate, there was no increase in output. When they were engaged on 4 other jobs and the method of payment changed, there was an increase in output, but the amount of the response differed considerably. See S. Wyatt, assisted by L. Frost and F. G. L. Stock, *Incentives in Repetitive Work*, I.H.R.B. Report No. 69, 1934. Wyatt's experiments thus show that there is no guarantee that the introduction of incentives will result in an increase in output.

⁴The following comments may serve as illustrations:

"For many years we have been working on a piecework basis, and we have no doubt whatsoever of the effectiveness of incentive schemes on production, and I have no hesitation in stating that although our piecework rates are generally

They attributed the difference to the system of payments, not to the level of earnings, and expressed the conviction that the standard of effort is lower on time rates, even if the level of earnings is the same as on piece rates. General wage increases were considered to have no effect on effort.

Lack of factual proof does not invalidate the proposition that output is usually greater under piece rates than under time rates. One can argue, moreover, that if the managerial system of beliefs with regard to the efficacy of financial incentive schemes endures, it must work reasonably well in practice; it will work as long as workers accept the proposition that standards of effort are, or ought to be, higher under financial incentive schemes and will act accordingly.

The critical factor is the worker's attitude to incentives and his willingness to increase his level of effort, and this must depend on the existence of mutual consultation and agreement. If one examines the situation closely, this question of agreement is, in fact, the key to the success of financial incentive schemes: for agreement, based on the acceptance of a norm that output should be increased, constitutes an effort bargain.⁵

looked upon as being generous, the ultimate result is that we produce our bodies considerably cheaper than we should on a day rate basis without incentive element."

"Workers don't make effort until piecework price is applied."

"Men will not put in effort on day-rates; they will start late and waste time generally."

The general belief was that highly paid day work could not achieve the same result as piecework. Twenty people expressed this view without any reservations, and 10 of them were extremely emphatic about the impossibility of getting similar results from day work.

⁵In the focussed interviews, management officials never stressed this point, and only one used the term effort bargain. Many respondents, however, made casual remarks indicating that it was a question of bargaining and that they were constantly engaged in negotiations with the

ELEMENTS OF THE EFFORT BARGAIN

If one analyzes the situation it becomes clear that every employment contract (whatever the method of wage payment) consists of two elements: (1) an agreement on the wage rate (either per unit of time or per unit of output), i.e., a wage-rate bargain; and (2) an agreement on the work to be done, i.e., an effort bargain. The employment contract thus fixes the terms of exchange of work for money.

In normal market situations, no difficulty arises in defining the commodity that is being bought, but with labor the difficulty is that the "article" that is being bought is not only difficult to define but impossible to measure. For what is being bought is a supply of effort for performing varying work assignments. Effort, however, is not a substance that can be measured.⁶ Only the effect of the application of effort—output—can be measured. Effort itself is a subjective experience, like utility. An individual can say whether the effort he expends in performing a particular operation in a fixed time is equal to, greater or smaller than, the effort he expends on another operation in the same amount of time, but he cannot quantitatively define the amount of the difference. In the absence of an agreement on the effort intensity per unit of time that is being purchased, effort intensity can vary between certain limits. Workers will have an upper limit to the amount of exertion they will put out and employers a lower limit to the level of exertion that they will tolerate

workers on incentives. But awareness of the existence of a process of bargaining did not appear to be consciously integrated into the general system of beliefs with regard to financial incentives.

⁶A detailed analysis of the concept of effort is given by W. Baldamus in his forthcoming book, *Industrial Analysis*.

without firing a worker. There is likely to be concealed bargaining about effort intensity, and the entrepreneur is likely to employ various devices of effort control such as supervision and machine pacing. If one postulates that more output means more effort, then it is possible to conclude an effort bargain, and this is essentially what a successful financial incentive scheme does. The worker agrees to raise his output in exchange for the guarantee of higher earnings.⁷

British trade union agreements follow certain traditions in this matter. They lay down a rule that piece-rate earnings must be 25, 27½, 30 or 33 percent, respectively according to the particular industry, above day-rate earnings and agree that output should rise accordingly. If one views financial incentive schemes as a bargain, one can argue that they will tend to be effective so long as both sides keep their part of the bargain.⁸ If one concedes the possibility of effort bargain-

ing it becomes possible to visualize alternative types of effort bargain. A wage increase on time rates, for instance, could be made into an effort bargain by linking it to an agreement on output targets.

When incentive schemes have been going for a long time, or when external circumstances change, some of the assumptions on which the original scheme was based may become invalid. There is evidence that there are limits to the effectiveness of money as a motive for additional effort or for the maintenance of a high level of effort. There may be workers who have a fixed standard of living and are not interested in earning more than a certain amount.⁹ Under conditions where potential additional earnings no longer provide an incentive to a high level of effort, a system of payment by results provides opportunities for a relaxation of effort which may be absent under different types of effort control

⁷This does not imply that he gets higher earnings per unit of output (although this may happen) but rather that he gets higher earnings if he works harder and produces more output than before, as he has agreed to do. Compare Robertson, *op. cit.*, p. 11: "A rise in hourly wages which takes the form of a substitution for time-work of piece-work at (say) time-and-a-quarter rates, does not, of course, if the piece rate is fairly fixed, constitute an increase in the reward offered per unit of effort. It is simply a renewal of the offer of the existing rate of reward per unit of effort, coupled with a guarantee (absent under time work) that the rate will be paid for every unit of effort which the worker chooses to expend." The managerial staff interviewed in this enquiry apparently thought usually in terms of earnings increasing proportionately with productivity, i.e., of both increasing by 25 percent or more, and increases in earnings of 30 percent were interpreted as representing a 30 percent increase in productivity. There were a few cases, however, where loose rates (i.e., more than proportionate increases in earnings) were tolerated.

⁸There seems to be a tendency for a belief in a generic difference in standards of effort for day rates and piece rates to become so well established that it obscures the fact that the aim of incentives is primarily a bargain between man-

agement and workers. There is awareness that workers ought to be consulted about the introduction of a scheme, but this consultation becomes an issue of "maintaining good human relations," and not of agreeing on certain increased standards of effort. There is a danger that some people, prompted by their belief in financial incentives, forget that they are concerned with a process of effort bargaining and thus neglect the type of approach to workers and trade unions on which the effective functioning of incentive schemes depends. Solomon Barkin in "Labor's Attitude to Wage Incentive Plans," *Industrial and Labor Relations Review*, Vol. 1, No. 4 (July 1948), pp. 553-572, argues that in the United States wage-incentive schemes do not always produce higher earnings and are used as alternatives to wage increases, and that this produces unsatisfactory results. If this is so, it illustrates the point that the employers concerned overlooked that they are dealing with an effort bargain which must involve concessions on both sides.

⁹A number of management representatives stated in the interviews that the shortage of labor had forced them to take on workers who were not incentive-minded, and to make wage concessions which meant that workers could achieve a high level of earnings with less effort than before, and that this had undermined the effectiveness of incentive schemes.

or effort bargain. This may be the reason why workers often prefer financial incentives to other types of effort bargaining. Only in exceptional cases or where the relaxation of standards of effort is extremely marked is there likely to be management action,¹⁰ especially when there is a shortage of labor. In such conditions, an all-or-nothing effort bargain, such as a bargain based on high day rates, using machine pacing or supervision as tools of effort control, may be more effective in ensuring a sustained supply of effort.¹¹

PRODUCTION STANDARDS AND EFFORT NORMS

The notion that effort intensity is greater under piece rates than under time rates implies a belief in the existence of stabilized standards of effort. For only if one believes that there are standards of effort which persist over time can one logically claim to be able to compare levels of effort (and their outward expression—productivity) and to estimate the difference between them.¹² This

¹⁰An interesting, but exceptional, case covered in this enquiry was a wage agreement between a large trade union and several employers' federations covering a large section of a specialized industry, where the trade union has undertaken to try to ensure that standards of effort do not fall. The trade union argues that management has installed expensive machinery whose profitability depends on maintaining standards of effort equivalent to weekly earnings of £x a week. Workers who do not reach this target are reported by management to the trade union, which tries to get them to keep to their part of the bargain; if these workers do not heed the trade union warning, the trade union raises no objection to their dismissal.

¹¹Examples in Great Britain of the negotiation and maintenance of high standards of effort under a system of time rates are provided by the construction of the Esso Refinery at Fawley and of the Ford factory at Dagenham.

¹²That this belief is held by many representatives of management can be seen from comments made during the interviews. A production director said that the purpose of introducing incentives was to raise effort, but the final effect was

also implies the existence of fixed, or at least fairly rigid, standards of effort, which can be raised only by strong stimuli, like a 30 percent increase in earnings, such as might be associated with the introduction of piece rates.

Notions with regard to the existence of different grades of workers, such as the "good" and the "bad" worker, are of interest in this connection. The "good" worker is one who maintains a consistently high standard of effort independently of earnings, and the "bad" worker is one who has a low standard of effort whatever the incentive.¹³ In between there is the "average" worker, whose standard of effort is believed to be dependent on the strength of the monetary incentive, and who can be persuaded by money to raise his level of effort. If workers differ in their responses to incentives, however, then any claim that worker productivity has risen by 30 percent as a result of the introduction of incentives must refer to the "average" worker and is not true of particular individuals. Wage negotiations must also refer to this fictional "average" worker, which means that the effect of introducing incentives cannot be foreseen, as this

the stabilization of effort at a higher level. A director of another firm argued that on day rates girls got into a certain speed of working. "To raise this from 50 to 70 needed some extra stimulus" (i.e., a bonus). When this bonus had been in operation for some time, the girls got into the habit of earning their 30 percent and the standard of effort settled down at this new level. Another director said that the purpose of their incentive scheme was to "step up production and stabilize it at a higher level." Effort levels cannot, of course, be raised ad infinitum.

¹³This is illustrated by comments made in the interviews such as that young single girls and "lazybones" are not incentive-minded and do not respond to financial incentives; skilled workers are not incentive-minded because they have a different outlook—they pride themselves on certain standards of performance; workers with the "right" outlook have high standards of effort making financial incentives unnecessary.

must depend on how average the "average" worker is in a factory and what his "average" performance was on day rates.¹⁴

A different type of notion which is of interest in this connection is the belief that there is a "correct" rate for a job. This belief is apparently held by both management and workers, although their views as to which particular piece rate represents the correct rate often differ and have frequently to be reconciled by bargaining. A rate is "correct" if it matches notions of the "right" earnings with notions of the "right" standard of effort, and it is "loose" or "tight" if it does not do so.¹⁵ The process of finding the correct rate involves a serious dilemma, because effort is a subjective

experience and not a measurable quantity. Management tends to argue, however, as if effort were something like a quantity consisting of discrete additive units, and many firms use time study to obtain what they consider to be "properly organized quantitative data" for setting the rate.¹⁶ While it is admitted that there always remains a residue of subjective judgments, even under time study, management representatives were found to believe that an experienced time-study man knows what is the right standard of effort and the correct rate for it.

Proceeding from the assumption that there is a correct rate for a given job, those entrepreneurs who were keen on time study next argued that there is a correct reward, not just for a particular

¹⁴It would appear that it is difficult in the present situation of full employment to get labor with the "right" outlook. Most respondents said that the type of worker they got only worked hard under a system of payment by results; only one production director stated that his firm had found by time study that their dayworkers were already working at 125-130 percent, 100 percent being considered normal. Thus their good day-rate workers might only be able to increase their speed by 10-15 percent.

¹⁵In the interviews, all the respondents acknowledged the possibility of the existence of loose and tight rates, thus demonstrating their belief in the existence of a correct rate—a belief which exists independently of whether time study is used or not. The majority of the firms had agreements with the trade unions (or understandings with the workers where the plants were unorganized) with regard to the adjustment of tight (and sometimes also of loose) rates. In practice, a considerable amount of negotiation and bargaining may precede the setting of the rate. In a wage agreement concluded in the Midland Hosiery Industry the manufacturers' associations and the trade union first negotiated and laid down "what they believed on a piece-rate basis to be the wage-value of what a normal operative ought to earn. Having arrived at that figure, they worked out what ought to be the production on the job by this knitter." This means they argued first about the right earnings—the wage value, and then about the right effort—the production standards on the job. From this they arrived at an agreed formula for rate-setting.

¹⁶The following comment made by an influential top executive provides a good illustration of the attitude of management exponents of time study: "They used to have some jobs where they paid a time rate plus 2d. per ton. This 2d. was purely arbitrary; it was not a properly worked out system so that the bonus per ton was not strictly related to effort. This sort of bonus system was simply a hit and miss business which had no quantitative justification. From the point of view of relating it to the real effort the man puts into it this was sheer horse trading. One got a fairer approximation under work study. Of course, in the long run, all wage fixing was a process of bargaining. Someone has a service to sell and someone wants to buy it. One had to find out where the willing buyer and seller met. In this process it was more satisfactory to have properly organized quantitative data to do it with. If one had not got these, then by mutual bargaining one might arrive at the wrong figure. It might be wrong because it was an insufficient incentive and thus failed in its purpose. If the rate was loose the workers would get more than was fair to the other workers. This created the problem of restoring relative fairness but the worker resented and mistrusted adjustments. The workers must always have confidence in the fairness of management and their ability to keep a bargain once made. If management had made a bad bargain it could not just alter it. For this reason it was most important that the bargain should be the right bargain; but to be right it must be based on some kind of measurement."

job, but for a given standard of effort whatever the job. Most of them who were interviewed considered that the rate on jobs of similar skill ought to be adjusted so as to result in equal earnings for equal effort. In the light of these arguments time study becomes a technique of establishing an equitable wage structure based on the normative goal of providing "equal pay for equal effort." This implies that the rates for all jobs of the same level of skill can and ought to be related to the rate for one particular job by setting them in such a way that weekly earnings are the same as on that job for the same amount of effort. If a job is changed in such a way that it requires a different amount of effort, it is argued that the rate must be adjusted so that the same wage as before is earned for the same effort as before. For instance, when better methods of production or technical improvements are introduced, the worker's earnings must remain the same and the piece rate adjusted accordingly, so that "a day's effort, if the same, is rewarded the same" as before. "A pure methods change must involve no increase in pay because it does not involve a change in the standard of effort."¹⁷ It is admitted that mistakes are made in setting the rate, resulting in loose or tight rates, but the incidence of such miscalculations is not considered a serious problem.

These notions are fraught with logical difficulties. If standards of effort are not measurable, then it is logically impossible to determine the "rightness" of a particular work performance as a measure of the "right" standard of effort. If effort is a subjective experience, then it

is impossible to say whether two workers with the same work performance experience the same degree of effort. The naturally fast worker is likely to require less effort to perform a given task in a given time than the slow worker, and similar differences in the experience of effort may hold for the good and bad, the young and old worker. If each of these workers applies his own subjective standard to judge the "rightness" of a standard of effort, then a rate which is correct for a slow worker will be loose for a fast worker, and a rate which is correct for the fast worker will be tight for the slow worker. Thus, if workers differ in ease of performance and if effort cannot be measured, logically there cannot be one correct rate; there is no criterion for judging for whom or for what the rate is correct.

To make any sense of the proposition, one must postulate that it is correct for the average worker—which means, in practice, that it must be acceptable to a group of workers. This implies that the rate must agree with institutionalized (group) norms of effort. For the successful working of financial incentives, a group of workers as well as management must share the same conceptions of what constitutes the "right" standard of effort for a given job and the "correct" rate for it. If individuals deviate in either of these conceptions, there may be friction.¹⁸ If management and workers hold different conceptions, these differences may give rise to wage disputes if they cannot be bridged by negotiation or bargaining. This illustrates once more that the successful operation of incentive schemes depends on skill in effort bar-

¹⁷See A. C. Pigou, *The Economics of Welfare* (1920), p. 529, "in order that wages may be fair, the piece-rates must be so adjusted that different outputs, representing equal efficiencies shall receive the same reward." See also p. 530.

¹⁸Hence the concepts of chiseler and rate-buster. Compare F. J. Roethlisberger and W. J. Dickson, *Management and the Worker*, Part IV, Chap. 22, and D. Roy, "Goldbricking and Quota Restriction," *American Journal of Sociology*, Vol. 57, 1951-1952.

gaining. In practice, agreement on rates may be reached by the adoption of provisional rates for new jobs. If workers find with these rates that they cannot reach their earnings target with what *they* consider the "right" standard of effort, i.e., if they consider the rates are tight, provision is made for them to obtain an adjustment of the rate. If they find the provisional rate acceptable, it becomes established.¹⁹

This suggests the curious position that the belief in there being a correct rate for a job appears to work satisfactorily in practice although it has no scientific validity. The worker's reaction to the rate, not scientific judgment, determines whether the rate is considered correct, loose, or tight. The worker's reaction, in turn, is an indication of the success of the time-study expert in estimating the worker's norms of effort. If he guesses correctly whether the standard of effort implied in his rate fixing will be tolerated by the worker and management, the rate fixed will turn out correct. That time-study officers make mistakes in judgment is evident from the statements made about the existence of loose and tight rates.

An interesting point to note is the fact that complaints about tight rates take the form of demands for adjustment of the rate and do not, in the first place, lead to effort adjustments. This suggests that workers are unwilling to adjust their standards of effort. Once they are on piece rates, they seem to have fixed standards of effort and to consider the

rate for a new job to be loose or tight in relation to these standards. If rates which are considered tight or loose are not adjusted, however, workers may resort to restriction of output, as has been shown by Roy.²⁰ This means that if the effort bargain involved in a system of payment by results is not made acceptable to the worker, financial incentives may not be effective; output may be restricted instead of increased.

In present-day conditions in Great Britain (even in the face of full employment and rising wages) financial incentives are still effective in raising standards of effort above day-rate standards only because management and workers have agreed in the past (and still agree) that this should be so. It is likely that financial incentives will continue to work reasonably effectively in practice so long as both workers and management believe in the bargain they have concluded and act accordingly. It is possible, on the other hand, that the demands for extra money for a given standard of effort, which are constantly being made and conceded to, may alter the worker's attitude toward extra money for extra effort, and thus toward financial incentive schemes, and may affect his willingness to enter into or keep his part of the bargain.²¹

²⁰*Loc. cit.*

¹⁹All the firms visited claimed that this procedure worked smoothly and satisfactorily in their establishments. Trade union officials, too, claimed that they experienced few difficulties over rates these days. It is true that many strikes over this issue of rates have attracted public attention in recent years, but it is likely that these cases constitute an insignificant proportion of all rate settlements, for successful settlements are not reported in the press.

²¹It should be noted that since the worker's part of the effort bargain is hardly ever precisely formulated, the worker cannot justly be accused of breaking the bargain if he restricts his output, as long as it is above day-rate level, for (as pointed out above) the actual level of output or effort has never been fixed. It is only implied in the wage value, and this may never have been mentioned openly. In practical terms, this means for management policy that financial incentives might be made to work more effectively in the face of rising wages if a minimum wage-earnings target is consciously agreed by both sides and is revised whenever wage concessions are made. If this does not work management may feel forced to adopt alternative methods of conscious effort bargaining.

FINANCIAL INCENTIVES AND MARGINAL PRODUCTIVITY

The foregoing discussion of managerial beliefs regarding financial incentives raises at least two significant questions for economic theory. First, how far does this system of beliefs correspond to that postulated by the marginal productivity theory? Second, what are the implications of the factors underlying these managerial beliefs for wage theory?

As has been shown, the managerial system of beliefs is composed of three basic propositions concerning the variability of the supply of effort, the importance of money as a motive to work, and the effectiveness of payment by results in harnessing this motive. At a lower level of generalization, it is made up of notions of the existence of good and bad workers, of a correct rate for a job, of loose and tight rates, and of equal pay for equal effort.

There would appear to be no serious clash between the beliefs of managers and economists over the first three assumptions. The economist is aware that the supply of effort can be varied, although he normally—for the sake of simplicity—assumes a constant supply of effort per unit of time in the simpler wage-theory models. He considers that the financial motive for work is the most important motive operating in the labor market, and he assumes, as management does, that an entrepreneur must pay higher wages if he wants to increase his supply of labor. But while the economist thinks primarily of an increase in the number of workers when he speaks of a change in the supply of labor, managers in practice—especially in times of full employment—think in terms of increasing the supply of effort from their existing labor force. This possibility, al-

though rarely discussed, is not ruled out by the economist. As regards the third notion, the managerial belief in the effectiveness of payment by results, the economist is neutral. The topic is seldom mentioned and seems to have aroused no theoretical difficulty or controversy. Insofar as the entrepreneur receives more output under a system of payment by results in exchange for higher wages, there would appear to be no clash with the marginal productivity theory. For greater physical productivity—if the entrepreneur operates under conditions of perfect competition—means greater marginal productivity and this means higher earnings.

It is only when one studies the lower-level generalizations of the managerial system of beliefs about financial incentives that divergencies from the marginal productivity approach become apparent. These arise from the goal, advocated by most of the respondents using time study, of paying an equal reward on different jobs for equal effort and equal skill. For equal effort does not necessarily represent equal marginal productivity. Two workers of the same skill, employed on different jobs and applying equal effort, may produce marginal products of differing monetary market values. Rewarding marginal productivity in this case would involve differential rates for equal effort. A policy of paying a standard rate for equal effort and skill may thus conflict with a policy of rewarding according to marginal productivity. It must be stressed in this connection that the concept of the "right standard of effort" (the "fair day's work") operates independently of an evaluation of the market value of that effort. Production standards, as representing effort, are judged as fair and right in relation to each other and not in

relation to the market value of the product.²²

Another example may be useful in illustrating the different effects of effort and marginal productivity evaluations. With better methods of production, worker efficiency (output per unit of time) may increase while effort remains the same or decreases. Marginal productivity, provided there is no change in the market value of a unit of output, thus increases while effort remains constant. Under such conditions, many employers who use time-study methods do not permit a rise in earnings to take place. They deliberately adjust the piece-rate price so that earnings on the particular job remain the same.²³ In fact, they reward not marginal productivity but effort. They assess the effort cost of performing different tasks; they evaluate this effort cost, not in terms of money, but in terms of "real" costs, of disutility or irksomeness. The managerial aim is to ascertain whether the effort cost of two operations is equal or not, and to try

²²The goals of the relative and absolute validity of production standards imply that the concept of a "fair day's work" is not referred to any monetary arbitrator but judged as a phenomenon per se. The setting of production standards for different jobs must be considered as a separate problem from that of determining the standard rate for a "day's work." See T. A. Ryan, "Fatigue and Effort in Relation to Standards of Performance and Systems of Payment," *International Labour Review*, Vol. 65, 1952.

²³In the short run, earnings are thus unaffected, while marginal productivity has increased. In the long run, if there is an increase in productivity in the plant and if the market is favorable, bargaining may lead to an increase in the standard rate. For wage bargaining does not only take the form of bargaining in terms of effort, but it also takes the form of bargaining in terms of productivity (a term used in this connection in a much wider and less precise sense than the economist's concept of marginal productivity). But if the standard rate rises, it rises equally for all jobs, thus creating new discrepancies between earnings on specific jobs and marginal productivity.

to equalize it or, if there are unavoidable differences, to arrange for compensation.²⁴

The manager's and the economist's systems of beliefs are thus seen on closer examination to focus attention on two distinctly different elements in wage determination: effort evaluations, where standards of effort and their effort cost are assessed in relation to each other, as opposed to market evaluations, where labor productivity is assessed in relation to market prices as represented by the concept of marginal value productivity.²⁵

A wage policy based on effort evalua-

²⁴The term effort cost used here must not be confused with Robbins' effort price. See L. Robbins, "On the Elasticity of Demand for Income in Terms of Effort," *Economica*, 1930. Robbins defines the "effort price of income" as the total amount of work done divided by the total income. Under piece rates this would be represented by the equation:

$$\text{Effort price} = \frac{1}{\text{piece-rate price}}$$

This makes effort a dependent variable, and assumes that the higher the piece-rate price, the smaller the effort price of income. For two operations with the same piece-rate price, Robbins' effort price is the same. Yet the effort cost may differ. If one rate is loose and the other tight, then the effort cost (i.e., the intensity of effort) involved in obtaining a given income will be unequal; it will be low for the loose rate, and high for the tight rate. The effort cost depends on the number of units that can be produced "comfortably" in an hour; any output target above this involves greater effort cost. This criterion of the strain involved in the pace of work is independent of the wage rate. Any increase in the pace of work increases effort cost. Increased pay cannot eliminate this; it can only compensate the worker for it.

²⁵It would be ideal from the theorist's point of view if these two elements corresponded respectively to demand and supply factors, i.e., if market evaluations could be shown to be the main force underlying the demand curve for labor and effort evaluations the main force underlying the supply curve of labor. Unfortunately, in practice the two elements cannot be separated: in demanding labor, managers have been shown to make effort evaluations; in supplying labor, workers can be found to argue in terms of profitability. Both sides seem to consider both aspects.

tions reflects the disutility of labor, Marshall's "real" costs.²⁶ This means that economists may have been overhasty insofar as they have dispensed with the concepts of real costs and disutility of labor²⁷ in connection with wage determination. On the other hand, it would be equally hasty to dispense with the concept of value productivity. The two aspects of the problem of wage determination are interrelated: the wage rate must be right in relation to effort standards and right in relation to the market. It is thus likely that product prices set limits within which effort evaluations are made and that market and real cost calculations are interlinked.²⁸

The interviews on financial incentives provided little information about how economic judgments of profitability and market prices enter into wage determination. Statements made by management officials with regard to the share of management and workers in increased productivity²⁹ showed that they did not ascribe the division of the shares to economic forces; while they considered that

the determination of the share of the consumer depended on market forces, they attributed the shares of management and workers to normative forces, to what appeared "right" and "fair" and to "what should be done." The concept of profitability entered only as a normative criterion—not as an economic one—as illustrated by the statement that "a fair part of the gain should go to management and to increase the prosperity of the company."

IMPLICATIONS FOR WAGE THEORY

The aspect of the problem which emerges from this study as most important is the preoccupation of management with the problem of effort standards and effort control. The managerial system of beliefs focusses attention on the variability of effort and on the evaluation and determination of effort standards. Underneath these evaluations is hidden a process of effort bargaining which appears to play an extremely important role in determining output and earnings.

The phenomena of the variability of effort, of the assessment and evaluation of effort standards, and of effort bargaining cannot, however, be considered as specific events whose occurrence is restricted to situations where financial incentive schemes are used; they must be considered as general phenomena which take place in any employment situation whatever the method of payment. The role they will play, the decisions to which they give rise, and the effect they will have on wage rates will depend to a considerable extent on the labor- and product-market situations, as well as upon the philosophy of management.

It was found in this inquiry, for example, that the entrepreneur, as long as he considers that his firm is in a fairly

²⁶Alfred Marshall defined the "real costs of production" as "efforts and sacrifices" for which individuals must be compensated. *Principles of Economics* (London: Macmillan, 1949), p. 339.

²⁷See J. A. Schumpeter, *History of Economic Analysis* (New York: Oxford University Press, 1954), p. 923, where the history of these concepts is discussed.

²⁸See E. H. Phelps Brown, "Wage Policy and Wage Differences," *Economica*, Vol. 22, No. 88 (November 1955). He considers that the market sets limits within which the viable wage must lie and within which notions of equity must operate.

²⁹Of 24 respondents expressing views on what proportion of productivity gains from methods changes or technical improvements should go to management, workers, and consumers, only one held that distribution of the gains depended on economic forces. The others held that there were two distinctly different problems: the determination of the share of the consumer (which was a question of market forces) and the determination of the share of management and workers, which was never referred to economic forces but always to moral values, reflecting different philosophies of management.

satisfactory position, tends to be content with his present wage policy, even if he believes that output could be raised and costs reduced by greater use of financial incentives. If, however, he becomes aware of external pressures, either from increasing competition or from rising market demand for his product, these pressures force him to take action either to try to lower costs or to increase output. In this situation, the raising of effort standards and effort bargaining become important. If the entrepreneur holds the system of beliefs outlined above, he will consider that his best course of action, together with organizational and technical improvements, is to attempt to make better use of his labor resources by the use of payment by results. Through better plant utilization, the use of financial incentives may enable him to reduce unit costs of production. There is no reason, however, why he should not try other methods of effort bargaining.

Effort bargaining is particularly important under conditions of full employment, where the shortage of labor exercises constant pressures upon management. In such a labor market situation, two types of bargaining—one initiated by management, the other by labor—go on side by side. Management will try to increase the level of effort which it obtains from labor without increasing costs per unit of output. Labor will try to increase the level of wages for a given level of effort. In trying to obtain a greater supply of effort from its labor, management, if under pressure from the market for its products, will be in a weak bargaining position and may have to make wage concessions. These may take the form of a deliberate toleration of loose rates—a disguised increase in wages to encourage an increase in the supply of effort. Labor, being in a strong bargaining position, may be inclined to

lower its standards of effort, and this may necessitate the initiation of renewed effort and wage bargaining. Labor may also show a tendency to attack all rates as tight and to press for rate adjustments.

By contrast, in a situation of unemployment or underemployment, attitudes toward loose and tight rates will tend to be very different. In a situation where work is frequently slack, owing to seasonal fluctuations, for instance, management may tend to tolerate low standards of effort, allied to low pay, and workers may be content with this because they like a leisurely pace of work. This would explain why some small firms which pay time rates producing low earnings are able to keep their labor force and show a low rate of labor turnover.

What are the implications of these phenomena for wage theory?

The variability of the supply of effort means that adjustments of the supply of labor to wage rates or of wage rates to the supply of labor frequently do not take the form of adjustments in numbers of workers nor of hours of work but of adjustments in standards of effort.

The phenomenon of effort bargaining indicates that we are dealing with conditions of monopolistic competition, even in the absence of trade union negotiations; each individual worker is a monopolist insofar as he is able to limit his supply of effort by restricting his output and to bargain for higher earnings by agreeing to increase his output. Institutionalized effort norms may reinforce this element of monopoly. This fits in with the arguments in favor of the bargaining theories of wages.

The role of effort evaluations has been discussed in connection with effort bargaining and rate setting and in connection with the evolution of an equitable wage structure. These, however, are not their only functions. Effort evaluations

would appear to be of much wider significance. They are not merely relevant for the wage structure of a particular firm but also for the wage structure in the labor market outside the firm.

Effort evaluations can be used to explain the coexistence of different wages for similar jobs with varying standards of effort, for example, the coexistence of low day rates and high piece rates for the same operation in different firms. Furthermore, they would appear to make nonhomogeneous jobs comparable in terms of the wage required to ensure a given effort intensity.

The entrepreneur may argue that on day-rate effort standards a semiskilled worker is worth a wage of £6 a week, but on piece-rate effort standards on the same job he is worth £8; that under the pressure of scarcity of labor the semiskilled worker is worth this extra £2. Extra effort from the skilled worker is not required, hence his wage should remain the same.³⁰

The worker may make similar evaluations. He may be imagined as comparing different job situations in terms of the wage rate required to make him put in the same or a different standard of effort from his habitual standard. He has not only a notion of the right rate for his habitual standard of effort on his normal job but also for the same standard of effort if applied to a different job. He also has a notion of the effort adjustments he would make in response to a change in the wage rate or in response to the same wage on a different job.³¹

Changes in the employer's or worker's effort evaluations may produce changes in the wage structure. Changes in the product market, for instance, which alter the entrepreneur's demand for effort may lead to changes in wage rates in order to adjust the supply of effort to the demand. Changes in the worker's attitude to his job, rising dissatisfaction for instance, may lead to effort restriction. This fall in effort intensity may lead to the offer of increased wages if the entrepreneur has to meet urgent orders. In both cases, the effort evaluations influence the wage structure through effort adjustments or the demand for them.

Comparative Effort Evaluations

<i>Supply of Effort Intensity</i>					
<i>Weekly Earnings</i>	<i>Job A</i>	<i>Job B</i>	<i>Job C</i>	<i>Job D</i>	<i>Job E</i>
£7	"Normal" effort (intensity x)	Less effort than in job A	Less effort than in job B	More effort than in job A	None. Would not do it at all
£8	More effort than in job A for £7	Same effort as in job A for £7	Same effort as in job B for £7	More effort than in job D for £7	Same as above.
£9					

From this schedule one can derive the wages for which this worker would put in the same effort intensity on the different jobs:

Offers of supply of effort intensity X:

Job A	at	£7
Job B	at	£8
Job C	at	£9
Job D	at	£6
Job E	at	no rate (or not below £50)

If this interpretation of the phenomenon of effort evaluations is accepted, it means that certain types of nonhomogeneous jobs can be compared and are sold and purchased in one market. The effect of effort evaluations in this market is the fixing of differential prices for doing jobs involving different "special" disutilities, just as preferences in the theory of consumption give rise to different prices for different commodities. The "special" disutility of labor represents in this connection "the different irksomeness of different kinds of labor," including different social status evaluations. See P. Rosenstein-Rodan, "The Role of Time in Economic Theory," *Economica*, 1934.

³⁰This means that the skill differential for a given effort intensity on the same job may be undisturbed.

³¹This type of argument could be developed by using a technique similar to the indifference curve. The following schedules of a worker's effort evaluations may serve as an example.

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