

WAGE STICKINESS FROM THE DEMAND SIDE

by

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Abstract

This paper examines whether it will always be rational for firms to attempt to lower wages when their product demand falls or when they face a slack labour market. Recognising the idiosyncratic nature of the employment relationships in a labour market not typified by a spot auction we argue that insofar as the marginal revenue product can be controlled or identified by the firm it is itself dependent on the money wage. For both mark up and marginalist pricing strategies we show that only in restricted circumstances will a policy of wage cuts cause firms to enjoy higher profits, even when the macroeconomic consequences of such wage cuts are neglected.

\* This paper was written in response to some comments made by Victoria Chick as she was giving a seminar on 'Keynes and the Labour Market' at the University of Stirling. She stressed that the labour market was not a spot market and that because of this historical aspects of the employment relationship would lead to wage rigidity but she did not expand on the reasons for firms not wishing to lower wages. This paper is an attempt to do so. We should like to thank Dipak Ghosh and Professor Oliver Williamson for helpful comments on an earlier version of this paper. Sole responsibility for any errors contained herein rests with the authors.

"I do want to emphasise that just as people can price themselves out of jobs, they can price themselves into jobs.... it is in the interests of the people out of work to offer a contribution to employers even at a slightly lower unit labour cost figure."

The Right Hon. Sir Keith Joseph, M.P.  
B.B.C. Radio 4, June 29th, 1980.

## 1. Introduction

The recent comments of the Secretary of State for Industry are entirely in keeping with academic literature concerned with the downward stickiness of money wages in times of declining demand which stresses from the supply side of the labour market. However, since labour is not marketed at a centralised auction with an auctioneer to set wage rates, wages have to be changed by firms and they are under no obligation to attempt to negotiate for lower wages or accept offers of lower wages from firms if the demand for labour slackens. This paper is an attempt to show why it might be rational for firms not to try to re-vamp employment contracts to offer lower wages in such circumstances. The approach adopted is basically a behaviouralist one, its conclusions based on arguments that are ignored in the conventional neoclassical models due to their implicit assumptions of zero information and transactions costs. Emphasis is given to the impacted nature of information flows and how these affect the employment relationship, making untenable the first postulate of the (neo)classical labour market model as identified by Keynes (1936, p.5); viz, the wage is equal to the marginal product of labour. It is argued that particular workers are not paid their respective marginal products and suggested that insofar as the

marginal revenue product can be controlled or identified by the firm it is itself dependent on the money wage.

The rest of the paper is set out as follows. In section 2 there is a review of the neoclassical model and consideration of the literature bearing on quantity adjustments and risk-shifting in the labour market. Section 3 highlights the nature of frequently identified employment relationships using Williamson *et al*'s (1975) approach to idiosyncratic exchange. Sections 4 to 7 investigate the effects of wage changes on firm cost functions and thence on long and short run profitability. Accepting Eichner's (1978, p.1437) contention that the non-marginalist mark-up theory of pricing suggested by Andrews may form the most appropriate microeconomic basis for Keynesian macroeconomics sections 4 and 5 consider, respectively, the choices faced by competitively oligopolistic price constrained quantity taker firms experiencing a reduction in demand for their products and those facing a slack labour markets. Section 6 and 7 consider these positions again but use instead a conventional marginalist approach to pricing and the choice of output levels to see the effects of changing wage rates on profitability. These two sections are clearly a somewhat unusual mix of ideas from the behavioural and situationally determinist (Latsis (1976) p.16) research programmes, but this attempt to accommodate the main ideas in the normal framework leads to similar conclusions to sections 4 and 5 indicating the generality of the approach. Finally, section 8 gives a summary and offers some conclusions.

## 2. Other Approaches

The firm in the neoclassical model accepts the market wage rate (unless it is a monopsonist) and hires workers up to the point where their marginal revenue products equal the wage rate. The labour market is implicitly assumed to be a spot market where daily or weekly bargains are struck specifying fully the nature of the task to be performed and where the wage paid is the only labour cost to the firm of employing the workers. It is rather like the auction markets for casual labour that have existed in docks until recently. If, in the next period, workers offer their labour at a lower wage than that which prevailed in the previous hiring period employers will have no compunction in hiring these workers at the lower wage, even if their entire labour forces change in the process and the fall in wages is not expected to be permanent.

When looking at the reactions of firms with regard to hiring labour when their expected product demand falls two cases need to be considered. Firstly, a structural shift can cause some firms to expect a higher marginal revenue product (MRP) curve and others to expect a lower MRP curve with total expected demand unchanged. So long as workers are substitutable between sectors the same total number of workers will be hired at the next auction but in different quantities by the respective firms. If the general expectation of MRP's fall then firms will be less willing to hire labour than previously at any wage and the wage rate will fall. The voluntary withdrawal of some workers from the labour market

will cushion the fall in the wage while the volume of output and employment will fall somewhat. This obviously presupposes a naive employment relationship. The productivity of the worker is specified precisely in the contract's description of the task with the consequence that in regard to a particular contract current and former employees are considered to be no more productive than any new workers. If any learning from former employment is included a worker will be performing a differently specified task and will be paid in accordance with his higher marginal revenue product. The employment contract is for a limited duration and the workers effectively return to the labour market when their contracts expire. For reasons that will become clear in section 3 an economy would only operate like this if there were no information and transactions costs. The only way wage stickiness could creep into this model would be from the supply side. Keynes (1936) bases his model on the postulate that the wage is equal to the marginal product of labour and discusses only supply side reasons for downward money wage stickiness.

Some neoclassical economists have recognised that agents do not have perfect information about prices and opportunities and have constructed theories of quantity adjustments in labour markets due to wage stickiness coming from the supply side. The search theorists<sup>1</sup> emphasise that quits will take place when the wage offers are less than the workers' transfer earnings so long as off the job search for a job offering the transfer income is more effective than search while employed at a lower wage. The

derived demand for labour falls due to a decline in product demand but workers quit instead of accepting wage cuts and both the number hired and the degree of fall in the wage rate are less than they otherwise would have been. As Hines (in Worswick (ed.) (1976)) has noted, these explanations of the origins of sticky wages in macroeconomic models have had the effect of distracting attention from Keynes' basic point that general money wage reductions could not do anything directly to make higher levels of employment viable because they would be associated with an equal fall in the price level. Even if wages were falling fast, sooner or later, despite the lower money wages, firms would contract employment because their expectations of marginal revenue products were continually being falsified. Furthermore, sticky wages are essential to provide an anchor for the price level in order to prevent the emergence of bankruptcies as the real value of fixed money interest payments rises, and to provide an environment in which reasoned business decisions may be taken.<sup>2</sup> This paper proposes an explanation of wage stickiness from the demand side of the labour market while adhering entirely to these views of Keynes and their more recent elaborations by Minsky (1975) and Davidson (1978).

The neoclassical propensity to view the labour market as a spot auction process where wages adjust continually to equate both sides of the market is obviously at odds with the frequent observation that employers engage in non-wage rationing of employment, i.e., layoffs. This "puzzle"<sup>3</sup> has spawned a

literature which offers an amended paradigm, albeit within the spirit of neoclassical choice theory, whereby the employment relationship constitutes a contract such that risks associated with a cyclical product market are shared between the firm and the workers.<sup>4</sup> The essential form of the analysis is that a labour contract (which may be viewed as either explicit or implicit) sets out the services to be provided by the work force and the wages paid by employers over the cycle. Both parties to the contract know the form of the labour service and compensation due in each state of nature. The outcome is that some workers are able to shift the risk of undesirable fluctuations in income on to the firm in a way which requires the worker's wage in a good state of nature equal to his marginal product minus an implicit insurance premium, while in a bad state of nature he receives the value of his marginal product plus an implicit insurance indemnity. This insurance aspect of labour contracts stabilizes worker incomes and thereby accounts for wage stickiness with declines in employment.

It is clear that this mode of analysis offers some insights in the explanation of wage stickiness and is a considerable advance on the spot auction view of the labour market. However, in the next section it is shown that this treatment still begs the fundamental questions with regard to the employment relationship in the sense that both parties to the contract are assumed to be able to identify marginal products.

### 3. Uncertainty and the Employment Relationship

This section considers how the incompleteness of information affects the specification of the employment relationship and the willingness of firms to break contracts in order to reduce wages. It should be stressed at the outset there are three basic kinds of informational inadequacy with which an economic system will often be afflicted. Firstly, there is the problem of bounded rationality:<sup>6</sup> an inability to cope perfectly with the information that could be supplied to economic actors. Secondly, the information necessary for rational choice may exist nowhere in the system. For example, when an agent commits himself to a particular employment offer he has no way of knowing whether, and when, he may be promoted if decisions about his career path have not yet been taken by his new superiors, even supposing that they would tell him; which leads directly to the third kind of problem. Relevant information may exist somewhere in the system but this does not ensure that it will be available to people taking decisions. Often a situation of "information impactedness"<sup>6</sup> exists; while knowledge is available to some parties they do not or cannot dispense it freely to others, who are then forced to go without it unless they pay uncertain search costs or can overcome institutional barriers. These informational problems provide the starting point for behavioural theories of the firm and the key to seeing why downwards money wage stickiness might arise from the demand side of the labour market even when firms do not have to consider factors such as the present value of profits lost when wage cuts are resisted by a union-sponsored



strike.

In the most familiar behavioural model Cyert and March (1963) view the firm as a loosely specified coalition of competing groups such as workers and managers in various departments, shareholders and customers. Returns to coalition members are the outcome of a bargaining process that is inherent in an organization operating with incomplete information in a dynamically changing environment. As Coase (1937) has emphasised, in an environment that is constantly being disturbed it is not optimal to arrange production through completely specified contracts. Instead managers decide what workers should best do as the situation changes, within the broad limits specified in the employment contracts and the workers, likewise, decide how to respond to these instructions. Incomplete information also results in disagreement about the goals to which the company should aspire and even if profits are being sought as a single long run goal it is not necessarily very clear how various aspects of corporate policy will contribute to obtaining them. The finance director, for example, will find it hard to know better than the stock controller, who is supposed to be the specialist, what the appropriate level of stocks might be and whether or not the latter might be empire building within the terms of his loosely specified employment contract.

The total of pecuniary and non pecuniary returns that emerges from this inherent bargaining will often be in excess of the minimum "transfer fees" necessary to ensure the parties' continuing membership of the firm. Cyert and March (1963, p.36) call the

difference between actual payments and transfer fees organizational slack. This form of slack arises due to members of the coalition not knowing each others' transfer fees and marginal revenue products and being able, therefore, merely to form conjectures about what these might be when trying to appropriate corporate resources for themselves.

In bargaining for their own slices of the corporate pie coalition members are constrained by the possibility that the total volume of corporate resources, from which they receive their returns, is not given but depends on the returns of other coalition members. If coalition members steadfastly make extravagant demands upon corporate resources then either business activity must grind to a halt due to the failure to conclude a bargain or some members may leave because of imposed payments less than their transfer fees, this latter event possibly reducing the size of the corporate pie to be divided up between those remaining. Mindful of these possibilities, which threaten their own rested interests, coalition managers will moderate their demands so long as they are meeting their aspiration levels, i.e., so long as they are at least receiving their transfer fees. If managers knew they could reduce dividend payments to shareholders and successfully obtain greater resources for themselves then they would certainly cut dividends. Fear of being removed from the board will usually discourage them from doing this except when the company is in severe difficulties and they stand to lose their positions anyway. Managers who knew they could pay their workers less without losing them would have no

reason not to do so, while workers who felt that a threat of quitting would lead to higher remuneration, on a scale at least sufficient to compensate for any difficulties the threat might cause, would also begin to press their demands. But since in many cases the costs and returns of attempts to extract a bigger return are uncertain coalition members earning at least their transfer fees will not change their bargaining stances unless they feel confident about the possibilities of doing better.<sup>7</sup>

The problems managing resources efficiently in such a situation without sacrificing the advantages of flexibility provided by loose contractual arrangements have been investigated with a slightly different emphasis by Williamson et al (1975). Effectively their arguments amount to saying that the idiosyncracies specific to particular jobs prevent tasks from being perfectly specified even in stable environments and that incumbents possessing the requisite skills and knowledge of the idiosyncratic tasks are in possession of a valuable information resource. The productivity of other workers in the firm depends on how this information is used and passed on, but due to its idiosyncratic nature managers cannot assess to what extent it is being transmitted by a worker or whether that worker is performing as well as he could or would do given the remuneration being offered.<sup>8</sup> If the firm hires workers via fully specified contracts (a contradiction in terms in the light of Coase's (1937) arguments) not only does it lose the scope for using managerial instructions to adapt to changing circumstances without paying the cost of forming new

contracts, it also loses the potential for extra output that the worker would be prepared to contribute at the going wage but which cannot, owing to its idiosyncratic origins, be specified in the employment contract. However, the managers of the firm, in hoping to extract performance in excess of the minimum, will be wary of engaging in hiring contracts with the particular individual workers doing negotiation. Possession of the specialised knowledge would put incumbents in a position to ask for higher wages at contract reappraisal points since if they left and had to be replaced raw recruits would be less productive. If they gained higher wages they might gain still further by acting opportunistically:<sup>9</sup> they could promise to pass on information to new recruits and then deliberately fail to do so because it suited them, blaming the poor productivity on the quality of the new workers. Because of its idiosyncratic nature the information could not be written into the employment contracts in detail and, similarly, hard evidence could not be obtained to dispute the honesty of the incumbent workers.

The upshot of Williamson *et al*'s argument is that individualistic bargaining contracts will have unacceptable properties where task idiosyncracies occur and that a more effective arrangement will exist within an internal labour market structure where systems concerns are made to prevail. Wage rates are attached to job slots rather than to workers with agreements commonly reached collectively,<sup>10</sup> thus foreclosing individual wage bargaining. If workers are made to bargain as a team attention is focussed upon

the fact that the size of the product of their (sub)system depends on how willing they are to cooperate instead of exploiting their positions.

With wage rates attached to job slots workers must perform as good as or better than their rivals in similar job slots in order to demonstrate that they deserve higher remuneration. They will then warrant consideration for one of a limited number of jobs further up the promotion hierarchy. What Andrews (1958, pp.28-31) called 'internal competition' thus restricts opportunities for the pursuit of sub-goals and if they are to obtain promotion they may have to perform above the minimum level for an uncertain number of years in their present job slot, during which their employers enjoy the benefit of their contributions to output in excess of the minimum acceptable level. Some of this 'slack' payment to the employer may properly be regarded as a form of insurance against promoting an employee beyond the level of his competence after he has proved himself at a lower level but, given the progressive decrease in the width of the hierarchy as it is ascended, a large part of the excess product cannot be viewed in risk shifting terms.

The ability of firms to use the delay of promotion via internal labour markets as a means of counteracting opportunism and earning slack payments depends on the demand for labour by other firms since this will influence the transfer fees of workers currently engaging in internal competition. If existing promotion prospects seem to be slow to mature workers may attempt to switch

to other firms thought to offer better prospects even if they lack, as yet, the idiosyncratic skills and years of display of high effort outputs of incumbents in those firms. Though they will initially be disadvantaged in the rival firms' promotion structures the sacrifice of the sunken costs of non opportunistic behaviour in their existing firms may be well worthwhile. On the one side fear of entry by rivals for promotion sets a minimum safe level of effort by workers while on the other the possibility of exit constrains the minimum rates of remuneration and promotion that firms can offer in the long run. There is, of course, no guarantee that either side will form correct conjectures and avoid making mistakes.

These behavioural arguments appear to have the following implications. Firstly, the employer may find it very hard to isolate the marginal physical product of a particular worker, except at minimum levels. That is to say, he may have an idea of the productivity of a typical new recruit to his work force and he may be able to detect workers who do not come up to the expected basic standard; however, he may not be able to quantify the excess productivity of experienced workers with idiosyncratic skills and the fear of opportunistic behaviour discourages him from reaching individualistic bargains with specific workers. Workers who enter the hierarchy above the minimum level despite their lack of experience in the firm in question are able to do so because their records of employment elsewhere indicate that they will learn rapidly to cope with the idiosyncracies of the

firm and perform in the higher level job at least as well as those who have been promoted internally. However, because it is not certain how rapidly they will acquire idiosyncratic skills they will be somewhat disadvantaged compared with internal candidates of a similar status.

Secondly, even if the employer knows the marginal revenue product of a particular worker this represents only the maximum the firm will be prepared to pay for the worker. The latter is not usually in a position to know this value for certain; he can only guess and then conjecture the effectiveness of a threat to leave if he is slow to be promoted. Furthermore, it should be emphasised that the effort output of a worker is not independent of the rate of pay, speed of promotion and behaviour of other workers, including his supervisors. These factors may be related in a way which is very difficult to specify and experiments to discover how they are related may be very costly and involve non-reversible changes. Gouldner (1955), for example, is a classic study of this in relation to variations in levels of supervision and the enforcement of specific aspects of contracts such as safety rules.

Taken together these features of the behavioural firm effectively mean that a given worker need not be earning the value of his marginal revenue product. This may be so even if firms that did not possess monopsony power in the labour market would only wish to hire workers whose wages were no higher than their MRPs in particular job slots and would consider firing workers whose wage

rates rose above their expected marginal revenue products due to changes in the efforts of the workers, product demand or labour market conditions. If workers knew their MRPs while being hired through individual completely specified contracts this statement could be thought of as internally inconsistent, but in a world of necessarily incomplete information and specifications, and the encouragement of internal competition via internal labour markets to counteract opportunism, no such inconsistency is implied.

With the nature of employment relationships under uncertainty thus outlined it is now necessary to examine how changes in wage rates may affect firm costs and then move to see whether profits will be increased by accepting offers of lower wages should these be forthcoming from unemployed workers. This final stage necessitates an examination of the competitive position of firms in their product markets for without an understanding of how prices and costs are related it will not be possible to uncover the likely effect of lower wages on profits.

With supply side flexibility the possibility of offering lower wages may exist for firms that are enjoying periods of expansion as well as those who are finding it harder to sell their products. The latter firms will have to decide whether its falling sales are due to a loss in goodwill (see section 4 below), a fall in demand due to a structural shift against their industries or an overall economic downturn. Perceptions about this will affect conjectures about the states of their labour markets, internal and external, and hence their willingness to



consider trying to break existing employment contracts to obtain lower wages. They can only observe the current state of the labour market at the existing wage configuration by looking at employment statistics and the number of applicants for job slots at ports of entry to their internal labour markets that have been vacated by promotions or exits from the firms to other jobs or retirement, etc. External applicants may beg to work at wages lower than those advertised but otherwise (short of "Jarrow Marches" or demonstrations outside factory gates) firms have no idea of the ease of obtaining workers at a lower wage. A higher level of unemployment recorded by government statistics may really represent an increase in voluntary unemployment of the existing real wage configuration rather than involuntary unemployment.

Higher recorded unemployment does not mean a complete absence of voluntary quits from firms by workers who are not leaving the labour force to retire or have children. Despite the prevalence of internal labour markets workers who have not achieved promotion may cut their losses and move elsewhere to obtain higher expected lifetime incomes and join other firms at ports of entry for job slots vacated by workers leaving the labour force or just moving around like themselves. The labour market should be thought of as being in a state of constant disequilibrium even with a given configuration of wages, just like product markets affected by shifting tastes, population and flows of information. Because workers can move between jobs from positions of employment even if unemployment is mounting (indeed, as Hines (in Worswick (ed.)

1976) and Goodhart (1975, p.197) argue, this may be more efficient than off the job search for greener pastures), firms have to form conjectures about the responses of their internal labour markets to offers of lower wages in addition to their conjectures about the external labour market supply function.

If a firm lowers wages for given job slots it faces the possibility that its idiosyncratically skilled workers, who have up to that point been engaging in internal competition and recognising that the size of the corporate pie depends on cooperation, may either leave for other firms or reduce cooperation and engage in perfunctory behaviour. Lower wages reduce the present value of jobs further up the hierarchy while increasing turnover and thus also the possibility of promotion, given the level of employment in the firm. This will mean that effort outputs in the process of internal competition may decline. Voluntary quits mean that people have to be promoted more rapidly or new workers, lacking the idiosyncratic skills of incumbents, have to be hired in job slots that are ports of entry. This leads to the central point. Firing workers and keeping the existing wage configuration enables the firm in difficulties to choose which of its workers it keeps at particular levels in its hierarchy. Lowering wages because the external labour market is believed to be slack entails the risk of losing experienced workers who are contributing to output in excess of their cost or of having to promote them faster than would be necessary in order to keep them. If wages are not lowered when workers are fired there may also be a less damaging effect on effort outputs by the workers who remain.

Firms facing no decline in sales could be in complete conjectural equilibrium despite mounting unemployment if they had no reason to change their views of the supply curve for labour. Were it not for the constant disequilibrium in labour markets that causes them constantly to have to be hiring new recruits or their observations of changing employment statistics firms would have no necessary reason to consider changing their wage offers to workers. It is reasonable to suppose that because of the constant turnover of labour firms will acquire information through changing application responses which will affect their conjectures. Having detected an eased labour market in this way firms then have to decide whether to offer lower wages while keeping output constant or while using lower wages to permit lower prices and increased quantities sold. In their calculations of what to do these firms, too, will have to consider carefully the effects of lower wages on their internal labour markets and productivity.

4. Changes in Wages and Profits in Mark-up Pricing Firms with Declining Sales

Andrews (1949, part 5) argues that in oligopolistic market structures firms set their prices by adding a costing margin to their average paying out costs for some normal level of output. The size of the costing margin is limited by the costs of existing and potential competitive firms with productive capacity or the know-how to produce duplicates of the products they are offering. At this cost-determined price firms are prepared to sell as much

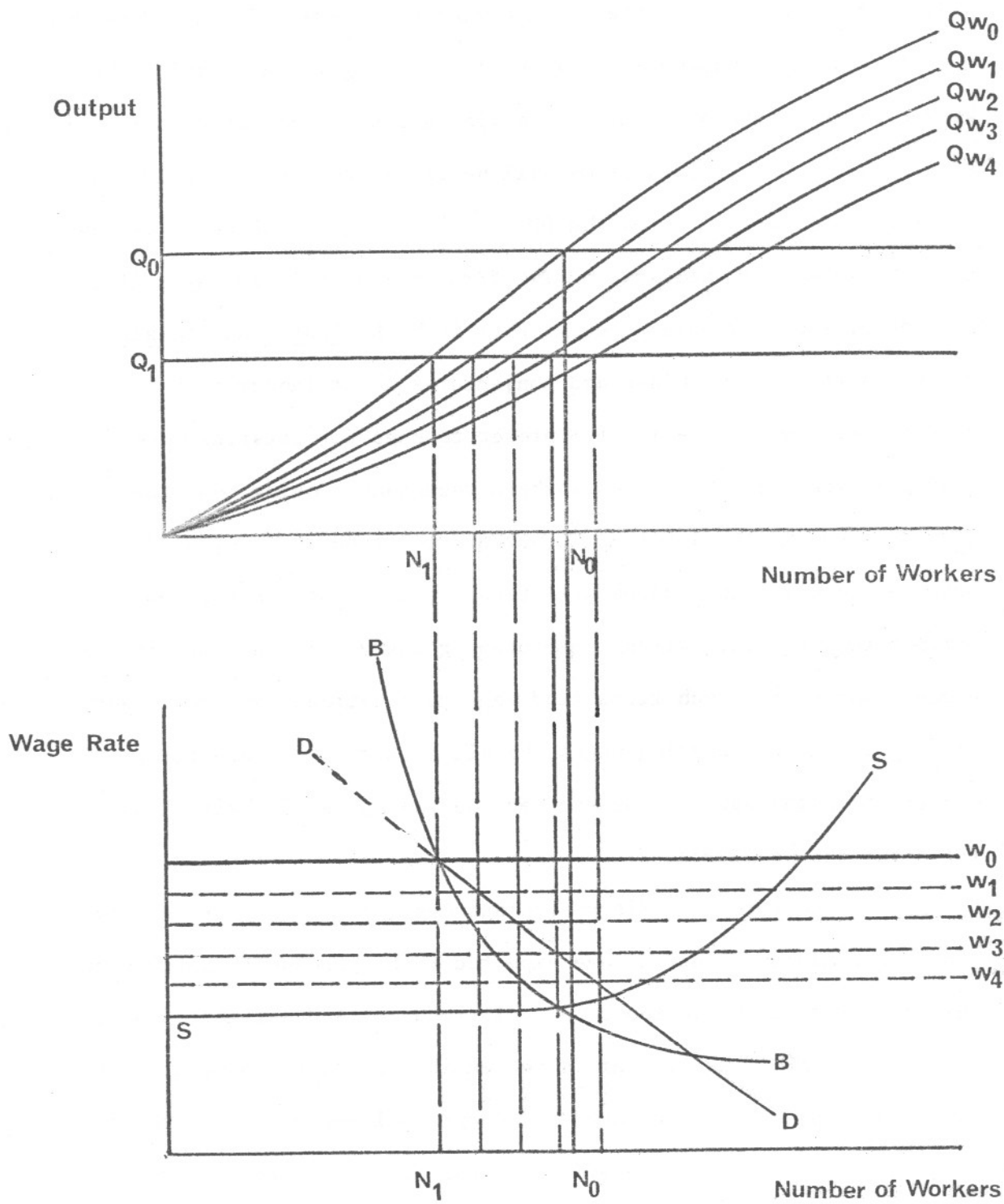
as consumers will demand. They preserve the goodwill of their regular customers by holding spare capacity so that when new customers arrive all can be supplied. There is then no risk that retailers will be tempted to raise final product prices to stop queuing and destroy the hard-won goodwill attached to the firm. Firms are thus price constrained quantity takers and only change prices when the costs of their potential and actual competitors are changing. In depressed markets they will not usually engage in price cutting believing that close rivals will follow and they will gain nothing. A reduced quantity at the normal price will eat into their profits and encourage them to look for ways of cutting costs. At the normal price no stable demand function is relevant. If prices are changed a kinked demand curve may be conjectured but, at best, it can only be drawn with regard to a given distribution of goodwill and Andrews' view of competition centres on the struggle by firms to affect this distribution.

The conditions in which a firm will regard a wage cut policy as likely to reduce profits can be analysed with the aid of the two diagram arrangement of figure 1 which, although it is drawn with regard to a single job slot should really be seen as representative of the whole hierarchical system. The preceding arguments suggest that the productivity level per worker employed depends on the wage rate. The top diagram in the figure illustrates the conjectured relationship between the level of employment and output as wage offers are changed by the firm, which in neoclassical

terms would be thought of as having the ability to vary its marginal costs for a given level of output with a given capital stock.  $N_0$  and  $Q_0$ , respectively, show the prevailing level of employment and normal level of output before the contraction in normal sales to  $Q$ , units at the existing price. The ray  $Q_{W_0}$  shows the conjectured output/employment relationship for non-overhead workers with the initial wage rate  $W_0$ . To produce increased levels of output the firm uses mothballed machines (if available) and extra workers, lacking experience, hired from the external labour market. The rays  $Q_{W_1}$  to  $Q_{W_4}$  show conjectured relationships for lower wage rates  $W_1$  to  $W_4$ .

The lower diagram in figure 1 looks at the relationship between wage rates and the number of employees that are conjectured to be available or would have to be hired to produce a particular level of output. The line SS represents the firm's conjectured supply of labour curve combining both internal and external labour market conditions. It shows the number of minimally-qualified workers that will typically be available at each wage but not their quality. The latter is reflected in the  $Q_w$  curves in the top diagram. How far to the right of  $N_0$  the SS curve cuts the initial wage rate line  $W_0$  depends on the size of the firm relative to its external labour market and the state of that labour market, but below some minimum level of wages no minimally-qualified workers would offer themselves to the firm. The line BB on the lower diagram is a rectangular hyperbola showing number employed/wage rate combinations costing the firm the same amount as it would

Figure 1



have to pay at wage  $W_0$  to produce the new normal quantity  $Q_1$ . Holding wages at  $W_0$  and varying the quantity would permit a whole family of BB lines to be drawn. The line DD shows how many employees would have to be employed at various wage rates in order to produce quantity  $Q_1$ . Again, a family of DD lines could be drawn for various possible quantities.

Where the DD line is to the north east of its particular BB 'iso-wage bill' curve lowering wages increases the cost of producing the particular output level. In the new quantity constrained situation output will only be increased above  $Q_0$ , if normal costs are reduced and prices can be lowered to expand sales without incurring losses despite the kinked demand curve problem. If a viable lower wage/higher output situation can be attained firms will be forced to move to it due to their fear of entry. When the DD line is above the BB curve the former may be said to be inelastic. Given its stock of machines and conjectures about labour market conditions the firm will only lower wages if it can conceive of a viable DD curve that is both elastic and feasible. Otherwise it will prefer to keep the existing wage configuration and make chosen workers redundant, moving down the  $Q_{W_0}$  curve until it only hires  $N_1$  workers to produce  $Q_1$  units of output, since to lower wages would reduce profits per unit below the maximum that could be earned without encouraging entry. Thus only in some circumstances will such firms find wage cuts rational. The fewer the firms that are cutting wages the less likely it is that other firms will wish

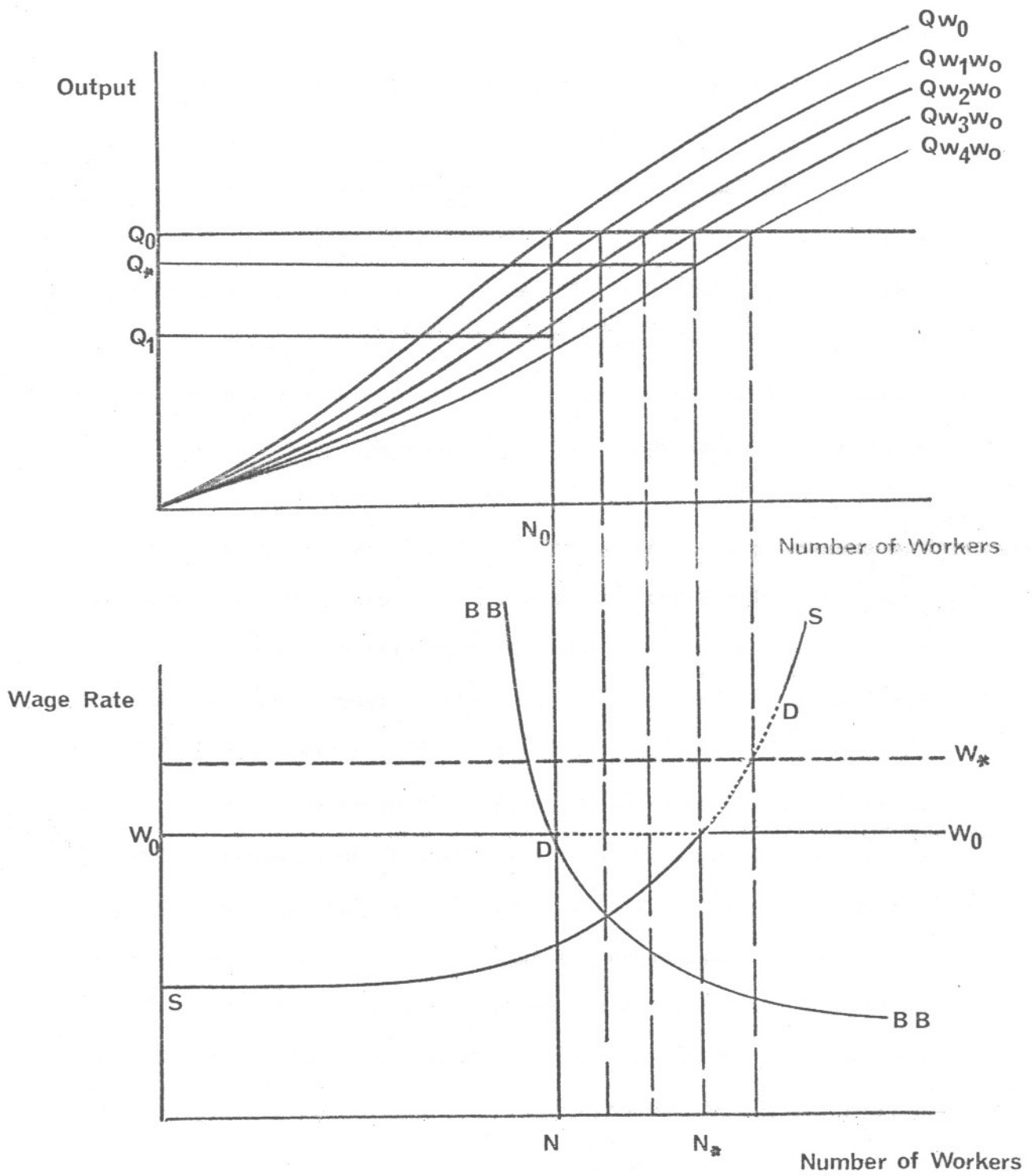
to cut wages since the higher will be the conjectured transfer wages of their workers as they use the wages of their rivals as reference standards.

All of the foregoing discussion assumes that the depressed product and labour market conditions are expected to be permanent features. This will not always be the case. If recovery and a tightening of markets are expected in the not too distant future the likelihood of a reluctance to attempt to lower wages is enhanced. Lower wages would have the effect of spoiling the firm's factor markets as well as possibly even leading to lost goodwill due to an inability to meet demand at the entry preventing price when recovery takes place. This comes about because a flexible wages policy has a number of non reversible consequences, which can be illustrated by another pair of diagrams (figure 2).

If a short period lower wage configuration is possible which is more profitable, unlike the situation in figure 1, it may have the effect of moving the firms  $Q_w$  curve from the  $Q_{w_0}$  position when wages return to  $W_0$ . In the upper diagram of figure 2 the curves  $Q_{w_1w_0}$  to  $Q_{w_4w_0}$  show the levels of employment that will be necessary if wages were reduced to any of  $W_1$  to  $W_4$  during the depression but are now returned to  $W_0$  and normal output quantities and prices restored. Wage costs will now be higher than they would have been had wages stayed at  $W_0$ . The new DD line starts where the new BB curve and  $W_0$  intersect and follows the  $W_0$  line eastwards until it is cut by the conjectured supply curve for labour which it then follows, upwards. Had wages been reduced



Figure 2



to  $W_4$  in the past the firm would now be quantity constrained in the labour market and would be faced with the dilemma of either bidding up wages against other firms (Andrews (1949) pp.226-7) to obtain more than  $N_*$  workers in order to produce  $Q_0$ , or only producing  $Q_*$  with  $N_*$  workers with wages  $W_0$  and losing customer goodwill and sales to rivals. Either way, even if lower wages made sense if slack labour and product markets were expected to persist they would now turn out to be an expensive mistake, a mistake only mitigated in time by the northwest shift of the  $Q_{w4w0}$  who curve as workers acquire idiosyncratic skills and perhaps become less perfunctory in their behaviour.

5. Profit and Wage Changes for Mark-up Pricing Firms with Eased Labour Markets

Assuming that firms not affected by a slump in sales have detected a supply side loosening in the external labour market they have then to decide whether lower wages could enable them to attain higher profits. The reason for expecting a reluctance by such firms to lower wages due to the fear of spoiling their own factor markets is precisely the same as at the end of section 4 above. If the easier labour market is expected to persist then the arguments against a general presumption that they will wish to lower wages are similar to those surrounding figure 1.

In the case of the persisting easier labour market the firm will only lower wages if it can find a viable BB curve on or to the right of the one drawn for its initial quantity which lies above its respective DD curve where that DD curve is thus elastic

and, additionally, feasible given the conjectured labour supply curve. A BB curve is not 'viable' if the higher output it implies can only be sold at a price which, despite the elasticity and feasibility of the associated DD curve, reduces the profit margin below the conjectured entry preventing level. A neoclassical analysis would set out the firm's problem in terms of kinked demand and marginal revenue curves and marginal cost curves. Changes in wages have the effect of shifting the firm's marginal cost curve up or down, but due to the existence of a kink in the demand curve at the current price/output configuration there will be a range of places where the marginal cost curve might cut the discontinuous marginal revenue curve. Only if a wage cut lowers the marginal cost curve (thus lowering average paying out costs) to below the discontinuity will the firm implement it and they will then have to lower their prices to keep their markets in the long run. If the new, lower, marginal cost curve still cuts the discontinuity portion of the marginal revenue curve then not only could higher profits not be made by restricting output and raising prices but the oligopolistic firm will have to lower prices in line with its lower paying out costs to deter entry. At the lower price sales might be a little higher but short run profits could be lower than before since the firm is selling a quantity to the right of its MR/MC intersection.<sup>11</sup> From the standpoint of long run profit maximisation, however, this lowering of prices is rational and something that cannot be avoided if lower wages would permit a lower paying out costs curve.

The discussion of DD curves that can be inelastic relative to their BB curves effectively amounts to saying that lower wages may, due to their effect on the behaviour of incumbent workers, lead to a rise in the 'average paying out cost' curve and the marginal cost curve, thus making attempts to reduce wages irrational, even if the slack external labour market is expected to persist.

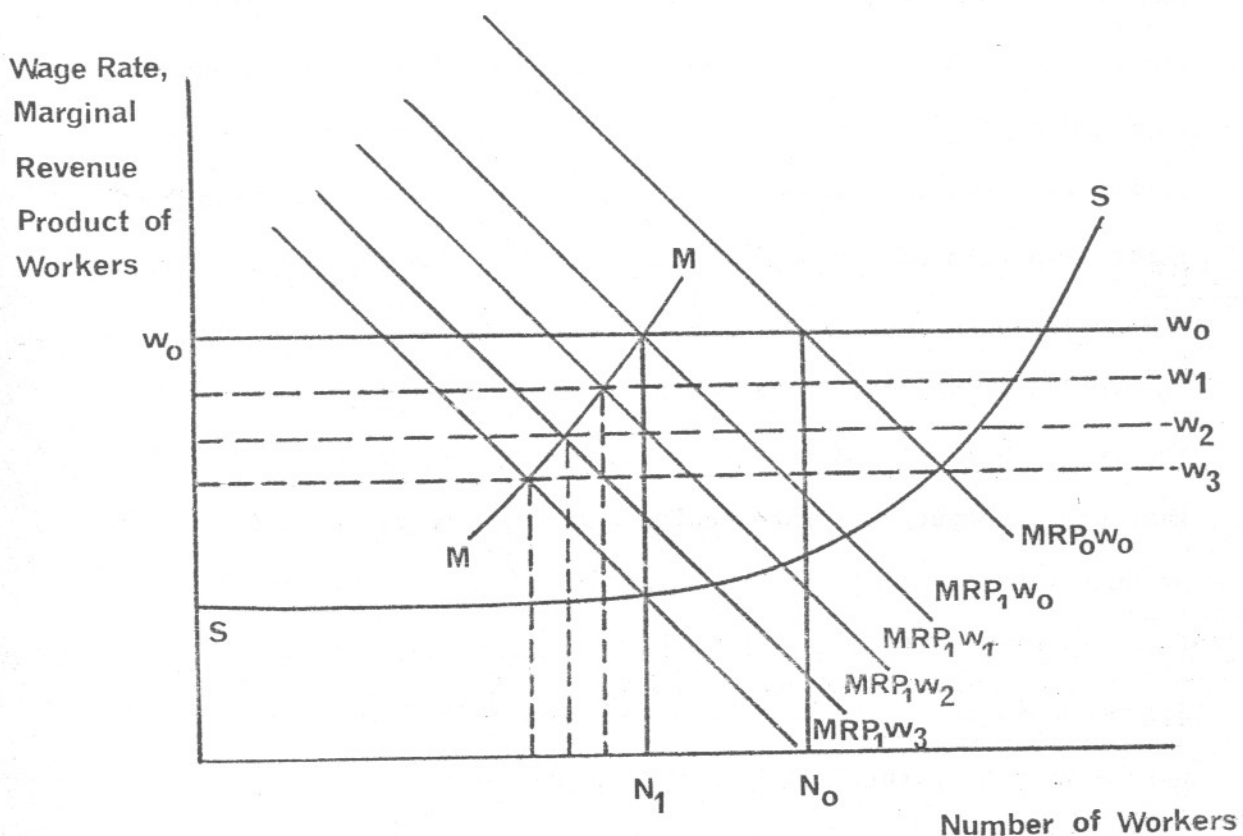
6. Profit and Wage Changes for the Marginalist Firm Facing Reduced Demand

Outside of a disequilibrium oligopolistic context it may be reasonable to assume that firms face given downward sloping demand curves. In order to maximise profits such firms should choose a price/output/employment configuration such that the marginal revenue product of a worker is equal to his wage rate and the marginal revenue and costs of production are equated. The arguments of section 3 suggest that with given product market conditions the marginal revenue products and marginal costs (insofar as these can be identified) depend on the wage rate. The rule for profit maximization has to be revised to read 'choose that price/output/wage rate configuration where the marginal revenue products and wage rates are equal and yield a higher total profit than any other such configuration and implied MRP/wage rate equality.' Changing the rule thus has the unfortunate effect of destroying the possibility of partial analysis and a general conclusion that it is rational to bargain for lower wages when demand falls even if the firm is not constrained by its conjectured labour supply curve for combined internal and external labour markets and where the new labour supply

and product demand conjectures are expected to persist. Despite the impossibility of a general conclusion the likelihood of the usual result not holding can be investigated with the aid of figure 3 below.

Initially demand has enabled the firm to enjoy the marginal revenue product curve  $MRP_0W_0$  while paying wage  $W_0$ . The decline in the product demand shifts the MRP curve to  $MRP_1W_0$  and if  $W_0$  continues to be paid and wages cannot be changed it would be rational to reduce employment to  $N_1$ , maximising the (reduced) area

Figure 3



between the wage and MRP lines. Let the currently conjectured labour supply curve be  $SS$ . If the firm chooses to offer a lower wage (e.g.  $W_1, W_2, W_3$ ) the labour input necessary to produce a given quantity of output changes, shifting the MRP curve (e.g. to  $MRP_1W_1, MRP_1W_2, MRP_1W_3$ ). A lower wage only makes sense (assuming the  $SS$  curve does not bind) if the firm can find a point on the locus of equalities of MRP and respective wage rates (the curve  $MM$ ) which offers a higher level of profits than is to be obtained by keeping wages at  $W_0$  and employing  $N_1$  workers. There is no a priori reason why such a point should exist. Moreover, suppose the MRP curves are, as on the diagram, straight lines. If these shift downwards in a greater proportion than wages when the latter are lowered the area between the MRP and  $W$  curves will be reduced, implying reduced profits. The discussions in section 3 of the bargaining process inherent in the firm and internal competition would seem to imply that firms may fear that this is more plausible than the reverse case unless transfer fees are reduced (which will only occur when other firms lower their wages and change workers' reference standards).

If demand is expected to shift the MRP curve back towards the right in future firms that do reduce wages and increase short run profits will only do so at the cost of reducing their long run profits. If the product demand curve reverts to its original position the MRP curve will not due to the irreversibilities entailed in reducing wages in a world of idiosyncratic exchange.

### 7. Profit and Wage Changes for Marginalist Firms Facing Slack Labour Markets

This section can be brief since the arguments are almost exactly the same as in section 6. If it is expected that lower wages could be maintained permanently the programming rule for the firm is exactly the same as described in section 6 except that one can view the firm as having had no shift in its MRP curve due to a change in the product market: i.e., in terms of figure 3 the firm starts with MRP,  $W_0$ , employing  $N_1$  workers at  $W_0$  and conjectures that its labour supply curve has shifted to the right. Again there is no a priori reason why lower wages should increase profits when the MRP curve depends on the wage rate offered. Where the labour market is expected to tighten again in future even if lower wages offer higher profits now, the same arguments as in the last paragraph of section 6 apply and make the acceptance by firms of offers of lower wages seem rather implausible.

### 8. Conclusion

This paper has been concerned with whether it is always rational for firms to attempt to lower wages when the demand for their products changes or perceive an easing of the labour supply and when they do not individually take account of the macroeconomic impact of lower wages on the demand for goods. Examinations of the requirements for increasing profitability by cutting money wages have shown them to apply only in restricted circumstances. This is so as long as it is recognised that the real world employment

relationship is much more complicated than in naive neoclassical models with perfectly specified hiring contracts. For both competitive oligopoly and monopolistic competition market structures a diagrammatic treatment shows firms with preferred positions off their conjectured supply curves for labour. Thus firms may have no tendency to want to lower wages to hire all the workers conjectured to be available at any feasible wage. This can be so even if conjectured and actual labour supply curves and upward supply curves are upward sloping because some workers would become voluntarily unemployed if wages were lowered.

The detailed behavioural examination of the employment relationship is essentially a formalisation of a point made by Hicks (1932)<sup>12</sup> before Keynes' General Theory appeared but which has been almost completely neglected: a firm which cuts wages may spoil its own factor markets. How much a wage cut threatens to spoil the labour market of a firm depends on what other firms are doing to wages. The problem is that so long as firms wait for reference standards to change and use each others' behaviour for guidance the system can be held in conjectured equilibrium by its own bookstraps. It could be said that this paper offers detailed support for Loasby's (1976 pp.143-4) attempt to generalise Keynesian liquidity preference theory to cover factor markets just as Townshend (1937) had generalised it to markets for products and non-reproducible resources. Finally, it is worth noting that, while the theoretical approach explains why firms will prefer to make selected workers redundant when markets are depressed rather than to lower wages when other firms have not done so already and thus lowered the transfer fees of



incumbent workers, it also explains the willingness of firms to put up their wages when they are rising elsewhere. If they cannot match their rivals' wages they may find themselves losing idiosyncratically skilled workers, being forced to promote them more rapidly to prevent them leaving, or receiving lower effort outputs within the terms of the loosely specified hire contracts.

Footnotes

1. See, for example, Alchian (1969), Phelps et al. (1970) and Fisher in Worswick (ed.) (1976).
2. "The chief result of this policy would be to cause a great instability of prices, so violent perhaps as to make business calculations futile in an economic society functioning after the manner of that in which we live." J.M. Keynes (1936, p.269).
3. See Grossman (1978, p.661).
4. See, for example, Azariadis (1975), Baily (1974), Gordon (1974) and Grossman (1978).
5. Bounded rationality has been defined by Simon (1957) as follows:  
'The capability of the human mind for formulating and solving complex problems is very small compared with the size of the problems whose solution is required for objectively rational behaviour in the real world'. It refers to both neurophysiological limits and language limits. See Williamson et al. (1975, p.228).
6. Information impactedness is a derived condition due mainly to uncertainty and opportunism.
7. See Earl (1980) for a theory of choice under uncertainty in the behavioural mould which is applicable to individual behaviour in conventional and bargaining situations.
8. As Loasby (1976, p.139) puts it, "... it is almost impossible to review a decision made by a specialist - and still more impossible to review a decision made by a group of specialists - without having the decision made afresh by another specialist or group of specialists."

9. See Williamson et al. (1975, pp.258-259), "opportunism is self interest seeking with guile".
10. A trade union will facilitate this but one is not necessary.
11. In Andrews' theory, this point of intersection is unknown and insofar as it exists should be seen as a point which shifts with changes in goodwill.
12. "... in a regular trade perfect plasticity of wages (immediate response of wages to change in the value productivity of labour) is hindered, among other things, by employers' perception that a reduction in wage rates is likely to impair efficiency by worsening their relations with their men." (pp.136-137, 1963 edition).

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