



Strathprints Institutional Repository

Bell, D N F and Holden, Darryl R and McGregor, Peter G (1985) Wages and employment : issues and evidence. Quarterly Economic Commentary, 10 (4). pp. 74-72. ISSN 0306-7866 ,

This version is available at <http://strathprints.strath.ac.uk/51831/>

Strathprints is designed to allow users to access the research output of the University of Strathclyde. Unless otherwise explicitly stated on the manuscript, Copyright © and Moral Rights for the papers on this site are retained by the individual authors and/or other copyright owners. Please check the manuscript for details of any other licences that may have been applied. You may not engage in further distribution of the material for any profitmaking activities or any commercial gain. You may freely distribute both the url (<http://strathprints.strath.ac.uk/>) and the content of this paper for research or private study, educational, or not-for-profit purposes without prior permission or charge.

Any correspondence concerning this service should be sent to Strathprints administrator: strathprints@strath.ac.uk

Briefing Paper

WAGES AND EMPLOYMENT: ISSUES AND EVIDENCE

D N F Bell, Darryl R Holden and Peter G McGregor*

*Macroeconomic Modelling Bureau, University of Warwick;
Department of Economics, University of Strathclyde, and
Fraser of Allander Institute respectively.

INTRODUCTION

The present Government has laid considerable emphasis on the notion that workers can, and indeed should, "price themselves into jobs", an emphasis apparently vindicated by the Treasury's recent review of empirical evidence concerning the relationship between employment and wages (HMT, 1985). Furthermore, the Government's belief in the importance of the price of labour as a determinant of the level of employment has manifested itself in aspects of policy other than mere exhortations for unions to moderate wage claims. The proposed radical reform, and perhaps abolition, of the wages councils which govern the legal minimum wage payable in many industries; the Budget's increase in income tax thresholds intended to moderate wage claims by increasing the proportion of the gross wage which is actually "taken home"; the Budget's attempt to stimulate the employment of the low paid by its reform of National Insurance contributions (albeit at the expense, to a degree, of the employment of the higher paid); the Government's stance vis-a-vis the unions as reflected in legislation, their attitudes to negotiations with the public sector unions (eg the recent disputes involving the miners' and the teachers' unions) and their publicly avowed beliefs (aired most recently and controversially on Mrs Thatcher's tour of the Far East); all of these reflect in some degree the Government's conviction that the key to stimulating employment, and thereby alleviating unemployment, lies in lowering (or at least moderating the rate of increase in) the cost of labour to firms.

The Government's critics maintain, in contrast, that the most important

determinant of employment is the level of effective demand in the economy. Some of these critics would concede that reductions in wages could play a part in increasing employment, whereas others would adopt the traditional Keynesian stance that reductions in real wages (if they could be effected at all by workers) would make matters worse by contracting aggregate effective demand, and therefore employment. All the critics, however, take the view that effective demand is important and currently deficient. The Government denies the relevance of deficient demand, but it is not always clear whether this is intended to be an unconditional denial (for some, increasingly popular, economic theories dismiss even the possibility of deficient effective demand), or conditional upon, for example, the Government's judgement as to the current state of the UK economy and/or some target inflation rate.

In this article we attempt to provide a non-technical guide to the major economic issues involved in this debate, and to provide a necessarily selective account of the empirical evidence relevant to these issues. We begin by examining one major aspect of the debate: the response of firms' demands for labour to changes in the real wage. However, it would be invalid to move from this analysis directly to macroeconomic policy issues. A proper evaluation of the effects of general wage moderation requires investigation of its likely impact on the system as a whole: it is not sufficient simply to examine the demand for labour in isolation. Consequently, the discussion of the demand for labour is followed by an explicitly system-wide analysis of the possible effects of general moderation in the rate of wage increases. For

simplicity of exposition, the remainder of the analysis is conducted in terms of a wage cut.

THE DEMAND FOR LABOUR

A major aspect of the debate between neoclassicists/Monetarists and their Keynesian critics is their different views of the factors which influence firms' demands for labour. This in turn largely derives from their conflicting visions of the environment in which firms typically operate. The neoclassical vision is one of profit maximising firms, operating in product markets in which prices are highly flexible with respect to excess demands. In contrast, Keynesians tend to regard the typical firm as operating under conditions of (perhaps highly) imperfectly flexible prices, attributed to some degree of imperfect competition in product markets. At the risk of oversimplification, we develop the implications of alternative extreme assumptions concerning the degree of price flexibility in product markets.

The neoclassical firm, being one of many selling a virtually identical product, has no effective control over the price of its product. At the price dictated to it by the market the firm can sell all that it wishes - the neoclassical firm is not constrained in any way by the availability of demand. The critical factor is firms' "willingness to supply". Firms simultaneously select the level of output and the levels of inputs which maximise profits. Matters are simplified by considering circumstances in which there are only two inputs, capital and labour, and in which, over the relevant time interval, the amount of capital is fixed. The firm then only has immediate control over output and the labour input. In a profit maximising firm an additional employee will be taken on provided he/she adds at least as much to revenues as to costs, for in those circumstances profits (the difference between revenues and costs) are at worst unchanged by adding to employment. Alternatively, and equivalently, employment is increased provided the additional employee results in the production of at least as many units of output as the wage he/she is paid can buy. Employment is increased provided the "marginal product of labour" exceeds the "real product wage". The

latter is the wage evaluated in terms of the producer's output (ie deflated by the producer's price) and, in general, this will not correspond to workers' real "take home pay" or the "consumption wage". In what follows we shall be concerned with the real wage in the former sense.

What effect does a reduction in the real wage, realised through a fall in the nominal wage paid to labour, have in this context? Given that firms were initially maximising profits, the marginal product of labour will now exceed the real product wage. Profits will be increased by taking on additional employees. The basic mechanism at work is that the reduction in the real wage increases the firms "willingness to supply" its product at the price dictated by the market. However (given neoclassical production conditions) the marginal product of labour declines as the labour input is increased - the neoclassical firm operates under conditions of diminishing marginal returns. Consequently, the gap between the marginal product of labour and the real wage is closed at some higher level of employment. The increased willingness to supply is associated with a reduction in product price.

Under present assumptions, then, there is no doubt about the efficacy of a reduction in the real wage in stimulating employment. Indeed, these assumptions are such as to ensure that the demand for labour depends solely upon the real wage and the level of the capital stock. If additional inputs (eg raw materials, fuels) are allowed a separate influence in production, the demand for labour also becomes dependent on the real product prices of these other inputs. In general, at least in a neoclassical world, the existence of other inputs permits the substitution of labour for them in response to a reduction in the real wage. Similarly, if, on a longer time scale, capital is included as a variable factor, the real product price of capital would, in effect, replace the capital stock as a determinant of labour demand, indicating the possibility of capital labour substitution. This "substitution effect" is clearly associated with further increases in profits since it involves more intensive use of the now cheaper factor. The effect is, of course, additional to the stimulus to willingness to supply, and so enhances the effectiveness of real wage reductions as a means of stimulating employment.

In the Keynesian vision, the firm is typically not a price taker, and even where price-taking is considered as a possibility, the prevailing price is generally above that which "clears" (ie equates demand and supply in) the market. The critical point is that Keynesians generally view firms as "demand-constrained" in the sense that they cannot sell all that they would wish to at prevailing prices. The key factor in this approach is not then limits on firms' "willingness to supply", but limits on their "ability to sell" their product in the assumed circumstances.

In this context, what effect does a reduction in the real product wage have (maintaining the assumptions that labour and capital are the only two inputs and that the latter is fixed)? The impact on willingness to supply here is irrelevant, since firms are already constrained by effective demand for their product to sell less than they would wish. There would, therefore, be no incentive to employ more labour since the resultant additional output could not be sold. The demand for labour becomes invariant with respect to the real wage (eg Barro and Grossman; 1971). Note that, for the moment, we ignore possible feedback effects through the effect of reduced real wages on effective demand and indeed all other sources of interdependence in the macroeconomic system as a whole. Firms simply employ the minimum number of workers required to satisfy the demand for their product - a demand over which they have no control. Firms' output then becomes the major determinant of the demand for labour, and indeed, on present assumptions, it becomes the only determinant other than the capital stock.

Allowance for additional inputs (or for a variable capital input) may restore some real wage sensitivity of the demand for labour by again permitting substitution effects. (Although, strictly, it is not the real product wage which becomes relevant here, but relative factor prices.) However, this does nothing to restore the relevance of the willingness to supply mechanism: as long as demand constraints are binding on firms, this mechanism is rendered completely inoperative. Many Keynesians would in fact take issue with the neoclassical assumptions of factor substitutability and diminishing returns, but we do not pursue

this here since the central issue in the eyes of most Keynesians is the relevance of demand constraints.

In the simplest neoclassical model the only way to stimulate employment is by reducing the real wage. In the simplest Keynesian model the only way to stimulate employment is by increasing firms' output - achieved by stimulating demand and thereby relaxing the constraints on firms' "ability to sell". It is, of course, true that in more sophisticated Keynesian models a reduction in the real wage may, via substitution effects, stimulate employment, but the scale of the response is likely to be small in absolute terms and certainly in comparison to the effects of relaxing demand constraints. No matter how sophisticated the Keynesian theory, the key to full employment lies in the management of aggregate effective demand.

The neoclassical/Monetarist theory of labour demand tends to foster the view that UK unemployment may be "classical" in nature reflecting excessive real wages, whereas the alternative approach encourages the view that it is "Keynesian" - reflecting a deficiency of aggregate demand.

The discussion so far has oversimplified in a number of respects. For example, it seems likely that the Keynesian versus Classical dichotomy is excessively stylised. Thus, Layard and Nickell (1985) have developed an imperfectly competitive model which exhibits features of both neoclassical and Keynesian approaches, and many participants in the debate are of the view that the crucial issue is the empirical significance of the real wage effect (rather than its existence or the direction of its influence). Furthermore, we have treated labour as a variable factor, whereas in fact it is expensive for firms to adjust their stock of employees. (See, for example, the Labour Market sections of the last two **Commentaries** for an intuitive account.) This causes the future to become relevant to current employment decisions in that, given the costs of new hires and redundancies, firms take on employees in the expectation that they will remain with the firm for some time. It is consequently **expected** real wages

and/or expected output over the anticipated employment period which becomes relevant to the employment decision. Similarly, the past becomes relevant to the employment decision through firms' inherited stock of employees (which is costly to adjust).

Whilst the analysis has been simplified, it does draw attention to a crucial issue: the importance of effective demand relative to real wages. Before proceeding to the empirical evidence on this, it is worth noting a selection of the formidable problems facing those who conduct empirical investigations of this kind. First, it is **expectations** of output and real wages which are important, yet these are not observable. Most of the studies below assume a very simple relation between actual and expected real wages, but it is extremely difficult to assess the accuracy of this assumption or the nature of the bias it inevitably introduces. Secondly, because of the costs of adjusting the stock of employees, firms are unlikely to respond very rapidly to changes in the determinants of employment. Furthermore, the dynamics of adjustment may be rather more complex than can be captured with existing limited data sets. Thirdly, all of the studies assume that the observed level of employment is that demanded by firms. If all observations are not in fact "on the demand curve", this will introduce unmeasurable biases in the estimates, but is likely to reduce the apparent response to real wages. This list of difficulties is by no means exhaustive, but it should suffice to make readers very cautious in their interpretation of the precise numerical estimates presented below.

All the earlier relevant econometric literature tended to be in the Keynesian tradition, emphasising the role of output rather than relative prices in employment determination. For example, the 1984 version of the Treasury model contained no role for wages: employment was determined by current output, numerous lagged values of output and a time trend. A number of recent studies based predominantly on output have, however, also found a significant role for wages. The measured responsiveness of employment to real wages has tended generally to be fairly low, with a long run real wage elasticity of between -0.2 and -0.3 . (See eg Nickell (1981) and Owen (1985)) This means that

a one percent reduction in the real wage would eventually stimulate employment by between 0.2 and 0.3 percent. However, both the LBS and Liverpool models exhibit rather greater responsiveness to real wage changes (with long-run real wage elasticities of around -0.5). (See Wallis et al (1984) Chapter 4.)

Neoclassical models of labour demand have only appeared relatively recently in the econometric literature, and perhaps unsurprisingly have generated considerably higher estimates of long-run real wage elasticities of up to -1.65 in one case. (Symons, (1982), but see also Andrews (1983), Nickell and Andrews (1983) and Beenstock and Warburton (1984)). Comparisons among studies have to be undertaken with care in view of the facts that eg: some estimates refer only to the manufacturing sector whereas others are more aggregated; some studies are conducted on quarterly and others on annual data.

Direct tests of competing specifications are as yet rare and so far inconclusive. Thus Symons and Layard (1984) found no role for effective demand in a study of the performance of a neoclassical demand function for six major countries including the UK, whereas Layard and Nickell (1985) find that it has a very significant impact in the UK using a rather different specification of the employment function. A recent study using Scottish manufacturing sector data found that the performance of individual real wage and demand variables and the ranking of Keynesian and Neoclassical models was very sensitive to the precise specification of the employment equation and to the chosen observation period (Holden and McGregor (1985)).

The recent evidence suggests that it is likely that there is some inverse relation between the real wage and employment, but little can yet be claimed about the strength or robustness of this relation. Certainly, the evidence from single equations does not come close to constituting a refutation of the notion that effective demand exerts a powerful influence on the level of employment.

A SYSTEM-WIDE PERSPECTIVE

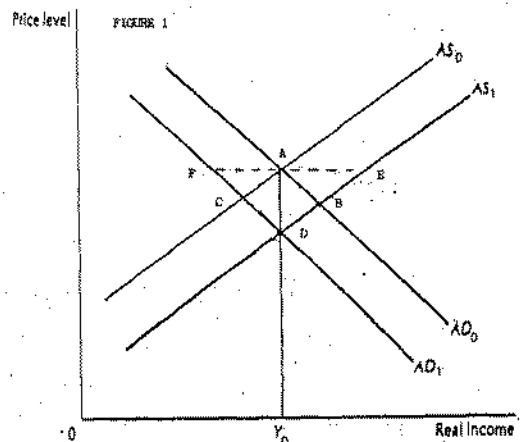
The preceding discussion leads to the notion that real wages matter, but not **only** real wages matter. Even the limited support that this apparently offers for the notion that workers can and should "price themselves into jobs" is questionable, for (in the absence of indexation) workers bargain directly for nominal or money wages, although actual and expected price changes will naturally exert a major influence on the level of money wage claims. The real product wage, however, is the money wage deflated by the price of firms' output, over which workers have no control. General reductions in money wages may generate general reductions in prices, too, so that it is not clear how or if workers can price themselves into jobs. Furthermore, from a macroeconomic perspective output cannot be treated as exogenous (ie outwith the influence of the subjects of the study), and is likely to be affected by wage changes even in a Keynesian model. (Recall that the neoclassical firms' output is influenced directly by the real wage - it is chosen jointly with the level of employment.)

At the macro-economic level, real wages and employment depend on each other as well as on a vast array of other influences. Changes in these influences will affect **both** employment and real wages. Some will cause employment and real wages to move in the same direction; others will cause them to move in opposite directions. For example, a rise in aggregate demand will put upward pressure on both real wages and employment, whereas an increase in labour supply will increase employment but reduce real wages.

Given that real wages and employment are both determined by the economic system, it may not be immediately apparent how HMT was able to detect a negative trade-off between real wages and employment using their model of the UK economy. The trick in generating such a trade-off lies with a specific technique of econometric modelling, namely 'exogenisation'. This means that one equation and one variable are dropped from the model and the reduced system is then solved, using imposed values for the variable which is no longer solved by the model.

In the Treasury experiment, it is the nominal wage variable which is removed along with the equation in which it is explained. In certain circumstances, this equation can be re-interpreted as the supply equation in the labour market. Nominal wages are then set at such a level as to ensure that real wages are lowered by 2% over their 'base run' values. Differences between employment levels in the base run and 'shocked' run are then computed to determine the effect of a 2% shock to real wages.

Figure 1 facilitates interpretation of the Treasury's (and others') simulations relating to wage reductions. The figure shows positively sloped aggregate supply and negatively sloped aggregate demand curves. The former show the relationship between the price level (p) and the level of output (y) which firms wish to supply. The latter depict the relation between the price level and aggregate demand. It is assumed that prevailing conditions imply that AD_0 and AS_0 are relevant, initially, and that the economy is in equilibrium at point A.



The negative slope of the aggregate demand curve reflects a number of factors. First, as the price level falls, the real value of a given money stock increases, (provided the authorities adopt a policy of controlling the stock of nominal money balances) and this stimulates aggregate demand. Secondly, any wealth effect on consumption demand acts so as to increase consumption demand directly. Thirdly, in an open economy, a reduction in domestic

prices tends to stimulate the net demand for exports (although this depends to a degree on the exchange rate regime). Finally, if the authorities' fiscal policy stance is defined in terms of a target ratio of the public sector borrowing requirement to output, then any increase in output following a price decrease is reinforced by permitting further tax cuts. The first and last factors reflect a policy of maintaining an "unchanged nominal framework" which is to be contrasted with the alternative policy stance of "maintaining (interest and tax) rates".

The aggregate supply curve, AS_0 , reflects production and labour market conditions. Drawn for a particular level of the money wage for the present, its positive slope reflects the fact that as p increases, the real product wage declines and so stimulates the assumed real wage - responsive demand for labour, and thus employment and output.

A simplified variant of the Treasury's analysis of a cut in the money wage goes as follows. First, through its effect on willingness to supply at any given price level the AS curve moves to the right, to AS_1 , say. The size of the shift will be greater the higher the real wage sensitivity of the demand for labour - which the Treasury believes to be significant.

The reduction in money wages shifts the distribution of income in favour of profits, and in the short-term this is likely to reduce AD for all p as the propensity to spend out of profits is lower over this time interval than that out of household income. However, HMT do not believe this to be of great quantitative significance and in any case the effect is considered to be transitory, for companies rapidly increase their expenditure out of their increased income to at least compensate for the reduced consumption expenditure. For simplicity, we can consider AD to remain at AD_0 on this view.

The resultant excess supply of AE at the initial price level causes prices to fall

in the Treasury model. The economy then moves from A to B, experiencing both a fall in prices and an increase in output. Furthermore, the advantageous output effect will be greater, the greater the price-sensitivity of aggregate demand (ie the "flatter" the AD curve). Given a judgement that money is important in influencing real demand, that wealth effects are significant, that trade is sensitive to relative prices and given adherence to a particular "nominal framework" (the Medium Term Financial Strategy), the output effect seems likely a priori to be quite high.

Treasury optimism on the case for wage cuts would be challenged on a number of points by Keynesian critics. First, as we have seen, they are rather less sanguine about the likely responsiveness of the demand for labour to real wage changes. In the extreme case, the increased willingness to supply has no effect: prices do not respond to pressure from excess supply of AE and so the economy would remain at A.

Second, most Keynesians would anticipate a lasting reduction in AD given the redistribution of income from wages to profits. For example, if the curve shifted to AD_1 , and prices were inflexible, output would consequently contract by AF.

Many on both sides would accept that the end result depends on the various conflicting forces. If AS shifts to the right, AD to the left and prices are (ultimately) flexible, then prices will fall, but output may fall, rise or remain unchanged (as in Figure 1). However, in general Keynesians expect a greater leftward shift in AD and a lesser rightward shift in AS. Furthermore, they would maintain that even with flexible prices any given rightward shift in AS would have less favourable effects than others suppose. For Keynesians generally deny a uniquely powerful role to money and advocate the alternative policy stance of "maintaining rates", and so anticipate that the AD curve is likely to be rather steep (and certainly would be in an "appropriate" policy regime of unchanged

"rates"). The policy of maintaining rates is favoured by Keynesians at least in the presence of excess capacity, since it minimises the amount of "crowding out" that can arise (at output levels less than "full employment").

The simple diagrammatic analysis cannot hope to capture the full complexity of the various views, or indeed of the Treasury's simulation. For example, some Keynesians (and certainly Keynes himself) held that general wage cutting could lead to an unstable general wage and price deflation, although in an inflationary environment such fears may be rather less well grounded than previously. On the other hand, many neoclassicists (and indeed others) would wish to elaborate on the nature of the assumed initial equilibrium at A in Figure 1. Many would claim that the adverse external shocks imposed by OPEC in the 1970s created leftward shifts in the AS curve and necessitated a moderation of living standards if employment was to be maintained. Against this background, wage "cuts" are interpreted as a sharing of the burden of adjustment in the domestic economy.

Evidence of the effect of wage cuts in the context of the system as a whole is presently fairly limited, although the paper by Andrews et al (1985) reports simulations for all ESRC financed models. First, there is the problem that "fundamentalist" Keynesians are not represented in this group of models, and indeed the views of some "extreme" Keynesians are inconsistent with macroeconomic modelling. This is not necessarily an adverse comment on these views and it certainly is the case eg that the process of "exogenisation" of the money wage which is at the root of the simulations we report, denies by **assumption** the possibility of a dynamically unstable deflation of the sort we referred to above. No macroeconomic model can hope to capture the exact views of any of the participants in the debate, however.

The process of "exogenisation" itself constitutes a second major problem. For it is not clear what the source of the

exogenous change in wages is supposed to be (although a reference is made by HMT p18 to the effects of increased market efficiency in the context of previously excessive real wages). The results of the Treasury's simulation, for example, could be interpreted as offering support for a wages policy - yet this is anathema to the present Government. The exercise, in the absence of a mechanism which can be implemented in practice, is essentially one of wishful thinking (Andrews et al 1985).

Thirdly, it will be appreciated that underlying the AD and AS curves of Figure 1 is an entire structural model of the UK economy, each component of which is subject to similar difficulties of econometric analysis to those identified in our discussion of labour demand. Sophisticated and instructive as they undoubtedly are, current macroeconomic models of the UK economy should be handled (and interpreted) with extreme caution. The Treasury's own simulations were conducted with a new version of their model in which the demand for labour in the (non) manufacturing sector exhibits an elasticity of $(-0.1) -0.25$ with respect to the real wage. Money wages were set so as to ensure that this real wage was held 2.0% below its actual level over the simulation period.

The simulation implied that for an unchanged nominal framework, employment would eventually be 1.4% higher as a consequence. Since this response is greater than would have been expected from the real wage elasticity even of the demand for labour in manufacturing, it is clear that, in this case at least, system-wide responses enhance the response to wage cuts.

The general results displayed a pattern similar to the Treasury view discussed above. Even in the first year the initial fall in consumption (moderated by the wealth effect induced by lower prices) was entirely offset by higher company expenditures, and the stimulus to net exports resulted in some increase in output. This slightly favourable impact effect is enhanced by the subsequent

effects of reduced prices on consumption, and the induced reductions in tax rates as output rises. While the price level fell, there was no sustained impact on inflation.

When the policy stance was taken to be unchanged interest and tax rates, the favourable effect on employment was rather less (1% for a 2% real wage cut), for the reasons given above. However, it should be noted that this is simply the converse of the fact that "unchanged rates" does not "punish" wage increases (by output and employment contraction) in the way that an "unchanged nominal framework" does.

There are a number of problems with the Treasury's simulations. The real wage elasticity of labour demand for the non-manufacturing sector was in fact imposed by the Treasury at a level higher than that freely estimated, and in order to generate the 2% real wage cut the nominal wage had to be made to fluctuate rather wildly (Andrews et al (1985b)). The former point implies that the Treasury (in effect) caused a rather more favourable rightward shift in the AS curve than was strictly merited by their freely estimated model. The latter point casts doubt on the possibility of workers (for whatever reason) mimicking the Treasury results, and reflects the general concern over control of money wages.

Finally, the Treasury reports that simulations with prices held at their initial level implied virtually no output effect (HMT, para 3.29). This might be considered unsurprising in the light of Figure 1, but it does seem to make the point forcefully that the advantageous effects of the change are **not** directly attributable to the fall in the **real** wage, but to the general wage-price deflation which is the mechanism by which it is achieved. This result (abstracting from the role of wealth effects and open-economy influences) is surprisingly close to Keynes' analysis of five decades ago, on the basis of which he advocated stimulating demand more directly by fiscal expansion, rather than indirectly (and dangerously in view of the possibility of cumulative deflation) - if at all - by

means of wage reductions. Such a policy may conflict with the Government of the day's target for inflation, but the real wage is not the critical issue here (see eg Hopkin (1984)).

Andrews et al (1985) report the results of simulating wage reductions in five major macroeconomic models of the UK economy. The results generally imply employment effects of lower magnitude than those found by the Treasury, but they do employ the then publicly available Treasury model which had no real wage in the employment function and no inbuilt adjustment of tax rates to maintain the ratio of the public sector borrowing requirement to output. All the models did, however, imply that employment could be stimulated by wage reductions.

CONCLUSIONS

Recent evidence from studies of the demand for labour suggests the existence of an inverse relation between employment and the real wage, but there remains considerable doubt concerning the strength of this effect. Furthermore, this evidence certainly does not permit denial of the role of effective demand in determining employment: real wages may matter, but they are certainly not all that matters.

The evidence of real wage sensitivity of employment does not in any case seem to relate directly to the notion that workers can and should "price themselves into jobs", for workers bargain in terms of money wages. Simulations of wage reductions using the major macroeconomic models indicate a positive effect, but of a generally smaller magnitude, than that found by the Treasury. There are grounds for believing that the Treasury analysis exaggerates the effects of wage reductions, and for worrying about how these might be effected in the required manner (or indeed at all). Furthermore, such beneficial effects as do occur from the postulated reductions in money wages are attributable primarily to the effects of general wage-price deflation in stimulating aggregate demand, and not to the real wage reduction **per se**.

REFERENCES

- Andrews, M J (1983) "The Aggregate Labour Market - An Empirical Investigation Into Market Clearing, London School of Economics, Centre for Labour Economics, Discussion paper, No 154.
- Andrews, M J, D N F Bell, P G Fisher, K F Wallis and J D Whitley (1985) "Models of the UK Economy and the Real Wage-Employment Debate" **National Institute Economic Review** (forthcoming).
- Andrews, M J, D N F Bell, P G Fisher, K F Wallis and J D Whitley (1985b), "Models of the UK Economy and the Real Wage-Employment Debate: A Further Analysis", unpublished communication.
- Barro, R J and H I Grossman (1971) "A General Disequilibrium Model of Income and Employment", **American Economic Review**, (March, pp82-93).
- Beenstock, M and P Warburton (1984) "An Econometric Model of the UK Labour Market", City University Business School (mimeo).
- H M Treasury (1985) "The Relationship Between Employment and Wages: Empirical Evidence for the United Kingdom", **H M Treasury**.
- Holden, D R and P G McGregor (1985) "Employment Determination in Scottish Manufacturing Industry: Non-Nested Tests of Keynesian and Neoclassical Models", University of Strathclyde, mimeo (forthcoming).
- Hopkin, B (1984) "Real Wages and Unemployment", Bank of England Panel of Academic Consultants, Panel Paper, No 24 (pp21-32).
- Layard, R and Nickell, S (1985) "The Causes of British Unemployment", **National Institute Economic Review**, (1/85, pp62-85).
- Nickell, S (1981) "An Investigation of the Determinants of Manufacturing Employment in the UK", LSE for Labour Economics Discussion Paper (No 105, November).
- Nickell, S and Andrews, M J (1983) "Unions, Real Wages and Employment in Britain, 1951-79", **Oxford Economic Papers** (November).
- Owen, D E W (1985) "An Expectational Model of Manufacturing Employment in the UK", **H M Treasury**.
- Symons, J (1982) "Relative Prices and the Demand for Labour in British Manufacturing", LSE for Labour Economics Discussion Paper (No 137, September).
- Symons, J and Layard, R (1984) "Neo-classical Demand for Labour Functions for Six Major Economies", **The Economic Journal**, (December, pp788-799).
- Wallis, K F (ed), M J Andrews, D N F Bell, P G Fisher and J D Whitley (1984) **Models of the UK Economy**, (Oxford University Press).