Abstract

This paper analyses microeconomic criteria for the regulation of union - employer wage bargaining in the context of a decentralised wage determination system.

Using a simple model, where the employer has monopoly power in the product market, it is shown that an efficient collusive bargain struck between union and employer will benefit the consumer. This result holds under quite weak assumptions about the objectives of the union. Under not unreasonable assumptions about the nature of union objectives, the collusive bargaining outcome will be better for the consumer than removing the monopoly power of the employer while the monopoly power of the union remains.

The implication for wages policy is that rather than proscribe collusive bargaining between a union and an employer with monopoly power, regulation should assist such bargaining as there are social benefits.
I Introduction

In line with prevailing political and economic philosophy in general, recent labour market policy debates have emphasised the potential efficiency gains from a deregulated, decentralised wage determination process. The centralised approaches which characterised Scandinavian, German and Austrian wages policies in the 1970s and early 1980s are now well out of fashion.

In Australia in particular, the last two decades have seen significant changes in the institutions, legal framework, and processes of wages policy and wage determination. The centralised system, initiated in the first Australian Council of Trade Unions - Commonwealth Government “Accord”, has been progressively replaced by a decentralised system of “enterprise level bargaining”.

These developments have reflected a shift in the priorities of wages policy away from the macroeconomic goal of inflation control to the microeconomic goals of allocative and productive efficiency.¹

The role of Australia’s long standing quasi-judicial industrial institution, the Australian Industrial Relations Commission (AIRC), has changed progressively over the years since 1983 as part of this process. From initially being the main source of movements in wage levels through regular National Wage Case determinations under generally applied principles, the current position is one of only direct responsibility for the determination of a decreasing number of minimum wage-awards for a declining minority of workers. Furthermore, the AIRC is now the overseer of an increasing number of enterprise level bargains (Australian Workplace Agreements). With regard to the latter, the precise role of the AIRC in economic terms does not seem well defined, and it is the aim in this paper to consider some aspects of the economic role of a regulator in the context of union-employer bargaining.

The role and influence of unions have also undergone significant change in the last two decades.

In Australia, under the Accord (1983-1995), the peak council (the ACTU) made submissions to a regular National Wage Case on behalf of all constituent unions, delivered compliance with “no extra claims” conditions, and had some direct input into macroeconomic policy. With the abandonment of National Wage Cases, and with the encouragement the present
system is designed to give to enterprise level bargaining, the focus of interest should now shift to the role of individual unions representing particular groups of workers.

Of course some proponents of a deregulated, decentralised labour market see the existence of unions as part of the problem. Their vision is of a system of individual contracts between worker and employer, with no role for unions nor need for regulators. The continuing decline in union membership provides comfort to those holding this view. In Australia empirical research has linked this decline in membership to the Accord (Kenyon and Lewis 1993, Bodman 1996, Kenyon and Lewis 1997). The hypothesis on which this research is based is that under the Accord, with wages determined through national wage cases after a joint submission negotiated between the peak council and the government, workers saw little value in membership and support of their local unions. It would be somewhat ironic if the shift to decentralised wage determination brought about some resurgence in union membership and an increase in the significance of the role of individual unions. The current system in Australia recognises the legitimacy of bargaining “agents” for groups of workers. As enterprise level bargaining has developed, it has been usual for these agents to be the relevant union. In the U.K, the new Labour Government has foreshadowed legislation to guarantee union representation in bargaining where a majority of the workforce in an establishment desires it.

In the light of the large literature identifying transactions costs and risks associated with individual contracting, particularly for workers, it seems reasonable to argue that individual unions and professional associations will have significant roles in the future of decentralised wage determination. The analysis of union-employer bargaining is therefore a relevant concern for future wages policy.

It is useful to see wages policy as having three dimensions: macroeconomic, microeconomic, and distributional.. The macroeconomic dimension to wages policy is primarily concerned with trying to ensure that the general level of wages (and its rate of increase) resulting from a decentralised system of bargaining does not generate inflationary pressures in the economy. How this can be achieved is a matter of crucial importance and great controversy. It is however not the subject
addressed in this paper. The aim here is to consider the appropriate microeconomic role of regulation. (The author has considered macroeconomic and distributional dimensions elsewhere).

There is a large literature in labour economics analysing Pareto efficient bargaining between employers and unions. Pencavel(1991) provides a list of requirements necessary for efficient bargaining:

These are:
(i) Both sides consent to the items constituting the bargaining agenda;
(ii) Agreements have a system of enforcement (This may be by regulation or by reputation in a "repeated game" context);
(iii) The costs of bargaining are negligible; and,
(iv) There are no information asymmetries.

In addition, bargaining is encouraged if there are accepted procedures for re-negotiation when a change in the economic environment occurs.

Thus a potential role for a regulator is to provide the forum, the procedures and the enforcement sanctions so that efficient bargaining can take place.

Note, however, that these bargains are "efficient" in the sense that there are no remaining opportunities for Pareto improvements for the two parties involved. This concept of an efficient bargain ignores the interests of third parties. In relation to the broader concept of allocative efficiency, the effect of efficient bargains between employer and union on third parties (e.g. consumers) is relevant. Concern for third parties provides a traditional justification for proscribing collusive behaviour. Therefore regulation might include forbidding collusive bargaining between a union and an employer where such bargaining implies harm to third parties.

Consider the case where bargaining is between a monopoly union and an employer with monopoly power in the product market. The intuition here is that collusive bargaining might well be socially detrimental and therefore justifiably subject to a regulator’s proscription. The instinct is that collusion between agents with monopoly power is bad for third parties. The immediate notions conjured up are of cosy "sweetheart" agreements to "rip-off" consumers.
Indeed there is a body of trade theory which analyses protection as a connivance between unions and domestic producers to share the spoils at the expense of consumers (Corden 1963,1997).

Furthermore, in Australia the AIRC has itself hinted that its new role includes concern for the effects of collusion between unions and employers with monopoly power. In April 1997 it refused to endorse within the award system a single agreement struck between the Transport Workers Union and the large transport companies as a group.

On the other hand, nearly fifty years ago in American Capitalism, J.K. Galbraith (1952) promoted the concept of what he called "Countervailing Power". Galbraith's thesis was that orthodox economics had concentrated too much on the social benefits of horizontal competition between rival sellers, to the neglect of the benefits provided by the vertical discipline of off-setting market power between buyers and sellers. For example, when large powerful corporations face the countervailing power of large powerful unions, in Galbraith's view this can provide social benefits. The validity of Galbraith's argument is not immediately obvious. While the monopsony power of an employer in a labour market might be offset by the monopoly power of the union, it is not intuitively clear how the negative welfare effects of the employer's monopoly power in the product market will be mitigated. Simple models of labour market bilateral monopoly generally provide for an outcome which is the result of a union-employer bargain over the employer's monopoly profit. Indeed it is sometimes argued that without this monopoly profit there can be no gain at all to workers from unionisation - this is Bronfenbrenner's "Illusion Theory" of the effect of unions (Bronfenbrenner 1958). Thus the notion that a collusive bargain struck between a union and an employer with monopoly power will provide benefits to the consumer seems counter-intuitive.

What is presented in the following section of this paper is a simple model of union-employer bargaining, where the employer has monopoly power in the product market. Under quite weak assumptions about the objectives of union behaviour, which make the conclusion quite general, it is shown that the consumer can benefit from an efficient bargain struck between union and employer.
Furthermore, under not unreasonable assumptions about the nature of the union's utility function the bargain outcome might be better for the consumer than the “second best” solution of removal of the employer's product market monopoly while the union's power remains.
II The Model

The model consists of three agents: the union, the employer and the representative consumer. The two crucial components which distinguish various union-employer bargaining models in the literature are:

(i) The assumed objectives of the union, i.e. the nature of the union’s utility function; and
(ii) The assumed mechanism of resolution - in particular the variables included in the bargaining agenda.

With regard to the former, the modelling of union behaviour has been a continuing issue of controversy in the literature of labour economics since the debate between Dunlop (1944) and Ross (1948) concerning whether the maximisation of a single-valued utility function can ever be a useful representation of union behaviour, or whether a more “institutional” approach is required.

Attempts to build a union utility function from the micro-foundations of individual maximisation confront social choice and principal-agent problems. What has generally been done in bargaining models is to assume the union’s utility function takes some specific mathematical form - the attractiveness of which usually owes more to its tractability and capacity to allow an econometrically estimatable reduced-form of the model, than to realism. (See Pencavel 1991 for a review of various models)

In the model here, the union is assumed to maximise a general form of utility function $U(L,W)$ - where $L$ is Employment in wage-units and $W$ is the wage. Initially the only restriction placed on the form of this function is that it is strictly convex with respect to the relevant "budget constraint", which in this case is the demand for labour function. Thus the utility function for the union has the general form usually assumed in orthodox utility analysis: $U'(W), U'(L) > 0$, and the marginal rate of substitution,

$$\frac{U'(L)}{U'(W)}$$

decreases as $L$ is substituted for $W$ along a given indifference curve.
Some models of union behaviour (e.g. Simons 1944, Booth 1984, Oswald 1985) exclude employment (either totally or for levels of employment greater than some specified level) from the union's utility function. This is justified on the basis of constructed motives for union officials, and the median voting member's low probability of becoming unemployed - "insider dominated unions".

There are, however, stronger arguments for the inclusion of employment in the union's utility function with a positive first partial derivative. The seniority and working conditions of even those workers with low risk of becoming unemployed will be affected by variations in the level of employment. Furthermore, it is really the motives of union officials which are at issue, and even if there is some principal-agent slippage in the representation of members' motives, union officials' status and salaries, and the political influence and market power of the union, all increase with the size of the union, and employed members are preferred to unemployed members.

Some more elaborate models include a range of additional variables in the union's utility function - for example, hours, work practices (capital-labour ratios), other workers' wages, alternative wages, and unemployment benefits. In this model, these other concerns are assumed to be either reflected in the employment motive, or are assumed to be given.

With regard to the variables included in the bargaining agenda, many models again exclude employment. Unions negotiate over wages but the employer determines the level of employment under the concept of "the right to manage". For this paper the issue is not which model of the bargaining process is the most empirically relevant (although numerous case studies attest to the frequency of bargaining over wages and employment - see Pencavel 1991).

Here the outcomes of two bargaining scenarios are compared: In the first the union is assumed to control the wage at which labour is supplied, but the level of employment is determined by the employer's demand for labour. (Situations where union power is effected through direct supply restrictions are not considered here). This is defined as the no-bargain situation since the union and the employer each independently exert their monopoly power.

In the second, efficient bargaining takes place under the conditions listed above.
The employer is assumed to be a profit maximiser with monopoly power in the product market (so that Marginal Revenue is less than Average Revenue).

The employer faces a given product demand curve (which for expository simplicity is assumed to be approximately linear over the relevant range).

It is assumed that per-unit non labour costs of production are sunk costs, so that (again for expository simplicity) they can be ignored.

It is also assumed that output can be defined in terms of units of employment. There are good precedents for the approach of identifying output with employment (for example see Hieser 1970). It is of course a standard assumption in the analysis of government and service sector production.

The product demand curve, \( P(L) \), is therefore the same as the Average Revenue Product curve of labour, \( AR(L) \), and the corresponding Marginal Revenue Product curve, \( MR(L) \), is the firm's demand curve for labour.

Changes in consumer welfare are assumed to be measured by changes in simple consumer surplus along \( P(L) \).

The model is diagrammatically represented in Figure 1.

Without collusive bargaining (i.e. with union and employer independently exerting their market power):

The union sets wage \( W_1 \) to maximise utility at \( A \) on indifference curve \( IC_1 \).

The employer sets employment and output at \( L_1 \) to maximise profit for this wage. The consumer pays \( P_1 \) per-unit for \( L_1 \) units and the employer's monopoly profit is

\[
L_1 \cdot (P_1 - W_1) = \pi_1
\]

Consider now the situation where efficient bargaining is possible:

An isoprofit curve for \( \pi_1 \) can be constructed through \( A \):

\[
\{(L,W): L \cdot P(L) - W \cdot L = \pi_1 \}.
\]

\( \pi_2 \) represents an isoprofit curve for a higher level of profits. All isoprofit curves have their maximum on the Marginal Revenue Product curve \( MR(L) \). The slope of an isoprofit curve is:
\[
\frac{dW}{dL} = \frac{\text{MR}(L) - W}{L}
\]

The interior set \((W, L)\) enclosed by the intersections of \(\text{IC}_1\) and \(\pi_1\) define for the union and employer a zone of Pareto superiority compared to \(A\) (the shaded area in Figure 1). Both employer and union can gain from a bargain to have a lower wage and a higher level of employment.

Following the analysis of McDonald and Solow (1981), an efficient bargain is struck along the contract curve, \(XY\), defined by the condition

\[
\frac{\text{MR}(L) - W}{L} = -\frac{U'(L)}{U'(W)}
\]

i.e. the slope of an isoprofit curve equals the slope of an indifference curve at a point of tangency.

Further analysis of the position and slope of the contract curve requires additional specification of the union utility function. (For example, with a constant elasticity of substitution union utility function, it could be deduced that \(XY\) will be further to the right the higher is the elasticity of product demand. This is because the curvature of the isoprofit curve will be less, and the employer will be able to accept a larger increase in employment for a decrease in the wage.)

Neither can the model determine a precise bargaining outcome, without specifying relative bargaining strengths.

Whatever the outcome along \(XY\), \textit{it entails a higher level of employment and output and a lower product price than at } \(A\), and therefore an increase in consumer surplus. In terms of the three member society, an efficient collusive bargain between the monopoly employer and the union (who act self interestedly without any concern for the interests of the consumer) is unambiguously a welfare improvement compared to the no-bargain outcome.
This then is a formalisation of Galbraith’s “benefits from countervailing power”.

The fact that an efficient bargain between union and employer implies a higher level of employment than the no bargain outcome has been noted before - as far back as Edgeworth(1881). What does not seem to have been noted in the literature is the implication that when the employer has monopoly power, the collusive bargain reduces the monopoly distortion in the product market and is therefore an improvement in allocative efficiency. Indeed in the literature the “excess” employment has been referred to as “overmanning”, “featherbedding”, and “make-work rules” (see for example, Pencavel 1991 p101).

With the use of this simple analysis the intuitive logic of the result can now be perceived:

The union can benefit from higher employment and is willing to accept a lower wage as a trade off.

The employer can benefit from a lower wage and is willing to accept higher employment as a trade-off.

The consumer has no direct interest in the wage but benefits from higher employment and hence higher output.

There is therefore a harmony of interests (in increased employment and output) which the union-employer bargaining process harnesses.

III Comparisons with Second Best Solutions

While the bargain outcome is Pareto superior to the no bargain result, the detrimental effects on consumer welfare of monopoly have not of course been eliminated.

It is trivial to show that consumer surplus is maximised if both the employer's monopoly power was removed (so that the employer's demand for labour curve is co-incident with the Average Revenue Product curve), and the union's monopoly power was removed (so that the supply of labour was infinitely elastic at some opportunity cost wage level to which union indifference curves are asymptotic). Compared to the outcome at A in Figure 1, the increase in consumer surplus from the removal of all monopoly power is at the expense of the utilities of the union and the employer. In terms of the three agent model, the overall welfare effects are indeterminate since there is no process to re-distribute any net gain.
Since competition policy is, in practice, implemented on a partial rather than general basis, it is useful to consider the two "second best" solutions:

(i) Removal of the union's monopoly power while the monopoly power of the employer in the product market remains.
(ii) Removal of the monopoly power of the employer in the product market, while the monopoly power of the union remains.

In case (i), it is again trivial to show that for an opportunity wage below \( W_1 \), the increase in consumer surplus is accompanied by an increase in the employer's profit, both at the expense of the union's utility.

More interesting is case (ii). (See Figure 2)

The removal of the employer's monopoly implies that the demand curve for labour is now \( AR(L) \).

When the monopoly union faces employers who compete in the product market (and in the absence of the formation of an employer's cartel) collusive bargaining is now not feasible. The union can “pick employers off one by one”, because an individual employer’s resistance to the threat of strikes is reduced by the knowledge that rival sellers not subject to simultaneous disruption will appropriate its market share. Galbraith’s countervailing power to the union monopoly is absent.

In exercising its monopoly power, the union sets \( W_2 \) to maximise utility at B.

If B lies to the left of all points on XY, then, compared to the outcome at A, the consumer's gain is greater from any efficient union-employer bargain than from the removal of the monopoly power in only the product market.

Consider the restrictions necessary on the nature of the union utility function for this outcome (rather than say B'):

The slope of the union indifference curve at any efficient bargain along XY is equal to the slope of the tangential isoprofit curve.

\[
i.e \quad \frac{MR(L) - W}{L}
\]
\[
\frac{L \cdot P'(L) + P(L) - W}{L} \\
= \frac{P'(L) + \left\{ \frac{P(L) - W}{L} \right\}}{L}
\]

Since the term in brackets (average profit) is non-negative along the contract curve, for any given value of \( L \) the isoprofit curve will be flatter than the demand curve, the slope of which is \( P'(L) < 0 \).

Therefore, as long as the slope of the demand curve does not change dramatically over the relevant range, the Marginal Rate of Substitution,

\[
\frac{U'(L)}{U'(W)}
\]

will be higher at \( B \) (or \( B' \)) than at any point on \( XY \).

Thus the "substitution effect" component of the shift to the higher level of utility (raising the relative cost to the union of employment gains in terms of wage reductions and lowering the relative cost of wage gains in terms of lower employment) implies a union utility maximising combination \((L,W)\) with less employment.

As long as this is not more than offset by a favourable "income effect" on employment from the increased utility available, \( B \) will lie to the left of any point on \( XY \). That is, as long as the effect on employment of the elasticity of substitution of \( W \) for \( L \) at a given level of utility is stronger than the elasticity of demand for employment with respect to increases in utility.

It does not seem unreasonable that the demand for additional employment, for a given opportunity cost, might wane as the union's utility increases. High income professional associations seem keener on accepting restrictions on employment to achieve higher wages than do their blue collar brothers.

Therefore it is not unlikely that with a reduction in the opportunity cost of a higher wage, the union chooses a combination \((L,W)\) with lower employment than on \( XY \), in achieving the higher level of utility available for it by the removal of the employer's monopoly power.
IV Conclusions
The results derived within the framework of the three agent model, in which the union's utility is a convex function of the wage and the employment level, may be summarised as follows:

In comparison to an initial situation in which a monopoly union confronts an employer with monopoly power in the product market, consider four alternative states:

(a) the removal of the monopoly power of both the union and the employer;
(b) the removal of the monopoly power of only the union;
(c) the removal of the monopoly power of only the employer;
(d) the permission of a collusive bargain between union and employer.

Only alternative (d) is an unambiguous welfare improvement. An efficient collusive bargain struck between union and employer is not detrimental to the third party - the consumer benefits from such a deal. It is not unlikely that alternative (d) generates higher consumer welfare than alternative (c).

The major limitations of the model presented here relate to the fact that it is an exercise in partial equilibrium analysis. The interdependencies included in general equilibrium models are excluded.

The most serious omissions in this regard are:

(i) The exclusion of other commodities and of factor incomes from the consumer welfare function;
(ii) The exclusion of non-labour variable costs from the employer profit function;
(iii) The exclusion of commodity prices and other workers' wages from the union utility function.

With regard to (i), it is for example obvious that an increase in the supply of one commodity will not necessarily increase consumer welfare if it requires a transfer of fully employed resources from alternative production.

With regard to (ii), if non-labour input costs rise with increased employment, or if input substitution is possible, the basis for a simple isoprofit curve, defining a zone of mutually advantageous contract outcomes with higher output, is destroyed.
Limitation (iii) is the most serious for any consideration of wages policy in general. The proposition that workers are concerned with relative wages and "real wages" lies at the core of macroeconomic theories of unemployment and inflation. The model in no way addresses the macroeconomic dimensions of labour market regulation. The issue of how the range of individual bargains affect the general level of wages and the macroeconomic environment is beyond the scope of this paper.

The abstraction here from the macroeconomic justifications for intervention in employer-union bargaining is not intended to understate the importance of this issue. The question addressed here is restricted to the microeconomic criteria for regulation. The model makes the case that if, rather than proscribing collusive bargaining between monopoly employers and unions, regulation is used to facilitate collusive bargaining by providing the forum and the rules and reducing the bargaining costs, the results are socially beneficial.

Despite the limitations, it is argued that the partial analysis of this model is useful. It provides an example where quite simple theory can provide an appreciation to which initial intuition might not have led: that collusive bargaining between monopoly union and monopoly employer provides benefits for consumers if it exploits a harmony of interests in higher employment and output.
Footnotes
* The author is grateful to Geoffrey Harcourt and Robin Stonecash for helpful comments.

1. For analysis of the changes in wages policy in Australia and the changing priorities for policy goals see Stegman 1991 and 1997.


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