The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

LABOUR-MANAGED FIRMS AND MONOPSONY POWER*

by

Geoff Stewart
University of Warwick

NUMBER 224

WARWICK ECONOMIC RESEARCH PAPERS

DEPARTMENT OF ECONOMICS

UNIVERSITY OF WARWICK
COVENTRY

LABOUR-MANAGED FIRMS AND MONOPSONY POWER*

by

Geoff Stewart
University of Warwick

NUMBER 224

ABSTRACT

Monopsony power in the labour market is shown to have important consequences for comparisons between an Illyrian labour-managed firm (LMF) and a profit-maximising capitalist firm (CF) operating in the same markets with the same technology. If the CF earns positive profits then workers earn more in the LMF than in the CF, and the level of employment in the LMF may be greater or less than in the CF. Monopsony power is also seen to have interesting implicatings for models of membership contraction in LMF's.

*I am grateful to Keith Cowling and Peter Law for valuable comments.

This research was undertaken during the tenure of an SSRC Studentship.

This paper is circulated for discussion purposes only and its contents should be considered preliminary.

March, 1983

1. INTRODUCTION

Although the analysis of labour-managed firms (LMF's) has generally been conducted within a perfectly competitive framework, various aspects of monopoly and oligopolistic behaviour have received attention. There has, however, been virtually no examination of the implications of monopsony power in the labour market. This is surprising since we might expect the treatment of the labour input to be a source of important differences between LMF's and capitalist firms (CF's).[1/]

Two of the central areas of concern in the existing literature are to compare the equilibrium of a LMF and a CF operating in the same market with the same technology, and to consider the extent to which a LMF will be prepared to reduce its membership level following changes in various parameters. In each case the existing analysis has assumed a horizontal supply curve of labour and the aim of this paper is to consider the effect of replacing this assumption with one of monopsony power.[2/]

A CF has monopsony power when as a buyer facing many potential sellers it has latitude in fixing the wage rate due to an upward-sloping labour supply curve. For convenience we shall also refer to a LMF facing an upward sloping labour supply curve as a "monopsonist" even although the LMF admits members rather than hires workers, and thus its behaviour, unlike that of the CF, is frequently unaffected by the supply curve. Samuelson (1970, p.562) recognises that monopsony power may exist in some areas of agriculture but argues in general that "it is more important in isolated places like the tin mines of Bolivia or the

lumber camps of American history, than it is in a modern economy where people are, in fact, mobile in moving to better job opportunities". Even were monopsony power to be limited to such cases it would merit attention, but there are a number of reasons which suggest that it is a more general phenomenon even in a "modern economy".

Firstly, imperfect worker information on the existence and nature of alternative jobs may convey a degree of monopsony power to firms. Secondly, there are many social and institutional barriers to geographical mobility. Finally, the literature on segmented labour market emphasises the barriers to mobility even within a region. Although there has been relatively little empirical work, a number of studies have supported the existence of monopsony power in certain markets.[3/]

We begin in Section 2 by considering the comparisons that have been made between the equilibrium of an Illyrian LMF and a profit-maximising CF. It is shown, firstly, that, given an upward-sloping labour supply curve, the income per member in a LMF will exceed the wage rate in a profitable CF. Secondly the employment level in a LMF may be greater or less than in a profitable CF. This latter result contrasts with the product market monopoly case in which the CF would always employ more. The Illyrian model has been criticised on the grounds that membership levels may not be fully flexible downwards in the short-run. Alternative models have been proposed, differing in the rules concerning membership reductions. In Section 3 it is shown that monopsony power has some interesting implications for such models. One characteristic shared by both these models and the Illyrian firm is that the sole concern is with the incomes of LMF members. Law (1977)

has suggested an alternative in which the membership level may also enter the objective function. Section 4 argues that, as with the Illyrian case, this should be viewed as a long-run model and that, in the short-run the labour supply schedule will affect membership reductions. The concluding section briefly summarises the main points and draws attention to some limitations of the analysis.

2. ILLYRIAN COMPARISONS

In their discussion of the existing literature on LMF's, Ireland and Law (1982, pp.35-36) note that a frequent and central topic "is to compare its equilibrium with that of a same technology PM - (profit-maximising) firm operating in the same product and capital markets but facing a given wage in a competitive labour market". The objective of the LMF is usually assumed to be the maximisation of income per member; this is known as the Illyrian model. Such comparisons predict that, with perfect competition in the product market and in long-run zero-profit equilibrium, both enterprise types will have the same employment level and income per member in the LMF will equal the wage rate in the CF. If there was imperfect competition in the product market then, assuming the CF earned positive profits, income per member would exceed the wage rate but the LMF would employ fewer workers. In this section we will show that, if there is monopsony power in the labour market then the Illyrian LMF might employ more workers as well as generating higher worker incomes.

Both enterprise-types are assumed to produce an identical product, Q, subject to an identical production function in which the number of workers, N, is the only variable input. Each firm also

faces the same product market conditions which determine its product price, P, and the same labour supply function, g(N). Finally, both firms have fixed costs of production, F,

The objective of the CF is assumed to be

$$\underset{N}{\text{Max}}\ \Pi = R - wN - F \qquad (1)$$

where $R = P.Q$

w = wage rate

subject to $P = P(Q)$ with $P_Q \leq 0$

$Q = Q(N)$ with $Q_N > 0$, $Q_{NN} < 0$

$w = g(N)$ with $g'(N) > 0$

Maximisation yields the expression

$$R_N = w + Nw_N \qquad (2)$$

or

$$R_N = w(1 + 1/\Phi) \qquad (3)$$

where Φ is the elasticity of labour supply. Thus under conditions of monopsony power in the labour market, the wages received by workers will be below their marginal revenue product. This equilibrium can now be contrasted with that of an Illyrian LMF.

The objective of an Illyrian LMF is to

$$\underset{N}{\text{Max}}\ y = \frac{R-F}{N} \qquad (4)$$

subject to $P = P(Q)$ with $P_Q \leq 0$

$Q = Q(N)$ with $Q_N > 0$, $Q_{NN} < 0$

$y \geq g(N)$ with $g'(N) > 0$

Given the existence of fixed costs and with the above production and product market assumptions the y schedule has the general shape depicted in Figure 1. Two kinds of equilibrium are possible.

The first is where the labour supply constraint is binding; that is, it prevents the LMF attaining the maximum of the income-per-member schedule. This situation is shown in Figure 1, together with the CF monopsonist equilibrium. From (2) we see that the CF employs N^C workers at a wage w^C. From (1) and (4) we obtain

$$\Pi = (y-w)N \qquad (5)$$

so that provided the CF is earning positive profits we must have $y > w$ at N^C and hence $y(N)$ must cut $g(N)$ to the right of N^C.

Thus, in a situation where the labour supply constraint is binding on the LMF and if the CF can earn positive profits, then the LMF equilibrium (N^L, y^L) produces both higher employment and higher worker incomes than does the CF. If the CF could only earn zero profits then the two equilibria would be identical, since $y(N)$ would be tangential to $g(N)$.

Suppose now that the labour supply constraint is not binding on the LMF. Figures 2a and 2b demonstrate that we can have either $N^L > N^C$ or $N^L < N^C$ in equilibrium but in both cases worker incomes

FIGURE 1

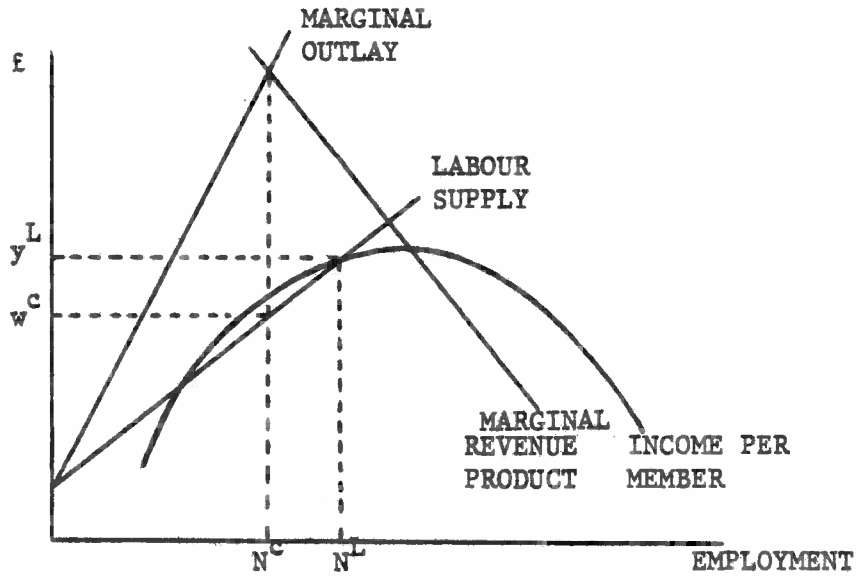

£
MARGINAL
OUTLAY
LABOUR
SUPPLY
y^L
w^C
MARGINAL
REVENUE
PRODUCT
INCOME PER
MEMBER
N^C
N^L
EMPLOYMENT

FIGURE 2a

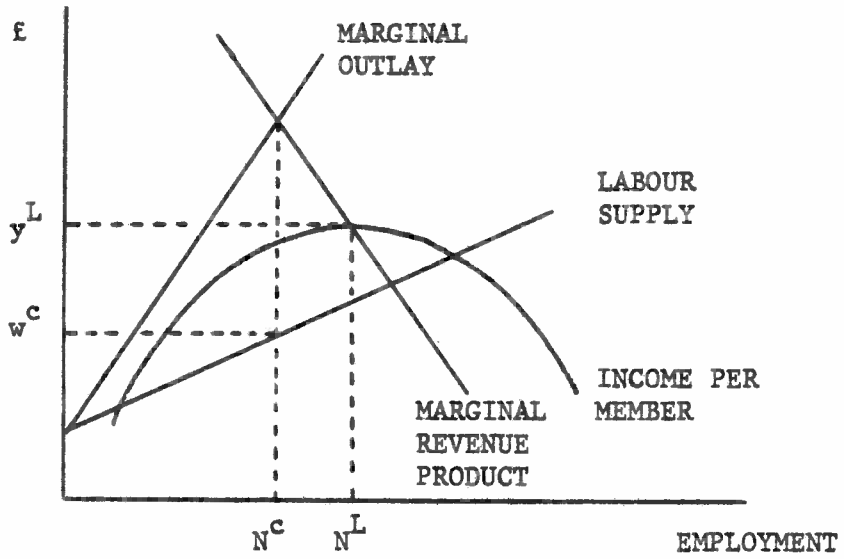
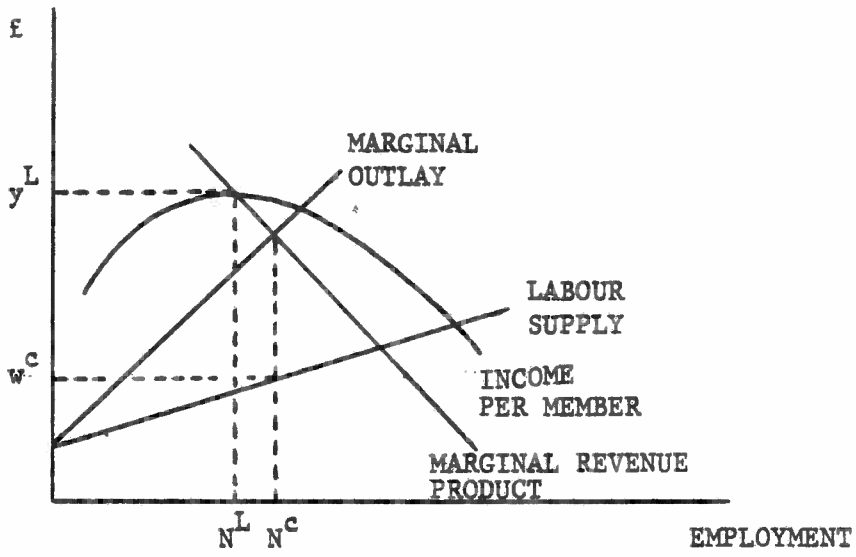

£
MARGINAL OUTLAY
LABOUR SUPPLY
y^L
w^c
INCOME PER MEMBER
MARGINAL REVENUE PRODUCT
N^c
N^L
EMPLOYMENT

FIGURE 2b


£
y^L
w^c
MARGINAL
OUTLAY
LABOUR
SUPPLY
INCOME
PER MEMBER
MARGINAL REVENUE
PRODUCT
N^L
N^c
EMPLOYMENT

are higher in the LMF.

In this section two results have been obtained. Firstly, if, as a result of monopsony power, a CF is able to earn positive profits then income per worker in a LMF will exceed the wage paid in the CF.[4/] As noted earlier, the same would be true if the source of profit was product market power. Secondly, the equilibrium employment level in the LMF could be greater or less than that in the CF. This contrasts to the product market monopoly case where a profitable CF will employ more than a LMF. This result can be translated into a comparison of monopoly or monopsony welfare losses. Thus whereas Ireland and Law (1982, pp. 109-111) show that the deadweight welfare loss will be greater with a LMF monopoly than with a CF monopoly, it is clear from the above that the reverse may be true in the monopsony case.

As we shall see in the remainder of the paper, a number of criticisms can be made of comparisons involving an Illyrian LMF and an identical CF. Probably the most important is that they ignore the possibility that the two enterprise types may differ in productive efficiency. However our analysis has shown that if we are interested in welfare then account must be taken of the nature of the markets in which firms operate.[5/] From the point of view of policy LMF's may for example be preferred on welfare grounds even if it turned out that they were less efficient.

3. MEMBERSHIP ADJUSTMENT IN THE SHORT-RUN

The Illyrian model assumes that membership will be fully adjusted in the short-run to its income per member maximising level.

A major line of criticism of the model has been to argue that membership is not fully flexible downwards. In this section we shall briefly outline the argument as it currently stands[6/] and then show that the introduction of an upward-sloping labour supply function has some interesting implications.

A well-known prediction of the Illyrian model is that a LMF will contract membership following an increase in the price of its product. A number of authors have pointed out that what is being maximised here is the incomes of those that remain, with no account taken of the fate of those dismissed. Ward (1967, p.186) suggests that a reduction of up to 50% could be achieved by a democratic vote, but Steinherr and Thisse (1979) argue that this cannot be the case unless those who are dismissed are identified prior to the vote. Such identification implies a predetermined rule and unequal treatment of some members as against others. It may therefore be considered as contrary to the spirit of LMF's. Steinherr and Thisse suggest that for a membership reduction to be fair to all members one of two procedures must be followed. Either those who leave must be fully compensated by those who remain such that any member is indifferent between staying and leaving, or the process of selection must be random with everyone having the same chance of being selected.

Consider first a compensation scheme whereby, after compensation is paid, both stayers and leavers receive the same income, V, where:

$$V = \begin{cases} \dfrac{P_1Q-F}{N} - \dfrac{(N_O-N)}{N}(V-A), & N < N_O \qquad (6) \\ \dfrac{P_1Q-F}{N}, & N \geq N_O \qquad (7) \end{cases}$$

and P_1 is the given product price

N_O is the initial membership

A is the income available to workers who leave the LMF

In the analysis of a product price increase from P_O to P_1, N_O is the membership which maximised income per worker at the lower price, P_O, and A is taken to be equal to that maximum income level. It can then be shown that V is maximised by remaining at the membership level N_O [7/]. The second possibility was to require that each member has the same chance of being selected for dismissal. Assume that individuals aim to maximise expected income, Z. They will then vote for a membership level, N, which maximises

$$Z = \begin{cases} \dfrac{P_1Q-F}{N} \cdot \dfrac{N}{N_O} + A \cdot \dfrac{N_O-N}{N_O}, & N < N_O \qquad (8) \\ \dfrac{P_1Q-F}{N}, & N \geq N_O \qquad (9) \end{cases}$$

Since (8) can be rearranged to produce (6) this yields the same N as the compensation scheme.

Let us now introduce an upward sloping labour supply curve into the analysis. The labour supply function, g(N) shows the minimum income at which the various workers in the labour market would be willing to work for the LMF, with each point on the schedule referring to a specific individual. It is therefore determined by the alternative opportunities available outside the LMF. Thus instead of everyone facing an identical income, A, outside the LMF, each

individual has a different alternative income, given by $g(N)$. This, as we shall now see, has interesting consequences for both compensation and random selection schemes.

In Figure 3 suppose that the LMF happened to be at point "b" with N_0 workers each earning y_0. In the long-run the firm would move to the Illyrian equilibrium as membership falls via natural wastage. But what happens in the short-run?

Consider first the compensation model. If a competitive labour market, offering an alternative income level y_0, existed then maximisation of (6) with respect to N would yield the first order condition

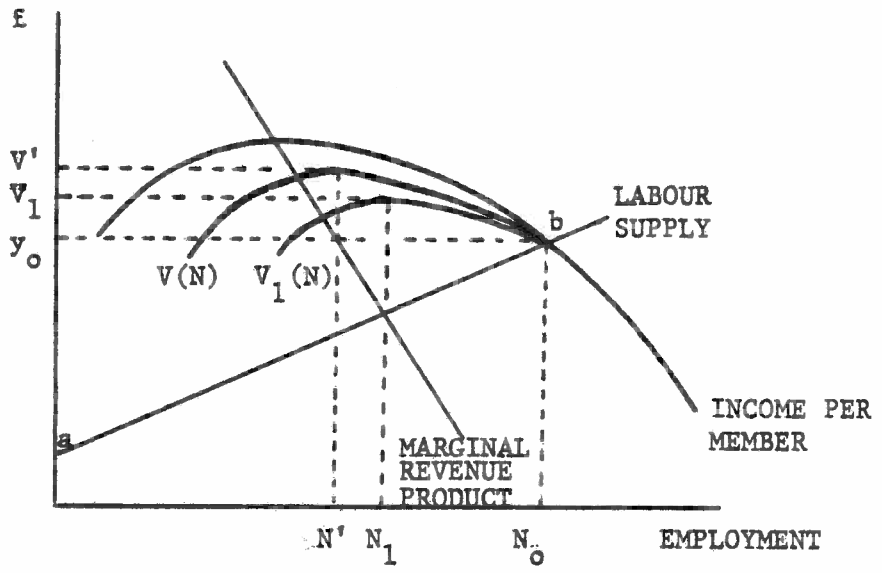
$$y_0 = R_N \qquad (10)$$

and hence the LMF would reduce membership to N', with both stayers and leavers receiving V'. Let us now replace the competitive labour market assumption with monopsony. The initial N_0 members are those individuals who make up the segment $a \rightarrow b$ of the labour supply schedule.[8/] Thus only the marginal LMF member could earn y_0 outside, the others would receive less.

As each member would receive a different outside income the compensation paid would also need to vary across individuals if the post-compensation earnings were to be equated. If such a scheme were possible then membership would be reduced up to the point where

$$g(N) = R_N \qquad (11)$$

FIGURE 3


£
V'
V_1
y_o
V(N)
V_1(N)
LABOUR SUPPLY
b
a
INCOME PER MEMBER
MARGINAL REVENUE PRODUCT
N'
N_1
N_o
EMPLOYMENT

This is because the initial N_o members will, as a group, gain by a membership reduction if the income that could be earned outside by the marginal worker, $g(N)$, exceeds his or her contribution to the revenue of the LMF, R_N.

We have argued therefore that firm at position "b", a movement up the y-schedule is only possible in the long-run when membership can be reduced by natural wastage. In the short-run, account needs to be taken of the fate of those members who leave and hence only the schedule, $V_1(N)$, which is below $y(N)$ is available. This schedule has its maximum at the membership level such that (11) is satisfied. As would be expected both the size of the membership reduction (N_o-N_1) and the incomes received (V_1) are less than in the competitive labour market case.

It may not however be possible to discriminate among workers in the payment of compensation. Suppose instead that the LMF offered a single level of compensation and each worker decided whether or not to leave.

Let C represent the amount of compensation. Then the marginal leaver receives $g(N) + C$ after compensation. Define V_2 to be the income per remaining member after compensation has been paid. That is,

$$V_2 = y(N) - C.\left(\frac{N_o-N}{N}\right) \qquad (12)$$

Since this must equal the income of the marginal leaver we have

$$V_2 = y(N) - C.\left(\frac{N_O - N}{N}\right) = g(N) + C \qquad (13)$$

$$\text{so,} \qquad V_2 = y(N)\,\frac{N}{N_O} + \left(\frac{N_O - N}{N_O}\right).\, g(N) \qquad (14)$$

Maximisation with respect to N yields the first-order condition

$$g(N) - (N_O - N).g'(N) = R_N \qquad (15)$$

Comparison of (15) with (11) reveals that the membership reduction will be lower in the single compensation level case than where individual compensation is possible. Intuitively this is because in the former case all of the leavers, apart from the marginal one, are being over-compensated in the sense that they receive more than is required to make them leave. Thus it costs the remaining LMF members more in compensation for any given membership reduction.

In the second scheme suggested by Steinherr and Thisse no compensation is paid but members vote on the size of LMF in the knowledge that they have an equal chance of being selected in any dismissals. In the competitive labour market case discussed above all workers would achieve the same income level outside the firm and hence everyone votes identically. With monopsony, however, they vote differently. As before we assume individuals aim to maximise expected income. For an individual i this is given by:

$$Z_i = \begin{cases} \dfrac{P_1 Q - F}{N} \cdot \dfrac{N}{N_O} + A_i \dfrac{N_O - N}{N_O}, & N < N_O \qquad (16) \\[2ex] \dfrac{P_1 Q - F}{N}, & N \geq N_O \qquad (17) \end{cases}$$

where A_i denotes the income available outside the LMF for individual i. Maximisation with respect to N gives the first-order condition:

$$A_i = R_N \qquad (18)$$

Thus individuals with different alternative incomes, A_i, will vote for different optimum membership levels of the LMF. The pattern of voting is thus dependent on the shape of the labour supply schedule. If decisions are taken by a majority vote then the outcome depends on the membership level desired by the median voter. For example, in the case of a linear supply curve the membership level chosen will be that at which R_N is equated to the mean value of the A_i's. Clearly the membership reduction, if any, will be less than in the competitive labour market. There are also two further points of interest. Firstly, suppose that a majority vote had reduced the LMF membership from N_0 to $\hat{N}$. It is possible that a further vote taken after the dismissals would lead to another reduction. This could happen if, by chance, it was predominantly people with low values of A_i who were selected for dismissal. Of course, in a fully rational model, individuals would take this into account in their initial vote. Secondly, a random selection scheme with majority voting is no longer an obviously fair one. This is because the cost of dismissal varies across individuals and it will be those with the lowest cost (highest A_i) who vote for the largest reduction in membership. Perhaps a more just scheme would be to receive unanimous approval for any membership reduction. In this case it would be the preference of the person with the lowest outside income which would count. Alternatively it might be argued that, on grounds of fairness, a compensation system would be preferred in a situation of monopsony.[9/]

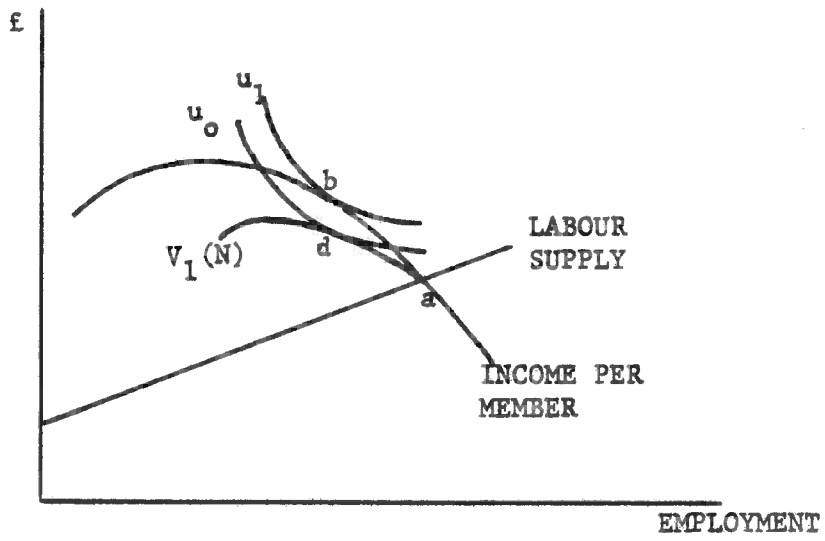
4. EMPLOYMENT OBJECTIVES

In the previous section we saw that, given an upward sloping labour supply curve, the short run employment equilibrium of a LMF will depend, among other things, upon the rules concerning membership reductions. However, each of the various compensation and voting models had a common characteristic which is that the concern is solely with the income levels of the initial membership. In the long run, when employment can fall through natural wastage, the LMF would in all cases move to the Illyrian equilibrium.

An alternative to the Illyrian model has been suggested by Law (1977). Law's aim was to link the theory of the LMF to Fellner's (1947) union-management model. Fellner had assumed an indifference curve map in wage-employment space summarising the preferences of the union among different wage-employment combinations. Law points out that where the union enjoys maximum bargaining power then the union <u>is</u> the firm and hence the situation is formally equivalent to a LMF with preferences $u = u(y,N)$. Thus in Figure 4 the LMF's equilibrium is given by the tangency between the y-schedule and an indifference curve.

Law suggests that one reason for including N in the utility function would be if the LMF takes some social responsibility for expanding employment opportunities. It is not intended here to discuss in detail the circumstances in which this might occur. However it might be argued that a sense of social responsibility will be most likely in a small, close-knit community, which is also a situation

FIGURE 4



in which monopsony power in the labour market may be present. It is interesting therefore that Wiles (1977, p.74) argues, in relation to Yugoslavia, that the traditional Illyrian analysis breaks down in country places where a neighbourhood only has one factory because the existing labour force is now more interested in getting jobs for its family than in increasing its own income.

Inspection of Figure 4 might suggest that the introduction of monopsony has no effect on the Law model since, provided it does not prevent the equilibrium from being attained,[10/] the labour supply schedule does not affect equilibrium income and employment. However, as in the Illyrian analysis it can be argued that this is a long-run equilibrium and that the short-run equilibrium may differ where membership reductions are required to reach the long-run position.

Suppose, in Figure 4, that the LMF was initially at "a". A movement up the y-schedule towards the tangency at "b" is only possible in the long-run through natural wastage. In the short-run, the membership level chosen depends on the rules concerning membership reductions.

Suppose compensation is paid such that both stayers and leavers receive the same income, V_1. Members of the LMF will choose N to maximise $u = u(y,N)$, but income per member, y, is now given by $V_1(N)$. This will equal $y(N)$ to the right of "a" but be below it to the left. The outcome will therefore be that the firm stays at "a" or, as in this case, a tangency such as point "d". A similar analysis could be applied to the case where a single compensation level is paid. The relevant schedule is then $V_2(N)$ given by

equation (14). Finally, if no compensation is paid and individuals are selected for dismissal at random, then each individual i has an expected income schedule $Z_i(N)$ given by equations (16) and (17). If individuals simply used $Z_i(N)$ as the appropriate income variable when voting for the membership level which maximises the above utility function, then each individual will vote either to remain at "a" or to move leftwards to a tangency between their own $Z_i(N)$ schedule and an indifference curve. In a simple majority voting procedure the outcome would be determined by the median voter.

In this section we have therefore argued that the model suggested by Law (1977) should be viewed as a long-run model when membership can be adjusted by natural wastage, and that in the short-run membership reductions will depend both on the procedure adopted and the shape of the labour supply schedule.

5. CONCLUSIONS

The most important results in this paper concern the implications of monopsony power in the labour market for comparisons between an Illyrian LMF and a profit-maximising CF operating in the same markets with the same technology. It was demonstrated that, under conditions in which the CF earns positive profits, income per worker in the LMF will exceed the wage rate paid in a CF. The same result obtains if the firms operate in a perfectly competitive labour market but have monopoly power in the product market. However, whereas in the latter case the CF employs more workers than the LMF we have shown that with monopsony power the LMF might employ more. Imperfections in the labour market, in the form of monopsony power, therefore

have important consequences for the welfare levels associated with the two types of enterprise.

The paper also showed that the existence of an upward-sloping labour supply schedule has some interesting implications for models which deal with membership contractions in LMF's. In particular, it became more difficult to specify decision rules which were obviously "fair", and the extent of any reductions were less than if the labour market was perfectly competitive.

One limitation of the analysis is that no account has been taken of the possible effects of entry or potential entry into the labour market. Entry into product markets has been the subject of a considerable amount of research in the CF literature and has also received some attention in the LMF literature. In contrast, however, issues concerning entry into labour markets have been almost entirely neglected in both literatures[11/] and hence remain an important area for further work.

A further limitation of the comparisons between LMF and CF is the assumption of identical production functions. However, it is not the intention here to enter the debate over the relative efficiciency of LMF's and CF's. Rather, we have shown that, whatever efficiency differences there might be, any comparative analysis of the two modes of production must take account of the degree of competition in the labour market.

FOOTNOTES:

1/ Domar (1966) has emphasised the importance of upward-sloping labour supply schedules in relation to Soviet collectives. His analysis was restricted to consideration of the implications for the comparative static responses of an Illyrian LMF.

2/ See Ireland and Law (1982) for a comprehensive survey of the existing literature.

3/ See Addison and Siebert (1979).

4/ The monopsony model may also give rise to predictions about the distribution of incomes between workers within the firm. Consider two groups of workers with the same productivity but different labour supply schedules. If the CF can easily distinguish between them (for example, men and women) the profit maximisation dictates that they will receive different wages. A LMF on the other hand pays all workers the same amount.

5/ Particularly if the concern is with distribution as well as deadweight welfare loss.

6/ This is taken from Ireland and Law (1982, pp.17-22).

7/ Ireland and Law (1982, p.22).

8/ This is because, for simplicity, $g(N)$ has been drawn so that it passes exactly through the initial position. If $g(N)$ had been further to the right then the supply of labour at Y_O would exceed N_O and thus it would not be known which of them was in the LMF.

9/ As well as considering how various parameter changes would affect a LMF the above analysis could also be used to examine the effect of a CF being taken over by the workers. Consider, for example, the situation in Figure 2b. The Illyrian model would predict a reduction in employment from N^C to N^L following the takeover but it can be shown that with any of the above schemes the employment level would remain at N^C in the short-run.

10/ The notion that an indifference map in (y,N) space exists but that the attainment of a tangency position is prevented by a labour-supply constraint seems inconsistent if the indecision of N in the utility function is justified on the basis of social objectives. However an equilibrium at the intersection of the $g(N)$ and $y(N)$ may be interpreted as representing a high degree of altruism towards those outside the firm since such an equilibrium arises if any person who wishes to join the LMF is allowed to do so. Such a model has been suggested by Pauly and Redisch (1973) in the context of U.S. non-profit hospitals.

11/ In relation to CF's, Williamson (1968) has argued that, in the presence of trade-unions, wage rates might be used to deter entry.

References

ADDISON, J.T. AND SIEBERT, W.J. (1979) "The Market for Labor: An Analytical Treatment." Goodyear, Santa Monica.

DOMAR, E.D. (1966) "The Soviet Collective Form as a Producer Cooperative" American Economic Review, 44, 734-757.

FELLNER, W. (1947) "Prices and Wages under Bilateral Monopoly" Quarterly Journal of Economics, 61, 503-532.

IRELAND, N.J. AND LAW, P.J. (1982) "Economics of Labour-Managed Enterprises" Croon Helm, London.

LAW, P.J. (1977) "The Illyrian Firm and Fellner's Union-Management Model" Journal of Economic Studies, 4, 29-37.

PAULY, M. AND REDISCH, M. (1973) "The Not-for-Profit Hospital as a Physicians' Cooperative", American Economic Review, 63, 87-99.

SAMUELSON, P.A. (1970) "Economics", McGraw-Hill, New York.

STEINHERR, A. AND THISSE, J-F (1979) "Is there a Negatively-Sloped Supply Curve in the Labour-Managed Firm?" Economic Analysis and Workers' Management, 12, 23-33.

WARD, B. (1967) "The Socialist Economy: a Study of Organisational Alternatives", Random House, New York.

WILES, P.J. (1977), "Economic Institutions Compared", Basil Blackwell, Oxford.

WILLIAMSON, O.E. (1968), "Wage Rates as a Barrier to Entry: The Pennington Case in Perspective" Quarterly Journal of Economics, 82, 85-116.