

# The Social Costs of Union Gains

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*Unions have obtained higher wages for their members. The cost to society of these higher wages are caused by (1) A misallocation of labor – too little employment at unionized work and too much elsewhere (2) Rent Dissipation – the cost of competition for union jobs and of efforts to create and destroy unions (3) Rigidity – Union rules cause an increase in the rigidity of work practice and of wages. A low bound estimate of the social cost of unionism allowing only for the first two categories finds unions had a social cost of \$ 58.5 Billion in the U.S. in 1979.*

## I. Introduction

Since the publication of the classic paper "Monopoly and Resource Allocation", [Harberger (1955)], many estimates of the social loss deriving from monopoly in product markets have been made. Fewer attempts have been made to estimate the costs imposed on the U S economy by the monopoly practices of trade unions [Rees (1963), Johnson and Mieszkowski (1970) and Dievert (1974a, 1974b)]. This paper corrects some of this imbalance. Even if a narrow definition of unions is made, a low bound estimate of the social costs of unionism of 2.75 % of the Gross National Products is measured for the United States.

The sources of the social costs of unionism can be usefully placed in three categories: (1) the distortions imposed by the lowered employment of union labor, (2) the expenses incurred in efforts to form, maintain and obtain entry into unions as well as the costs incurred in efforts to obstruct, destroy, harrass or otherwise hinder the efforts of trade unions to maintain wages above those that would exist in the absence of union monopoly, (3) the barriers to progress and to the efficient use of resources which are inevitably entailed by union work rules.<sup>1</sup>

The first two of these costs can be located on the diagram, which is similar to that used by Harberger in 1955. The triangle CEF in the diagram represents the net social loss to the economy because workers are employed elsewhere whose marginal social product would be higher in the unionized employment than in other employments. It represents the difference between: (1) a factor demand curve which reflects the marginal

value product of labor in unionized employment, and (2) a supply curve of labor to the unionized industry, which, in the absence of the union, would reflect the alternative product of that labor outside the unionized industry. An estimate of these costs is presented in Section II.

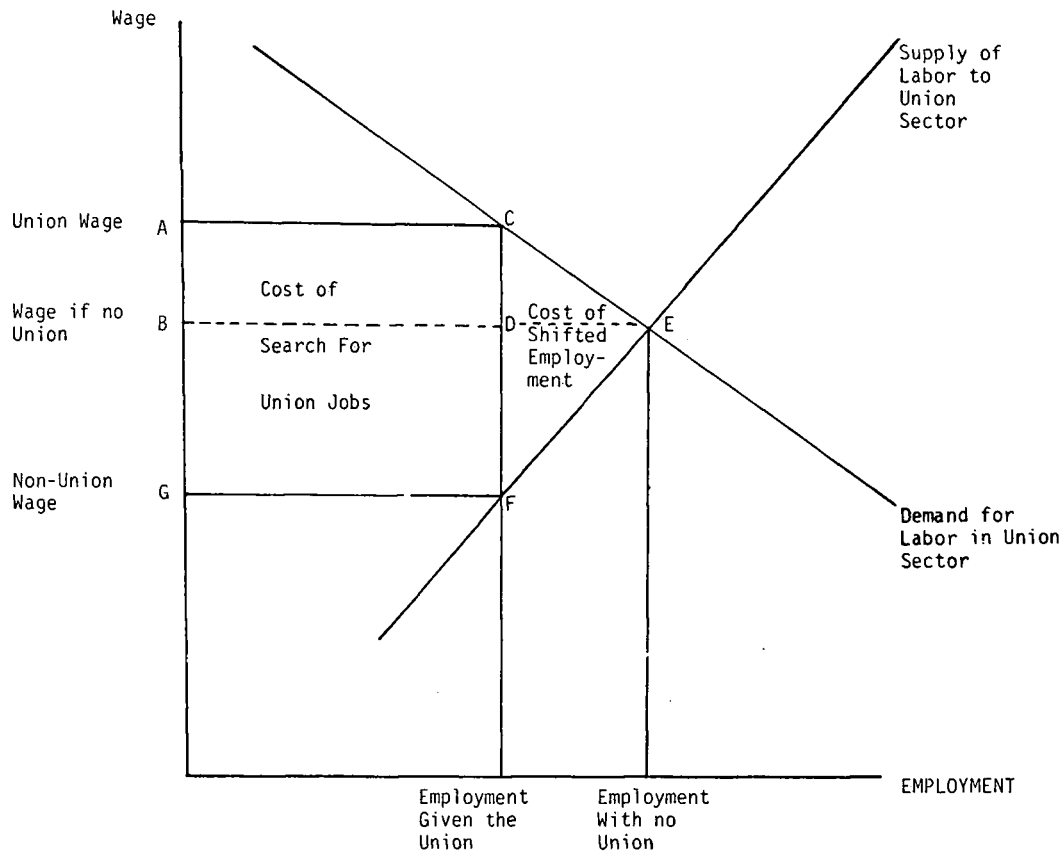
The rectangle ACFG represents the gross gain from membership in their union to those who remain employed in the unionized industry. I will estimate these gains in Section III of this paper. To the extent that property rights in union jobs are ill-defined, the competition of workers to become union members will use resources at least as large as these gross gains. If property rights in union jobs are well defined, these resources will be used in struggles to organize and maintain unions.

The losses imposed by reduced flexibility of management in the unionized sector are more difficult to reckon. These losses, together with those which come about because of the reduced flexibility of nominal wages in unionized industries and the consequent greater fluctuation in real output as aggregate demand changes unexpectedly, are discussed in Section IV.

## II. Derangement of the Stock – The Magnitude Involved

As economists have known for the last two hundred years – and as they have come to measure over the last twenty years – monopolies of any form will lower gross output for:

"Every derangement of the natural distribution of stock is necessarily hurtful to the society in which it takes place; whether it be by repelling from a particular trade the stock which would otherwise go to it, or by attracting



DIAGRAM

THE SOCIAL COST OF UNIONISM

toward a particular trade that which would otherwise not come to it." [Smith (1937, p 597)]

To the extent that unions raise wages without raising the productivity of a given work force, employment decreases in the unionized sector and increases elsewhere. This will cause the stock of labor to be deranged from its most profitable employment.

The questions are how much are wages raised by unions and how large is the resulting alteration in employment patterns. These are not new questions. A standard source in addressing these issues remains Lewis (1963) which summarized all the previous estimates (many of which were the products of the doctoral dissertations of his students)

and provided much new of his own. The weight of Lewis' scholarship was one of the forces which have persuaded others to avoid this area. The attraction of newer labor economic questions has been more important in part because:

"... unionism in its present form has been quite secure since the early 1950's; its existence is not a serious matter of public policy as it was prior to that time. Hence, there is little call (i.e., no funding) for a judgment on the question of whether unionism is a good or bad thing." [Johnson (1975, p 23)]

The distortion caused by decreased employment of labor in unionized industry is measured by the triangle CEF in the Diagram. This welfare effect will tend to be small because misuse of resources has much smaller effects on output than not using

them at all. The welfare consequences of the alteration in the employment of labor which occur as a consequence of union activity are larger the more uneven the union effect. The welfare effects of wage changes increase exactly as the square of the proportional wage effect if the employment effect of unions rises linearly with the wage effect.

Lewis's results which are close to those of the latest studies show:<sup>2</sup> [Lewis (1963, p 9)]:

- 1) Unions with relative wage rises of 25 % which comprise about one-fifth of all union members or 5 % of the US labor force. These unions are largely "referral unions" in that the union refers new employees to the employer.
- 2) Unions which have achieved wage rises of 10 % which constitute one-half of all union members or about 12 1/2 % of the labor force.
- 3) Unions which have left wages where they would have been in the absence of unionism which comprise 30 % of all union members or about 7 1/2 % of the labor force.
- 4) Non-union employment where wages have fallen 4 %.

In order to estimate the effect of these wage rises on employment in unionized industries, it is necessary to supply an estimate of the elasticity of demand for union labor. I will use a long-run demand elasticity for labor of -1 which is an absolute minimum for the long-run demand for labor for a wealth maximizing union. A complete estimation of the losses also demands an estimate of the elasticity of supply of labor to the union sector. A supply elasticity estimate which is consistent with Lewis' estimates of the wage effects of unionism on non-union wages would be + 4.

To the extent that a union is able to solve its internal problems of decision-making it will behave so as to maximize the wealth of its owners who in most cases are largely its members. A wealth maximizing union would in a static world set wages where the marginal revenue from additional sales of labor equals the marginal cost of that labor. In general, the marginal cost of the labor will be equal to or above the non-union wage. It will be higher than the non-union wage to the extent that the union employs monopsony power against potential members. It will be equal to the non-union wage if it does not employ such monopsony power. A simple monopoly union will set a wage such that:

$$\text{Wage}_{\text{Union}} = \frac{\text{Wage}_{\text{Non-Union}}}{\left(1 + \frac{1}{\epsilon_{\text{Long-run}}}\right)}$$

To the extent that unions are maximizing the continuous flow of future monopoly profits the estimates of union effect on wage costs imply long-run elasticities of demand for union labor of -5 for unions which raise wages by 25 % and -11 for unions which raise wages by 10 %. It should be remembered that these estimates are estimates at current wages of the long-run elasticity of demand for *union* labor. They are *not* estimates of the elasticity of demand for labor. One of the most important possibilities of substitution in the long-run comes through employment of non-union labor. The estimate of the elasticity of demand for labor at -1 is a low estimate of the true elasticity and the estimated cost of the lowered employment is also a low estimate.

This wealth maximizing model should be distinguished sharply from a temporary profit or union rent maximizing model. The wealth maximizing model assumes that the unions' decision makers take account of the long-run effects of short-run gains.<sup>3</sup> To this extent it circumvents the curious limit pricing constructions of Bain (1949) and Modigliani (1958). This sort of model is becoming common in discussions of product monopoly [for example, Stiglitz (1976)].

The model of the maximizing union has been explicitly rejected by the leading authorities in the economic study of unions. The basis for this rejection has been institutional and not systematic examination of evidence. To the extent that they reject the wealth maximizing model as well, they are explicitly or implicitly assuming that the cost of coordinating unions is high enough that important wealth opportunities which could be obtained by wealth maximizing behavior are ignored. The models of utility maximization with both employment and wages as goods that have been substituted by Atherton (1973) and Rees (1977) are generally freer of refutable implications than is a wealth maximizing model.<sup>4</sup>

Dunlop (1944) argued for wage bill maximization - that is, profit maximization without reference to the fact that union labor has an alternative cost. Simons (1948) predicted that unions would set wages just high enough to let all existing members find work but will completely shut out others. The Dunlop model implies that some unions will lower wages - which has not been observed. Si-

mons' model predicts that no new members will be recruited – but most unions recruit new members.<sup>5</sup>

One implication that can be drawn from a wealth maximizing model of the union is that any interference with the future benefits present workers can derive by letting additional workers into the unions will cause wages to rise and the unions share of its market to start shrinking. If this implication is true, the wealth maximizing model of union behavior has passed a test and can be used with more confidence.

One such event was the removal in the 1960s and early 1970s from referral unions – principally in the building trades – of much of their power to select new members from among the sons and other relatives of the existing members. This power was seized by the courts because property rights in jobs was being inherited in a racially biased manner. If intergenerational transfers are operative, union members would tend to treat the future earnings of new members (that is, their children) as if they would earn them themselves. For if parents are giving funds to children, a dollar to the child must on the margin be as valuable to the parent as a dollar to the parent.<sup>6</sup>

The upshot of this change in property rights was a surge in the wages of workers in the building trades. The building trades raised wages above the wealth maximizing point toward a current profit maximizing wage. From 1968–1971 the average wages of union journeymen building trade workers rose 34.1 % while wages in durable goods manufacturing rose 18.8 %. Soon thereafter the market share of union construction firms started dropping.

Union officials in the building trades consistently opposed the wage surge. In fact, they ultimately obtained the assistance of the United States government in suppressing their members by obtaining government regulation of building union wages. To the extent that the property rights of union officials were not under attack, union officials had no incentives to shift to a more present-oriented view of when the union should extract its rents. The bulk of union activity vis-a-vis the rest of society can be explained as an attempt to maximize the wealth of the members.<sup>7</sup> It is unlikely that the proportion of union generated wealth by union officials is lower than the proportion owned by corporate officials. The discount on "Closed End Funds" and the premia on takeovers are evidence that a non-trivial proportion of corporate wealth is owned by management.<sup>8</sup>

Most of the losses from too low employment in the union sector are in craft unions where the wage premia are largest. The Teamsters have also succeeded in raising wages of long haul truck drivers by 30–40 % [Moore (1978)]. The only industrial union which has been reported to have raised wages by any large fraction is the United Mine Workers. Most of these referral unions – as Ashenfelter refers to them – have probably succeeded in raising wages by 25 % over non-union wages or by about 20 % over the level they would have reached if there had been no union. I assume that the average craft unions have raised wages by 20 % and that the elasticity of demand in these unions is  $-1$  – then they will have lowered employment by 20 % as well. The resultant loss in welfare would be about 2 % of the wage bill in these industries.

Assuming a linear demand curve for labor, the cost of reduced employment in referral unions, which corresponds to the triangle labeled CED in the Diagram, is:

Cost of Reduced Employment  
in Referral Unions is:

$$\begin{aligned} &\approx \frac{1}{2} \times 20\% \times 20\% \times \text{Wage Bill} \\ &= 2\% \text{ Wage Bill in referral unions.} \end{aligned}$$

The wage bill in referral unions is a little more than their total share in employment–wages in craft unions are higher than the average in the labor force. Since total wages are about 20 % of GNP, the total wage bill in craft unions is about 3.5 % of GNP so the total costs of reduced employment in referral unions are about .07 % of GNP.

The losses in the industrial sector are smaller since the rise in industrial union wages is about 6 %. Using the same procedure the losses due to too small employment in industrial unions would be .18 % of the total wage bill in these industries or .015 % of GNP.

The loss due to excess employment in the non-union sector which corresponds to the bottom part of the triangle CEF is about .04 % of GNP. Since wages in the non-union sector are reduced about 4 %, loss due to excess employment is about .08 % of the non-union wage bill but this comes to .04 % of GNP as non-union wages are about one-half of total GNP.

So the total loss due to reduced employment in the unionized sector and increased employment

in the non-unionized sector in the US is about .165 % of GNP of about \$ 3.5 billion in 1979. The large losses are not the consequence of displacement of resources. Misusing resources is less costly than wasting them.

### III. Costs of Competition for Union Wages

Union wages are on the average 10 % higher than non-union wages to others of similar skills. If no well defined property rights existed in job openings in unions, and if these jobs were distributed at random to the first suitable unemployed applicant, then it would pay young workers to spend, on the average, one year or more searching for new union jobs. The process of search must in any case have present value costs as large as the present value of the benefits.

The rate of return to investment in other forms of human capital is less than 10 %. Foregone wages from one year's search as a young person will be less than the average of that person's average lifetime yearly earnings. A year's search as a young person that ended in a new job with 10 % higher earnings would therefore yield a higher rate of return than other forms of human capital investment. This excess search would then appear as a rise in unemployment. This excess search would, on the margin, dissipate the entire excess wages and new union members would derive no benefits from the existence of the union. [See Harberger (1971) and Eaton and Neher (1975).]

Each union member would have a "de facto" property right in a job, which once he had attained it, would be valuable to him. On the other hand, once the initial generation of union members had died or retired, one might observe no individuals whose discounted value of lifetime earning was higher because of the existence of unions. In fact, the lifetime earnings of each individual would be lower because lifetime earnings in the non-union sector would be decreased by the competition of the additional labor displaced by the union sector and the discounted value of unionized workers' wages would be equal to the discounted value of non-unionized workers' wages.

This dissipation might appear, however, in the form of a rise in the average quality of hourly employed workers. This is particularly likely if, as in many industrial unions, the employer has complete control of hiring. There is some evidence that such a rise in average quality of membership has taken place. In a number of measurable ways – most particularly education – union members

tend to exceed similarly occupied non-union employees. The excess of union wages over those available elsewhere tends to reduce voluntary quits and tends to increase the average experience level of workers. Either force would lead to an increase in the quality of labor and would lead to an increase in the demand function for labor.

Any union has a strong incentive to eliminate the dissipations by specifying who is to enter the union. In large part this is the reason why unions with large wage effects specify who is to enter the union. It is the reason why unions with strong wage effect become "referral" unions. The union either arranges for that property to be sold to new members or provides procedures whereby present members can will their spots to their heirs. Cash sales of union memberships at prices which anywhere near reflect the present value of the excess wages are unusual (such prices in the United States today would be in the tens of thousands of dollars for a referral union membership). Sales of memberships on credit would be reflected in a steeper pattern of wage rise in union than in non-union jobs. The opposite seems to be observed – the rise in wage with experience seems to be less on union jobs.

Some possible explanations of this apparent contradiction are: (1) seniority: new workers pay for their jobs by taking less frequent work. Comparisons of the earnings of union members would find a much steeper rise with experience. (2) A selection effect is operating. The older and hardest working employees are promoted to supervisory positions or into the union leadership and leave the union membership. (3) The higher compensation to the more senior members takes the form of fringe benefits in union employment more frequently than elsewhere.

The most frequent way of allocating new jobs in referral unions is by inheritance. This procedure has the defect of usufruct property in that the only way for one's children to collect this inheritance is by continuing in the parental occupation. To the extent that fathers and children have different comparative advantages, this procedure will be costly. But this would be limited since parents would raise their children to follow in their footsteps.

Another form of competition that reduces union wage gains is the "speed up" or other employer techniques for lowering costs or increasing output at the expense of the on-the-job amenities of employees. Unionized employers can "get away"

with this in the market even in the long run to the extent that union wages exceed non-union wages. The non-unionized employer faces a rather flat supply curve and a reduction in on-the-job amenities would in the long run cost him in terms of extra pay. The non-union employer will choose the package of on-the-job amenities that his employees are just willing to pay for on the margin.<sup>9</sup>

But even the most perfect mechanism for specifying ownership of the union will not eliminate competition for union wages as a source of social cost. Union positions can be obtained by forming unions.

This temptation is not unknown to unionized workers or to their bargainers. As a result union contracts are complex documents which often specify in great detail the working conditions of the employees. There is evidence indicating that, nonetheless, the working conditions of unionized workers are worse than those of non-unionized workers. Unionized workers report themselves considerably less satisfied with the non-wage conditions of their employment than do non-unionized workers. [See Borjas (1979).] Even if the negotiations succeeded in specifying conditions in enough detail to prevent on balance any reduction in amenities, the cost of the greater inflexibility imparted to the organization may be significant. (See Section IV below.)

To some extent this area, ACFG in the Diagram, may be an underestimate. To the extent that identifiable groups lose, they will have an incentive to spend resources to resist union organizations. In the short run employers of union labor are the main losers. In the longer run the bulk of the losses will be borne by those workers whose wages fall, when unions gain. The total gains to union members and officers from the existence of unions is likely to be smaller than the return that could have been obtained if the same effort had been used for productive purposes.

Considering all those industries subject to being unionized the area of potential union gains can be regarded as property whose ownership is not clearly set out. If there are many potential claimants, and costs of negotiating among them are high, the entire sum subject to dispute will be exhausted in the expenditures of the potential unionist, their employers and their employers' customers.

The initial formation of a union is not normally costless. Organizers, workers and others must devote human and material capital to this purpose. Also, employers will direct some of their efforts

to prevent the formation of unions. The net result is that the costs incurred in forming and preventing the formation of unions may be much larger than the capitalized value of the total gains to successful unionists. In the limit, the cost will be equal to the entire amount which would be gained by the formation of unions, including the amount which could be gained by unionists of industries which are not in fact unionized, since if more is spent at least some participants can certainly gain on average by withdrawing from the struggle.

This suggests that not only are continuing losses due to unionism caused by excess leisure and excess employment in other industries, but other losses as well which must be included if a full accounting is to be made of the costs of unionism. These additional losses may occur as unions are formed or may continue as the struggle continues to obtain wages in excess of the competitive rate and to lower union wages. One result of this struggle will be less output than could have been obtained with the inputs used if somehow monopoly unionism could be made to disappear without a struggle.

If the costs of fighting unions are ignored, the amount of resources used in competing for union jobs will be equal in value to the total extra wages collected by unionists. So including both continuing costs and organizing costs:

Cost of Competition  
for Union Jobs is:

$$= \frac{W_{\text{Union}} - W_{\text{Non-Union}}}{W_{\text{Union}}}$$

x Union Wage Bill

Using the Lewis estimate that union wages are made 10 % higher and non-union wages are made 5 % lower, that 25 % of all wages are earned by unionized workers and the wages are about 70 % of GNP

Cost of Competition for Union Jobs is:

$$\approx .15 \times .25 \times .7 \times \text{GNP}$$

$$\approx 2.6\% \text{ of GNP}$$

In 1979, this would be about \$ 55 billion. Then the losses from the expense of obtaining union employment are fifteen times the total losses from

the displacement of union labor to non-union employment.

How do these costs appear? One element is the costs of operating unions and is reflected in union dues.

In the United States in 1976 the total revenues of labor unions were about \$ 5 billion. Another element appears in the costs of strikes and lock-outs. In the U S the total recorded for such strife has never in the last thirty years exceeded 2 % of unionized workers' hours in any given year. More typically it would be 1 % of the available hours of unionized workers. The loss of output is probably about as large as the lost wages. In the U S this would be about \$ 4 billion in a usual year. But work stoppages are not the only cost of union organization nor are dues the only cost of maintenance of the union structure. In fact, our estimate is that together these amount to about 20 % of the union gain of \$ 55 billion.

Most successful unions are dependent on broad volunteer effort at the inception. I know of no attempt to cost such attempts. In my opinion one of the largest costs has been on the purchase both from the general public and from politicians of a broadly tolerant attitude toward this one kind of monopoly and toward the private force used to enforce it. Many who view monopoly with alarm view complete monopolies of the supply of particular types of labor with equanimity. This attitude has been purchased by a century of effort.

#### IV. Unions Efficiency and Inflation

Unions, as we have seen, cause a waste of resources by "deranging the stock" and inducing privately productive, if socially unproductive, struggles over monopoly union wage premiums. But these effects are not the entire story. Unions in general have the effect of formalizing relations at the working place. This formality has several effects. It makes: 1) adjustment to changing circumstances more difficult; 2) workers more confident of management adherence to bargain and more willing to invest in specific human capital; 3) wages less responsive to changes in economic conditions.<sup>10</sup>

A union contract makes jobs into property. It must do this if the rise in wages is to benefit those workers who obtained it. A seniority system for determining who is to be continued at work is necessary if the workers who obtained the union are to gain from the union. The change of jobs into property has much the same effect as rent

control laws which give existing tenants security of tenure. In a world of zero transaction costs, such a change would not affect the use of resources which would still be bid to their most productive uses. [See Coase (1960).] Such complex tenure systems have real costs in a world where transactions are not free. They increase the initial frictional costs of change and thus bias the system toward continuing existing patterns of resource use.

It is notable that those American industries which have made the largest technical progress are in general non-union. In the world of data processing, of electronics, many of the most avowedly liberal companies have remained non-union. This freedom is a near necessity for firms when the methods of making and operating their products change radically every five years or so. I believe that these effects are important but they are difficult to quantify, and I cannot make any estimate of their importance.

One detailed examination of the effects of the unionization of British coal mining during the twenty years before World War I [Pencavel (1978, p 145)] estimates that output efficiency, that is holding all inputs constant, fell 22 % when the coal mines were unionized.

Brown and Medoff (1977) have produced an almost exactly contrary estimate of the effect of unions on productivity based on a regression estimate of output in various American industries. They estimate that unionized workers productivity is about 22 % higher than that of non-union workers. When some unexplained industry dummies are omitted this effect vanishes. The Brown-Medoff estimate implies that unions raise wages no more than they raise productivity. If this were true employers would have no reason to resist unions but could be induced to welcome union organization. The Rosen (1969) and Lee (1978) findings that union effects are larger in fully unionized industries than in others fit the union-monopoly explanation of union wage premiums but not the productivity explanation.

Another aspect of the formalization of the work relationship by unionism is seen in the sharp contraction of wage spreads across workers in a given occupation once that occupation is organized. Their contraction is a consequence of the facts that with the higher union wage there is little way to use low wages as penalties to the less productive workers. This contraction of wage differentials must reduce incentives.

In some countries in Europe during the 1950s and 1960s the union wage lost its previous character as a standard wage. The great bulk of workers were paid wages above those contracted for. This situation is a sign that the unions had lost their monopoly powers, though in many cases they retained extensive influence both as political and economic agents.

Unions have some favorable effects on productivity. The very formality and rigidity which they promote at the workplace offers to workers a protection against the petty tyranny of their immediate supervisors. This protection should be useful to the employer as well. Foremen whose primary rewards come from maximizing counted output and minimizing counted inputs in the area they control will have a strong inducement to work their employees harder than higher management would want and to otherwise exploit them. This is a consequence of the fact that the lowered reputation of the factory as a "good place to work" will be borne not only by that foreman but by the plant or firm as a whole. These effects are likely to last beyond the normal tenure of a manager and if they are not directly measured the net contribution of an oppressive manager to the firm will be less than that which he is credited with.

Unions offer a path by which complaints can be processed. In this sense a union can be thought of as an external personnel department. One prediction is that unionized firms will have smaller personnel departments than non-unionized firms. These services, however, can be provided by purely voluntary unions. There are fewer services which it is easier to exclude free riders from than the processing of grievances (Reynolds, 1977). But monopoly unionism benefits all those who are allowed to remain in the workplace. The externality argument for compulsory unionism is an argument for compulsory collection of funds for a product-monopolization which is a private good and a public bad.

## V. Summary

Adding together the more easily measured losses from monopoly unionism, we find that these are about 2.75 % of GNP. This estimate is dependent on the assumption that the directly productive net effects of unionism are small or negative. It is an underestimate of the costs as we have minimized the losses from unionism by using a low estimate of the amount of labor displaced by high-

her union wages. If we had used the higher elasticities of demand for union labor consistent with the wealth maximizing hypothesis of union behavior, the estimate of the loss from displacement of labor would be five or ten times larger. We also excluded from consideration the losses that occur as monopoly unionism is resisted. Nonetheless, these estimates add up to \$ 58.5 billion/year in 1979 which is about half the size of the U.S. Defense budget.

## Footnotes

- \* University of Washington, Seattle. Yoram Barzel, Dan C Heldman, Masanori Hashimoto, John Hause, John Pencavel, Charles Stuart and Spencer Wedlund have contributed to this piece. Seminars at Yale, Princeton, Stanford and the University of Washington have purged errors and added items of interest. The National Right to Work Foundation funded this study. The work was completed while I was at the Hoover Institution.
- 1. The approach in this paper is an extension of Tullock (1967). For a discussion of the historical antecedents of Tullock's arguments see Kochin (1980). Krueger (1974) and Posner (1974) supply estimates of losses due to the competitive pursuit of artificial scarcity rents by product monopolists. Harberger (1971) applies the Tullock approach to labor market distortions in developing countries.
- 2. Since Lewis (1963) a fair amount of effort has been devoted by economists to estimating the wage impact of unions. Weiss (1966) and others who have used ordinary least squares and individual data have generally found higher estimates of the union wage premium than did Lewis. An advantage of micro data was that it could be used to obtain interesting findings, such as—the union differentials are larger for blacks than whites except in construction [Ashenfelter (1973)]; lower for better educated workers [Johnson and Youmans (1971)]; lower for the inexperienced [Neuman (1977)]; which could not have been done in any other way. Ashenfelter and Johnson (1972) argued that unionism would attract workers with long prospective tenures at their jobs since the individual worker would benefit more from a union the longer he expected to work at a job. Such employees would be paid well anyway as a wage premium is a entirely sensible technique for keeping down costly turnover. When they took account of this interdependency the union wage premium diminished. Later studies which use individual data and take account of this interdependency find substantial wage premia. See Schmidt and Strauss (1976) – 10.5 % and Neumann (1977) – 9 %. These are close to the Lewis estimates as Neumann remarks (p 17).



3. Employment is set a quantity at which the unions long run marginal revenue equals the non-union wage if the demand for the services of the monopoly is expanding at the rate of interest. If demand expands at a rate below the discount rate it will pay to "milk" the firm so as to allow the monopoly to vanish. The union wage would lie above the long-run profit maximizing wage.
4. Reynolds (1978) draws a false prediction from Atherton's model that rises in alternative wages should have no effect on union wages and employment. Rent and wealth maximizing models have the prediction that a rise in wage elsewhere should lead to a rise in union wages and a fall in union employment if the demand for union labor has remained constant. The estimates of Mitchell (1978) and others which show a strong effect of other wages on union wages can be interpreted as supporting rent and wealth maximizing models and falsifying Atherton's model.
5. As Rees (1977, pp 49-51) points out, unions have seldom committed suicide in the fashion predicted by Simons (1948). The building trade maintained their market shares in urban construction intact for 50 years until the early 1970s. Unions which have obtained for present members the net gain from admitting new members by nepotism, pensions, seniority, or (rarest of all) direct sale of job right have no incentive to commit suicide.
6. For a discussion of the ways that gifts tie generations see Becker (1974). Some of the unions which were de-segregated attempted to ward off the courts by pointing out that their gifts of membership to their children were no different from other inheritance. These pleas were not accepted even in a case in which some of the sons were black. [Gould (1977, p 289).  
Job seniority is judicially regarded as non-transferable property (*ibid*, p 288).
7. Some other implications of wealth maximizing behavior to Unions can be seen worked out and tested in Powell (1973), an unpublished dissertation on the A.M.A.
8. These discounts are 20 %-30 % at the moment.
9. The estimates of the wage premium to union members are net of the effect of unionism on the composition of the labor force. The increase in the productive attributes of unionized workers involves a loss to the extent that the employment of skills is deranged.
10. Some of these costs are imposed on unionized workers; unionized workers are far more likely to be laid off than are other workers and far less likely to have their wage lowered in a recession. Hashimoto (1975).

## References

- Ashenfelter, O, (1972), "Racial Discrimination and Trade Unionism." *Journal of Political Economy*, Vol 80, pp 435-65.
- Ashenfelter, O and Johnson, G, (1972), "Unionism, Relative Wages and Labor Quality in U S Manufacturing Industries." *International Economic Review*, Vol XII, pp 488-508.
- Atherton, W N, (1973), *Theory of Union Bargaining Goals*. Princeton: Princeton University Press.
- Becker, G, (1974), "A Theory of Social Interactions." *Journal of Political Economy*, Vol 82, pp 1069-93.
- Boskin, M J, (1972), "Unions and Relative Wages." *American Economic Review*, Vol LXII, pp 466-72.
- Borjas, G, (1979), "Job Satisfaction, Wages and Unions." *The Journal of Human Resources*, Vol XIV, pp 21-40.
- Brown, C and Medoff J, (1978), "Trade Unions in the Production Process." *Journal of Political Economy*, Vol 86, pp 355-78.
- Coase, R, (1960), "The Problem of Social Cost." *The Journal of Law and Economics*, Vol III, pp 1-45.
- Diewert, W E, (August 1974), "Unions in a General Equilibrium Model." *The Canadian Journal of Economics*, Vol VII, pp 475-95.
- , (1974), "The Effects of Unionization on Wages and Employment: A General Equilibrium Analysis." *Economic Inquiry*, Vol XIII, pp 319-39.
- Dunlop, J, (1944), *Wage Determination Under Trade Unionism*. New York: Macmillan.
- Eaton, B and Neher, P A, (1975). "Unemployment, Underemployment and Optimal Job Search." *Journal of Political Economy*, Vol 82, pp 355-75.
- Flanagan, R J, (1976), "Wage Interdependence in Unionized Labor Markets." *Brookings Paper on Economic Activity*, 1976:3, pp 635-82.
- Freeman, R B, and Medoff, J L, (1979), "New Estimates of Private Sector Unionism in the United States." *Industrial and Labor Relations Review*, Vol 32, pp 143-75.
- , "What Do Unions Do? A Progress Report." *Mimeo*. Harvard University Department of Economics. (1977)
- Gould, W B, (1977), *Black Workers in White Unions*, Ithaca: Cornell University Press.
- Hall, R E, (1975), "The Rigidity of Wages and the Persistence of Unemployment." *Brookings Papers on Economic Activity*, 1975:2, pp 301-50.
- Harberger, A C, (1955), "Monopoly and Resource Allocation." *American Economic Review*, Vol LV, pp 77-87.
- , (1971), "On Measuring the Social Opportunity Cost of Labor." *International Labor Review*, No 103, pp 559-79.
- Hashimoto, M, (1975), "Wage Reduction, Unemployment and Specific Human Capital." *Economic Inquiry*, Vol XIII, pp 485-504.
- Johnson, G E, (1975), "Economic Analysis of Trade Unionism." *American Economic Review*, Vol LXV, pp 23-28.

- Johnson, H and Mieszkowski, P, (1970), "The Effect of Unionization on the Distribution of Income: A General Equilibrium Approach." *Quarterly Journal of Economics*, Vol 00, pp 539-61.
- Kochin, L A, (1980), "Monopoly Profits and Social Losses." *Research in Law and Economics*, Vol 2, pp 201-12.
- Krueger, A O, (1974), "The Political Economy of the Rent Seeking Society." *American Economic Review*, Vol LXIV, pp 291-303.
- Lee, L F, (1978), "Unionism and Wage Rates: A Simultaneous Equations Model with Qualitative and Limited Dependent Variables." *International Economic Review*, Vol 19, pp 415-31.
- Leontief, W, (1946), "The Pure Theory of the Guaranteed Annual Wage Contract." *Journal of Political Economy*, Vol 54, pp 76-79.
- Lewis, H G, (1963), *Unionism and Relative Wages in the United States*. Chicago: University of Chicago Press.
- Martin, D L, (1978), *An Ownership Theory of the Trade Union*. Mimeo. University of Miami.
- Mitchell, D, (1978), "Union Wage Determination: Policy Implications and Outlook." *Brookings Papers on Economic Activity*, 1978:3, pp 537-82.
- Moore, T G, (1978), "The Beneficiaries of Trucking Regulation." *The Journal of Law and Economics*, Vol XXI, pp 327-43.
- Neumann, G R, (1977), *Union Wage Differentials and the Decision to Join Unions*. Chicago: University of Chicago Press.
- Pencavel, J H, (1977), "The Distributional and Efficiency Effects of Trade Unions in Britain." *British Journal of Industrial Relations*, Vol XV, pp 137-56.
- Perloff, J M, (1976), *The Wage Change Process in the Construction Industry*. Unpublished Ph D Thesis, MIT.
- Posner, R A, (1975), "The Social Cost of Monopoly and Regulation." *Journal of Political Economy*, Vol 83, pp 807-27.
- Powell, J H, (1973), *A Theory of Trade Union Behavior Applied to the Medical Profession*. Ph D Dissertation, University of Washington.
- Rees, A, (1963), "The Effects of Unions on Resource Allocation." *Journal of Law and Economics*, Vol VI, pp 69-78.
- Rees, A, (1977), *The Economics of Trade Unions*. Chicago: University of Chicago Press.
- Reynolds, M O, (1977), "Labor Unions, Cartel Theory, and Free Riders." Mimeo. Texas A&M Univ.
- Reynolds, M O, (1978), "A Cartel Model of Labor Union Behavior." Mimeo. Texas A&M Univ.
- Rosen, S, (1964), "Trade Union Power, Threat Effects and the Extent of Organization." *Review of Economic Studies*, Vol 36, pp 185-96.
- Simons, H, (1948), "Some Reflections on Syndicalism," in *Economic Policy for a Free Society*. Chicago: University of Chicago Press.
- Smith, A, (1937), *The Wealth of Nations*. The Modern Library, New York.
- Stiglitz, J E, (1976), "Monopoly and the Rate of Extraction in Exhaustible Resources." *American Economic Review*, Vol LXVI, pp 655-61.
- Tullock, G, (1967), "The Welfare Cost of Tariff, Monopoly and Theft." *Western Economic Journal*, Vol 4, pp 224-32.
- Warren-Boulton, F R, (1977), "Vertical Control by Labor Unions." *American Economic Review*, Vol LXVII, pp 309-22.