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THE SHARE ECONOMY
AND
INDUSTRIAL RELATIONS:
IMPLICATIONS OF THE WEITZMAN PROPOSAL

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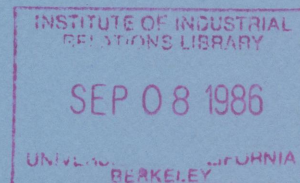
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ABSTRACT

Martin Weitzman has proposed that adoption of gain sharing plans -- of which profit sharing is an example -- would produce a full employment economy which would resist layoffs, even in the face of negative demand shocks. In essence, a profit sharing bonus has the same short run effect as a profits tax in the theory of the firm, that is, no effect. But since the bonus substitutes for part of the wage, the firm behaves as if the wage were lower than expected average hourly compensation. It thus expands employment. If most firms adopt profit sharing, the increased demand for labor produces a labor "shortage" at full employment which resists declines in demand.

Weitzman has been hailed as a new Keynes, but like Keynes, he has his critics. The most significant criticism is that unions would not permit profit sharing to operate as he describes because additional hires "dilute" the bonus pool, leading unions to demand limits on employment.

On closer inspection, union behavior under profit sharing turns out to be a more complex matter. Under certain circumstances, unions could foster Weitzman's aims and produce greater employment stability than equivalent nonunion situations would exhibit. Even in worst case scenarios, it does not appear that unions would sabotage Weitzman's macro-economic goals.

Finally, profit sharing has profound longer term implications for traditional collective bargaining, since it inevitably pushes unions toward a greater role in management of the enterprise.

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Although Keynesian economics produced a generation of economists who were confident that macro-economic problems could be readily conquered, the optimism had turned sour by the 1970s. Keynesianism, after all, addressed the major issue of the 1930s, unemployment. But the economic problem of the 1970s, inflation, or what was worse -- inflation with unemployment, proved not to be amenable to simple remedies. Western economies were faced with a nasty choice; they could permit inflation to continue and possibly accelerate. Or they could choose to impose a long period of economic slack, characterized by high unemployment, to wring inflation from the system. By the early 1980s, most -- including the U.S. -- had chosen the latter course to deal with stagflation.

The choice of macro-economic policy has had a profound effect on industrial relations in the U.S. American unions found that prolonged economic slack in the 1980s weakened their position relative to employers. At the bargaining table, employers were able to use the (credible) threat of layoffs and plant closings to win freezes and cutbacks in pay and benefits. Indeed, most of the heralded moderation in wage adjustments which developed in the early 1980s stemmed from the union sector. (Mitchell, 1985b)

Perhaps more importantly from the long-run perspective, unions found it difficult to maintain their membership in the face of economic slack. Nonunion employers became more resistant to organizing drives which -- in any case -- strained the resources of fiscally-distressed unions. And old union employers shrank, disappeared, or developed nonunion facilities. Outside the U.S., similar developments have been reported. (Bureau of National Affairs)

If economics needs a new Keynes to restore the climate of optimism, collective bargaining is even more in need of new approaches. Clearly, unions have learned that macro-economic prosperity is critical to their viability. That viability was being threatened even before the economic slump of the early 1980s by a slow erosion of the unionization rate. One recent study projects a fall in that rate to something like 10 percent of the workforce if current trends continue. (Freeman and Medoff, p. 242) Unions have been looking for new approaches to regain membership and have even wondered out loud whether bargaining should be the mainstay of the union's function. (AFL-CIO) It is argued below that share bargaining could be an important element in a new role for unions AND in improved macro-economic performance.

I. Weitzman's Share Proposal.

In 1984, M.I.T. economist Martin L. Weitzman published a book entitled THE SHARE ECONOMY which argues that gain sharing arrangements (such as profit sharing) could resolve the unemployment/inflation dilemma.¹ It is important to note from the outset that Weitzman does NOT present profit sharing as a way of enhancing worker "involvement" in the management of enterprises, the traditional argument made by gain sharing proponents. Indeed,

Weitzman suggests that his share system would work best with as little worker involvement as possible, an implication which has brought him criticism and which -- it is argued below -- is misleading.

Weitzman's concerns are two-fold: unemployment and economic stability. First, he would like to see a lowering of the long term unemployment rate. He is concerned not only with overall unemployment, but also the especially high rates of unemployment which characterize disadvantaged groups and areas.

Second, Weitzman is concerned with the wasteful process which occurs when monetary policy is applied to disinflate the economy. Whenever inflation has been too high, monetary policy is eventually tightened to reduce aggregate demand. But wage adjustments are not especially responsive to demand. Thus disinflation is carried out with substantial losses of real output and elevated unemployment.

Given Weitzman's seeming disinterest in promoting a worker "voice" in employer policy, his book does not initially appear as a likely candidate to provide a new, central role for collective bargaining. Unions and collective bargaining inherently are devices for the kind of worker voice Weitzman appears to eschew. In fact, the Weitzman proposal -- if implemented -- would have potentially profound impacts on industrial relations and could provide unions with the new role they have been seeking.

II. Overview of the Weitzman Model.

The notion that gain sharing could have macro implications is not new. It was suggested in the U.S. by Sumner H. Slichter in the 1930s and in the Australian context even earlier. (Slichter, 1939; Sutcliffe, 1925) In the early 1980s, there were calls for more gain sharing as an anti-inflation device by this author and by others. (Mitchell, 1982; Thurow, 1984, pp. 29-32; Canada, Department of Finance, 1984; Wallich, 1984) However, Weitzman offers a rigorous micro-level justification for the beneficial effects of gain sharing which has not previously been developed.

Although Weitzman's contribution has been compared with Keynes (1936) in terms of its potential impact on economic policy, there is a critical difference between the Keynesian view of the world and Weitzman's. 2 In the 1930s, Keynes argued that the solution to the pressing problem in the labor market (unemployment) did not itself lie within the labor market. Specifically, he argued that the classical economists' call for wage cuts to alleviate unemployment was misplaced. Instead, the Keynesian solution lay with macro-economic policies designed to raise aggregate demand. Weitzman says just the opposite; he argues that the solution to the problem with the labor market DOES lie within the labor market. But it is not wage cuts that are needed, according to Weitzman. Rather it is the compensation SYSTEM that needs changing.

In essence, Weitzman argues that a share economy (one characterized by a significant element of gain sharing in labor compensation) would tend to produce a labor "shortage." Firms would (almost) always be willing to hire an additional worker. Industrial relations specialists will recognize two important implications of this proposal which are not clearly delineated in the Weitzman book.

First, changing compensation systems would inevitably produce modifications in traditional collective bargaining. Specifically, a system in which a significant component of labor compensation comes from a share of firm profits or revenues would inexorably lead to union demands for a voice in how those profits or revenues are generated. Second, the historical evidence is that periods of labor shortages -- the chief examples being the years of the two World Wars -- have also been periods of rising unionization. (Jacoby, 1985) In addition, there are reasons to believe that unions in a share economy would have a built-in organizing appeal (discussed below).

i. Profit Sharing and Employment Expansion.

There are various forms of gain sharing that fit into the Weitzman model. The analysis below will describe one form, profit sharing. But other variants -- such as revenue sharing -- can be shown to have similar effects. The object of the share proposal is to make the marginal cost of labor to the employer less than the average cost. Under such circumstances the firm will seek additional hires.

Weitzman views labor compensation as coming potentially from two components: an hourly wage W and a share. For purposes of illustrating profit sharing, the share can be viewed as a fraction s of profits P . For simplicity, assume that the share of profits going to labor is divided among the firm's workers equally. Thus the effective hourly compensation going to labor C can be expressed as follows:

$$(1) \quad C = W + (sP/H)$$

In a traditional wage system, $s = 0$ and $C = W$. In a "pure" share system $W = 0$ and $C = sP/H$. In a completely worker owned firm $s = 1$ and $C = P/H$. Finally, in a partial share system of the type found in contemporary firms which have profit sharing, $C > W > 0$ and $0 < s < 1$. Weitzman's model works best when the share component (sP/H) is a large percentage of total expected compensation. But Weitzman recognizes that a share economy which might actually be implemented would most likely feature the two components, a wage and a share, with the wage being a significant fraction of total compensation.

There is a simple principle in the theory of the firm which says that in the short run, a proportionate tax on profits does not affect firm behavior. The idea is simple enough. If the government takes a share of profits, say 35 percent, in taxes, the goal of the firm is still profit maximization. Now, however, it maximizes

after-tax profits (.65P). But since .65P will be maximized when P is maximized, the firm makes the same pricing and output decisions that it would if no tax had been imposed.

In a share economy, the workers' share of profits can be viewed analogously to a profits tax. The firm "ignores" the tax and maximizes profits. But -- since the share firm has partially substituted the share SP/H for the wage W -- the wage is lower than it would be in a non-share firm, EVEN THOUGH WORKER COMPENSATION C IS NOT NECESSARILY LOWER.³ For example, if the firm would have paid an hourly wage of \$10 prior to implementing profit sharing, after implementation it could pay -- as a first approximation -- \$8 per hour as a wage PROVIDING the expected profit sharing bonus was valued at the equivalent of \$2 per hour.

Substituting the bonus for part of the wage in the previous example makes the firm behave as if labor had suddenly become 20% cheaper, since it "ignores" the share element. The firm thus will generally find it advantageous to expand its hiring. If all firms convert to a similar share system, all will try to expand hiring. What happens then depends on the initial state of the economy.

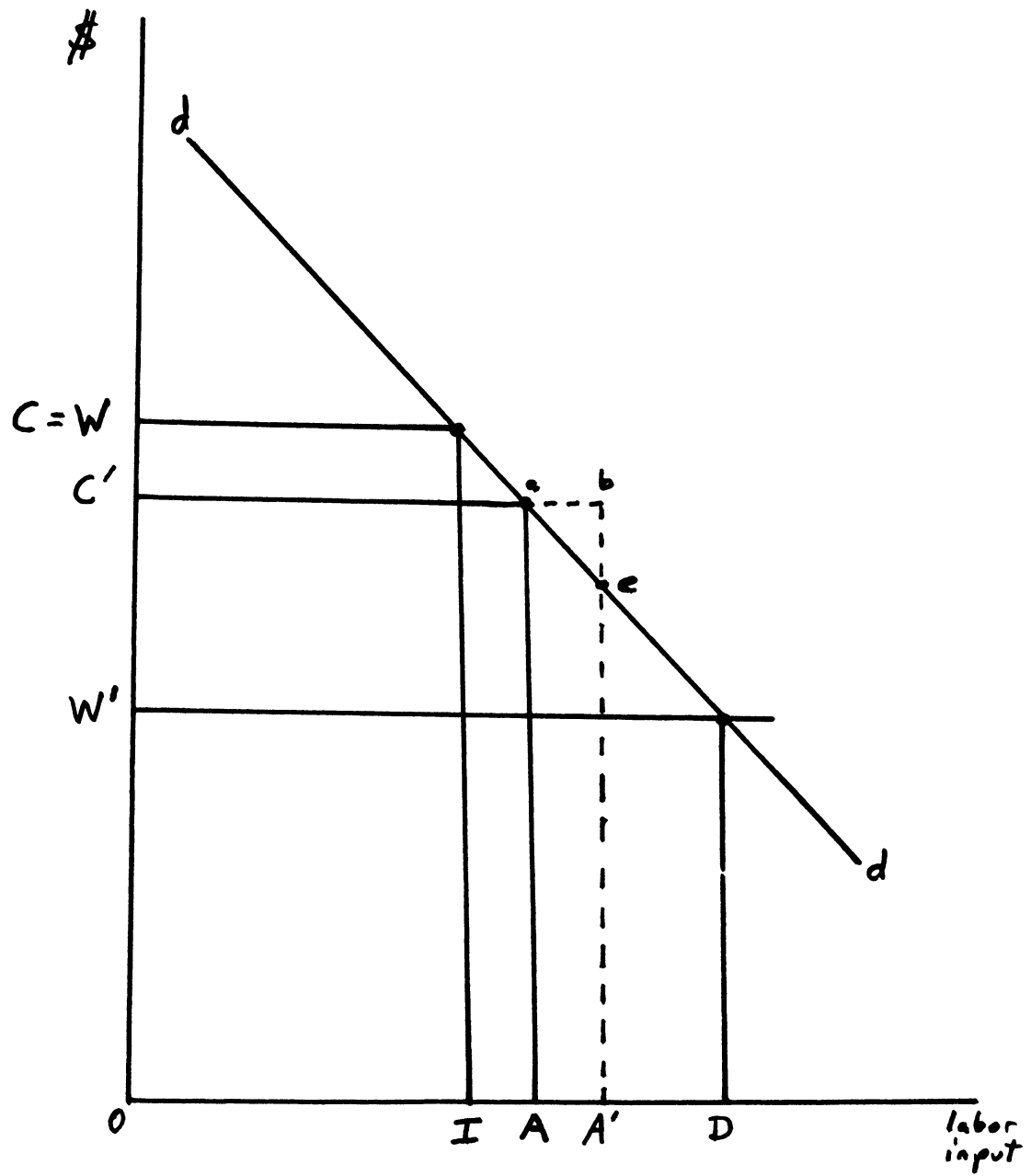
If there was already close to full employment, firms will find themselves stymied in their search for more labor, i.e., a generalized labor shortage will result. Firms will stand ready to hire anyone who becomes available. Indeed, as in wartime situations, it can be expected that they would relax hiring standards, recruit from areas and groups traditionally overlooked, engage in more training, and do what they could to make life pleasant for existing workers to avoid quits. (Okun, 1973) In short, changing the compensation system shifts the labor market from a buyers' market to a sellers' market.

Figure 1 illustrates the impact of conversion to a share system at the firm level. Pictured is the labor demand curve of a "typical" firm previously paying an hourly wage of W and no share bonus.⁴ Thus, initially $C = W$. The firm is then converted to a share system with a lower hourly wage W' plus an expected share bonus sufficient to bring total expected compensation to C .

At the old wage W , the firm initially had a demand for labor equal to level I . If the labor market was at full employment initially, the typical firm's employment level will remain at I since -- by definition -- additional labor is not available. However, the firm has an incentive to expand its hiring, since the marginal cost of labor W' is below the average cost C . If unemployed labor were available, the firm would recruit from that pool.

But adding labor tends to pull down the average share bonus. When hourly compensation falls to C' -- assumed to be the market compensation level at full employment -- the firm cannot expand hiring further, since doing so would drive the firm's compensation level below the market. The firm would operate at an actual labor

Figure 1



input of A even though its desired input is at level D. Since $A < D$, a labor shortage exists and the firm would stand ready to hire anyone who offered himself/herself at the existing wage-plus-share formula.

Two cautionary observations are required. First, the existence of a labor shortage does not mean that the firm has departed from profit maximization as a goal. If the firm wished to expand employment beyond level A, it could do so by either raising the share coefficient or the hourly wage to the point where some higher level of labor input -- such as A' -- could be obtained at the going market compensation level C' . But Figure 1 makes clear that such an expansion of employment -- via a higher pay formula -- would not be profitable. The firm would lay out an additional expenditure on labor represented on Figure 1 by rectangle AabA'. But it would add to revenues only area AaeA'. Profits would thus be reduced by triangle abe.

The firm is not in disequilibrium at A, any more than a monopolist is in disequilibrium when it refuses to cut its price to sell more output, having arrived at a profit maximizing price initially. If another customer suddenly appeared and offered to buy the monopolist's product at the quoted price, the monopolist would be happy to comply. In that sense, it has a shortage of customers. And only in that sense does the share firm have a shortage of labor. But this form of shortage is a key element of the Weitzman proposal.

Second, although Figure 1 depicts compensation dropping from C to C' to achieve full employment, it is important to recognize the limits of a simple micro analysis in making such a prediction. Moving to an economy with lower unemployment and more employment stability would set in motion a variety of complex forces. Over the long haul, for example, such an economy might produce a higher investment rate and eventually higher real compensation levels. _5_ /

ii. Profit Sharing and Employment Stability.

Transformation of the labor market into a sellers' market helps maintain employment in the face of falling demand. Suppose aggregate demand were reduced for anti-inflation reasons in a share economy. The typical firm would find that its labor shortage was partially alleviated. Instead of a big shortage it would have a little one. But a shortage would still exist and the firm would not lay off existing workers.

The demand fall off would be reflected in reduced prices, profits, and share bonuses. As a result, inflation would be quickly reduced without the adverse real output losses associated with wage systems. And the monetary authority would find disinflation relatively painless to carry out. No longer would monetary policy be in collision with a rigid wage system which resisted disinflation of the nominal wage.

Figure 2 illustrates the employment stabilizing effect of a share system. Shown on the figure is a typical firm's short run demand curve for labor dd . If the hourly wage component of a wage-plus-share system is set equal to W , the firm would desire D units of labor. However, it is in the nature of the shortage feature of a share economy that firms will typically be able to find less labor than they desire. On Figure 2, assume that the firm actually can hire only A units of labor.

Suppose there is now a negative demand shock pushing the firm's demand curve for labor down to $d'd'$. The firm's desire for labor falls to D' . But since D' is still greater than A , no layoffs occur. Had a more severe demand shock occurred, so that the demand curve for labor dropped to $d''d''$, the firm's desire for labor would decline to D'' . In that case, the share system would no longer completely buffer incumbent workers. The firm would decrease its labor input by amount AD'' .

Figure 2 shows that there are two crucial factors which determine whether layoffs will occur during a downward demand shock. First, the magnitude of the shock is crucial; a large shock is more likely to produce layoffs than a small one. Second, the elasticity of labor demand is important. A steep (inelastic) labor demand curve tends to reduce the gap between actual labor A and desired labor D in the initial position. A small gap would have only a small buffering effect and would not substantially shield workers from layoffs.

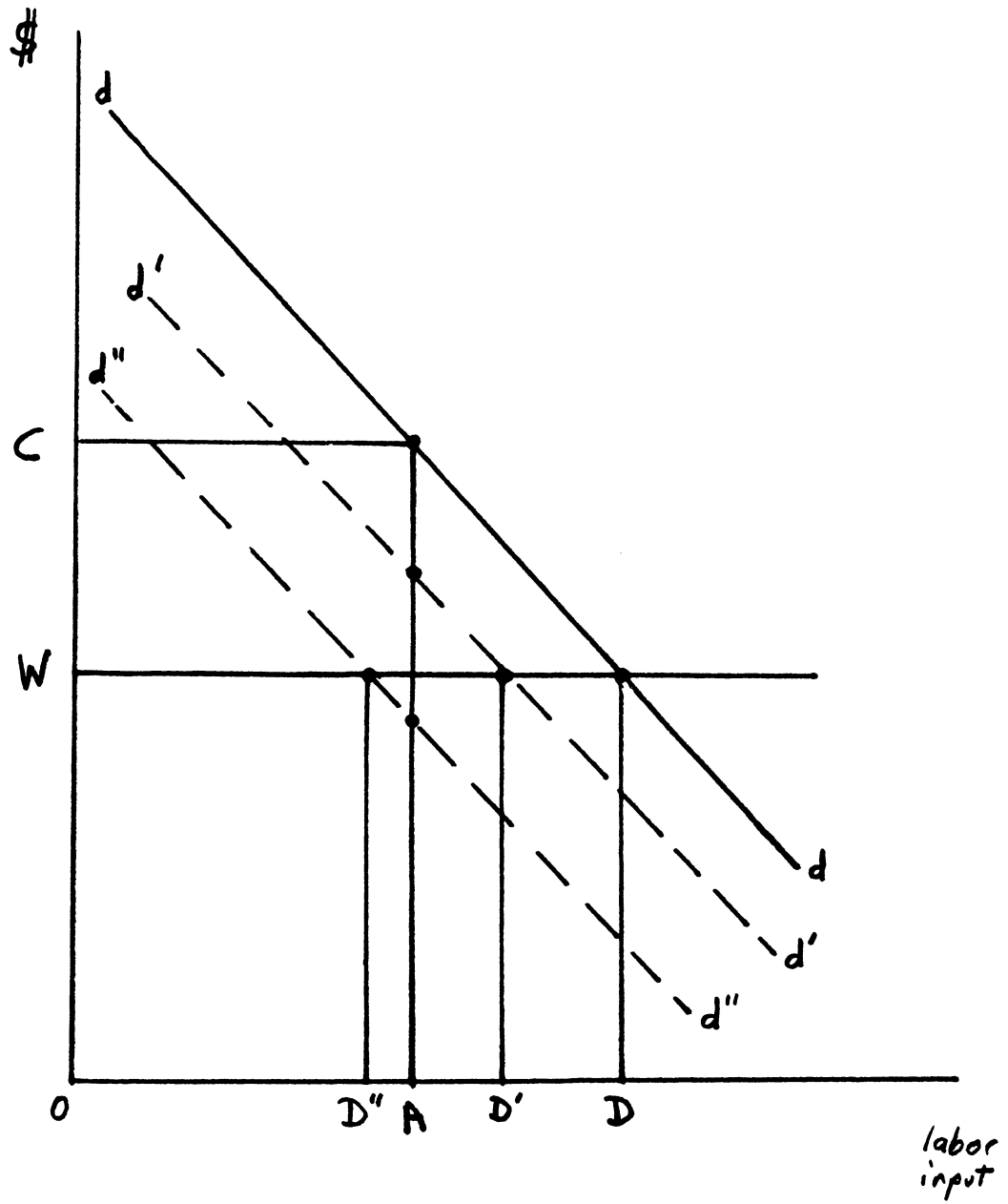
iii. The Elasticity of Labor Demand.

There are no handy tables available listing the elasticity of labor demand by firms and industries. But some information on short run elasticities of labor demand can be developed from published data. Consider a firm with a downward sloping demand for its product. Assume that, in the short run, factor substitutions are unavailable and that the demand for labor is tightly linked to output.⁶ In such a case, the elasticity of labor demand is the product of three other elasticities: 1) the elasticity of the product price with respect to the wage, 2) the elasticity of the volume of output demanded with respect to the price, and 3) the elasticity of labor demanded with respect to output.⁷ Some information is available on two of these three elasticities, the first and the third.

iv. Empirical Observations.

The first elasticity (price relative to wage) can be proxied by the share of labor in the total value of the firm's output. If the ratio of the wage bill to the value of output is, say, 40%, and if the firm passes wage increases into prices on a dollar-for-dollar basis, a 10% wage increase would translate into a 4% price increase. In fact, with a downward sloping product demand curve, a profit maximizing firm is likely to pass less than the full wage increase into prices.⁸

Figure 2



Input-output data permit estimates of the ratio of labor costs to total output value. The 1977 input-output table indicates that industries such as ordnance, aircraft, and glass manufacturing have ratios of about 40%. But most industries have lower ratios. Coal mining, apparel, furniture, footwear, computers, rubber, broadcasting, amusements, and restaurants, for example, have ratios of approximately 30%. Lumber, paper, appliances, and motor vehicles have ratios in the 20% range. Chemicals, food products, and tobacco have still lower ratios. (Interindustry Economics Division, 1984, pp. 52-57) In most cases, therefore, the first elasticity is not high and will probably be well below 0.4.

The third elasticity (employment relative to output) is linked to the marginal labor-to-output ratio. There may be some "overhead" workers employed in the firm whose employment is not tightly linked to output. These may range from administrative personnel to plant guards. About 80% of the employed workforce in the private sector is classified as production and nonsupervisory workers.⁹ Thus, the third elasticity -- in the short run -- might be assumed to have a value on the order of 0.8.

Multiplying the first and third elasticities together produces an estimate of less than 0.32. Hence, if there is to be a high short run elasticity of labor demand, the second elasticity (the elasticity of demand for the firm's product) would have to be quite high. Given previous assumptions, a product demand elasticity of as high as 10% would translate into a labor demand elasticity of under 3.2%, for example.

The gap between A and D on Figure 2 is closely linked to the gap between total expected compensation per hour (including the share bonus) and the hourly wage. In a competitive situation, the firm would be able to hire labor up to the point where its hourly expected compensation (C) was equal to the equivalent compensation workers could find elsewhere in the labor market. If the gap between C and W was, say, 10% of C, and the elasticity of labor demand was 2%, the firm would have a shortage of labor of about 20%. That is, if the firm's observed workforce consisted of 500 workers, the firm would actually like to hire another 100 workers. But it can't, given its compensation offer, since adding more workers would drive C below competitive levels in the labor market.

In some industries, demand is not highly volatile and even relatively low elasticities of labor demand would be sufficient to act as buffers between downward demand shocks and layoffs. But in other cases -- notably in certain durable industries where unions are prominent -- demand shocks might well come close to, or exceed, the buffer margin. For example, in motor vehicles, output fell by over one fourth during the 1979-80 recession. In steel, the drop in that period was over one sixth. (U.S. Bureau of Labor Statistics, 1985b, pp. 151, 227) As will be noted below, however, the presence of unions in such industries might -- under certain circumstances -- expand the buffer margin in a share economy.

III. The Feasibility of Gain Sharing.

One of the attractive elements of the Weitzman approach is that it is technically feasible. Profit sharing and other forms of gain sharing have a long history, going back well into the 19th century. (Cooper, 1934) Unlike other schemes which economists have devised over the years -- commodity money, 100% reserve banking, etc. -- gain sharing does not initially require creation of entirely new and untried institutional arrangements. While there are in fact profound institutional impacts inherent in a share economy -- particularly on collective bargaining -- a proposal to induce more gain sharing will not be perceived as revolutionary.

It would be easy enough to stimulate more profit sharing through tax incentives. Indeed, there already are a variety of tax incentives on the books for certain types of profit sharing. What would be needed essentially is a revision of these provisions to favor the particular types of plans that have the desirable Weitzman properties._10_/

The Weitzman proposal happens to come at a time when Congress has developed an intense interest in employee stock ownership. Weitzman does not explicitly take up the question of Employee Stock Ownership Plans (ESOPs). This is probably because, at first glance, the ESOP approach does not seem to provide the desired gap between the marginal cost of hiring and expected labor compensation. If companies simply hand out stock to their employees, they do not change basic firm incentives, except in those rare cases where the workers' share is large enough to control the company.

Nevertheless, Congress has seen great virtue in ESOPs since the mid 1970s and has literally ladled tax incentives over them. As a result, such plans have grown rapidly. They effectively compete with conventional profit sharing (of the type Weitzman advocates) as a sharing arrangement. If ESOPs could be transformed into Weitzman-type devices, a move toward a share economy would be much enhanced.

There is actually only one potential conflict between an ESOP and a true sharing arrangement. To have Weitzman-type effects, the ESOP must be structured so that employees cannot simply sell their shares. Rather the shares need to be put in trust to benefit only current employees based on the claim of profits the shares represent. Under such circumstances there is no real difference between profit sharing and an ESOP. To see this point, consider a firm which earmarks 20% of profits for workers and compare it to one with an ESOP which owns 20% of the firm's stock. As long as workers under the ESOP benefit only so long as they remain with the firm (as occurs under profit sharing), the two plans are formally identical and would produce the same effects. In the profit sharing case, W is less than C by a margin equaling the expected share bonus. In the ESOP, W is less than C by a margin equaling the expected value of the ESOP earnings payout. The payout and bonus in both cases is 20% of profits._11_/

In summary, there is potential interest in developing the gain sharing approach already. The motives for this interest are quite different than Weitzman's. Proponents of traditional profit sharing see it as a device to increase worker loyalty, motivation, and productivity. (Metzger and Colletti, 1971, pp. 86-91) Proponents of ESOPs appear to believe that social stability will be enhanced by making every worker a mini-capitalist. (Kelso and Hetter, 1967) Whether these beliefs are accurate is not the point. Weitzman's macro effects will occur regardless of whether productivity or social stability are actually encouraged. What does matter is that there is a ready-made constituency for gain sharing already present.

IV. Initial Reactions to the Weitzman Proposal.

Within the economics profession, Weitzman's proposal has produced some discussion, but it has yet to stir an active interest among most economists. The parallels with Keynes are again useful. Economists in the 1930s either acknowledged they did not have a theory of the business cycle or tended to view economic downswings as part of the natural order of things. Indeed, business cycles were sometimes attributed to natural phenomena such as sunspots and agricultural disturbances. There was, however, an overriding view that whatever caused the downswing of the cycle, depressions served the purpose of cleansing the economy of inefficiency which had accumulated during the previous period of prosperity. Keynesianism entered the debate over the business cycle as merely one view among many. It was not until a decade later that its influence was truly felt. _12_ /

Perhaps the Weitzman proposal will incur a similar fate. Economists today acknowledge that they do not have a clearcut theory of stagflation. But theories have developed which purport to explain wage rigidity as part of an efficient "implicit" contract between worker and employer. (Rosen, 1985) Modifying the terms of the contract, e.g., creating a tax incentive for gain sharing, is therefore viewed as potentially inefficient and is met with suspicion. In a sense, the reaction to Weitzman is a revisiting of Keynes versus the classicals, with the latter group (now NEO-classicals) sure that in the long run the economic system is best left alone.

The limited debate so far in economic circles has raised two issues relevant to collective bargaining. First, if workers dislike variable incomes, can they be induced to accept gain sharing with its potentially variable bonus? In the nonunion context, of course, if an employer unilaterally imposes gain sharing, there is no explicit channel for workers to voice dissent (other than by quitting). But with a union present, the channel clearly exists. Second, wouldn't workers have an incentive under gain sharing to resist new hires (who "dilute" the bonus pool) and indeed to push the firm to reduce its labor input? Again, nonunion workers have no channel for such resistance but union workers do. Both questions raise the issue of whether gain sharing is compatible with collective bargaining.

V. Variable Incomes and Collective Bargaining.

A simple answer to the question of the acceptability of variable incomes is that the tax incentive must be sufficient to "bribe" the parties to incorporate gain sharing. It is easy to point to the many artificial incentives in the tax code which induce alterations in behavior in the field of employee compensation (and elsewhere in economic life). The growth of fringe benefits as a percentage of worker compensation since the 1940s is in large part due to the tax incentives provided. Just as Congress has promoted pensions, health insurance, life insurance, dental insurance, tax-deferred savings plans, cafeteria plans, and other employer-provided benefits, so too could it promote gain sharing. In particular, unions could be induced to accept and even demand gain sharing if the right tax incentives were provided.

However, there are deeper issues hidden in the question of worker preferences. As noted, economists have assumed that because existing labor market arrangements tilt toward wage rigidity, even if that means layoffs as the primary means of adjustment, there must be an efficiency motivation for such arrangements. But there are reasons to question this view.

For example, cross-cultural comparisons raise questions about the efficiency interpretation. There is evidence that the Japanese bonus system functions as a gain sharing arrangement, with the bonus reflecting firm profitability. Weitzman and others have attributed Japan's lower and more stable unemployment rate to the bonus system.¹³ Bonuses account for about 20 percent of compensation of Japanese manufacturing production workers. (U.S. Bureau of Labor Statistics, 1985a, p. 439) Is there reason to believe that Japanese workers have less of a "taste" for income security than American workers? Or is it possible that institutions once created, such as the Japanese bonus system, become part of the norm of compensation practices. Workers come to expect a set of pay practices. Firms who deviate and don't provide those practices appear peculiar and are disadvantaged in the labor market.

Furthermore, there is reason to question whether American wage setting institutions really provide income stability. To have stability, three elements must be controlled. The weekly wage bill of a firm is the product of 1) the wage times 2) average weekly hours per employee times 3) the number of employees. Typically, demand fluctuations are met initially by changes in weekly hours (overtime may be reduced or added) and then by changes in the number of employees (through recalls, new hires, and layoffs). Only in unusual circumstances, e.g., the union wage concessions of the early 1980s, is the wage element made part of the adjustment mechanism.

The claim that unions are efficiently bargaining for income stability is difficult to support when it is recognized that bargaining most typically surrounds only one of the three key variables which must be controlled to produce stability, namely the wage. Decisions on hours and employment are largely left in the

hands of the employer in union contracts. There is evidence that this system resulted from historical forces which had little to do with efficiency. (Mitchell, 1985a)

It is known that wages were more flexible before the Great Depression than after. (Mitchell, 1985c) During the 1920s, a theory developed that business cycles were caused (or aggravated) by too-low wages leading to insufficient consumption. This view was not held by most economists, with some notable exceptions.¹⁴ But it was widely articulated by businessmen and government officials, even before the New Deal.

During the New Deal the theory was a central element in legislation such as the National Industrial Recovery Act and the National Labor Relations Act. Social insurance reinforced the view that wages should be pushed up and that (downward) wage rigidity was a Good Thing. Orthodox economists of the time fretted about the wage rigidifying effects of reinforcing a layoff system of adjustment. (Meriam, 1933) But the growing Keynesian view that wage rigidity didn't matter eventually undercut such objections.

In the post-World War II environment, it is simply taken as natural that labor-cost adjustments should be made through layoffs and that compensation arrangements should be inflexible. Workers expect this policy; firms offer it. Tax incentives would undoubtedly be needed to push the compensation system toward more gain sharing. But after a period of experience, worker expectations and behavior could change. As an example, should there be more income instability under a share system, worker savings behavior might adjust. But if Weitzman is correct, a share economy would offer MORE employment stability and steadier real incomes than the existing wage system.

VI. Employment Limitations and Bargaining.

Upon converting to a gain sharing system, the employer has an incentive to expand employment. But although the new hires add positively to firm profits, additions to the workforce tend to dilute the bonus pool. (Their marginal contribution to the pool is less than the average bonus). Indeed, the dilution effect is an integral reflection of the Weitzman employment-expansion mechanism.

Nonunion employees might understand that new hires were depriving them of potential income, but they would be hard pressed to do anything about it. Union workers, on the other hand, would have a mechanism to prevent dilution; they could press for contractual limits on the number of new hires. Hypothetically, they might even demand that the firm reduce its existing employment level as normal attrition occurred.

It is not just the dilution effect which could lead unions to push for employment limits. Imagine that a union comes to represent a group of previously nonunion workers who receive a bonus based on 20% of profits. Tax incentives encourage the union to take any

compensation increase it can obtain in the form of a bonus. Suppose the union is successful in obtaining an increase in the bonus pool to 25% of profits. If the firm was initially in a labor shortage situation, the added bonus now gives it a competitive edge in the labor market. It can hire more workers because its total compensation per worker exceeds the market average. But as it expands employment, it dilutes the bonus to the point where total compensation (C) is again at the market rate. The union might find that it had achieved no compensation increase per worker, despite its seeming bargaining gain!_15_/

The only way the union can definitely push up the level of compensation per employee in this situation is to raise the share coefficient, e.g., from 20% to 25%, (or the hourly wage) AND limit the firm's ability to hire. For example, if the share coefficient were raised from 20% to 25% and no increase in employment was permitted, the average bonus would rise by one fourth. In short, collective bargaining seems to require bargaining over employment limits in a system with a significant gain sharing element -- at least in theory.

Weitzman's statement that "the bargaining power of labor unions is not a natural right" (1984, p. 109) stems from this concern. If unions place hiring limitations on firms, they might sabotage the general employment expansion he is trying to achieve. Yet he acknowledges that union workers -- especially the senior workers who are least prone to layoff -- might have qualms about his share system.

The concern over how unions would operate in a share economy harks back to earlier literature on worker owned enterprises._16_/ Worker owned firms are special cases of profit sharing, with the share coefficient set at 100%. Hence, these earlier models are relevant to the Weitzman proposal. The models suggest that other things being equal, worker owned enterprises would show reluctance to hire. Instead of setting wage = marginal revenue product of labor (the profit maximizing and efficiency condition), they would attempt to cut back on hiring to raise average profits per worker.

Unfortunately, there is no way of knowing in advance precisely how unions would behave in a share economy. But there are reasons to believe that the employment limitation effect would not prevent a share system from having beneficial macro-economic consequences, even in the face of collective bargaining. These reasons are discussed below.

i. Employer Resistance.

Models of union behavior often erroneously omit the fact of employer resistance. Unions are not free to determine the compensation of their members unilaterally. Demands for greater shares of profits or higher wages would be resisted under a share economy by employers, just as employers resist union demands in a wage economy. Demands for employment limits would also meet with

resistance. Unionized employers would still face product market competition; if they were forced to pay "excessive" rates of compensation compared with nonunion competitors, they eventually could be put out of business -- to the detriment of the union.

There might well be circumstances in which unions could hold compensation well above market levels for extended periods -- perhaps indefinitely -- as numerous empirical studies have documented. However, even in such cases, there are product market limits to union power. Models which neglect such limits will give misleading predictions. In particular, models based on worker owned firms -- where effectively there is no "employer" other than the workers themselves -- cannot be automatically extended to the Weitzman plan. Only in the case of no independent employer, i.e., in the worker owned firm situation, will there be no employer resistance to union demands for employment limitations or pay increases.

ii. Employment Limitations with Labor Shortages.

The union's behavior and its macro-economic consequences depends critically on the magnitude of the tax incentive for share compensation. Consider a situation in which the tax incentive is sufficiently strong to induce the union to take a wage rate below the going market rate of expected compensation. The union takes the rest of compensation in the form of a share bonus. Under these circumstances, the union might provide ENHANCED employment stability compared with a nonunion firm. Figure 3 illustrates this point.

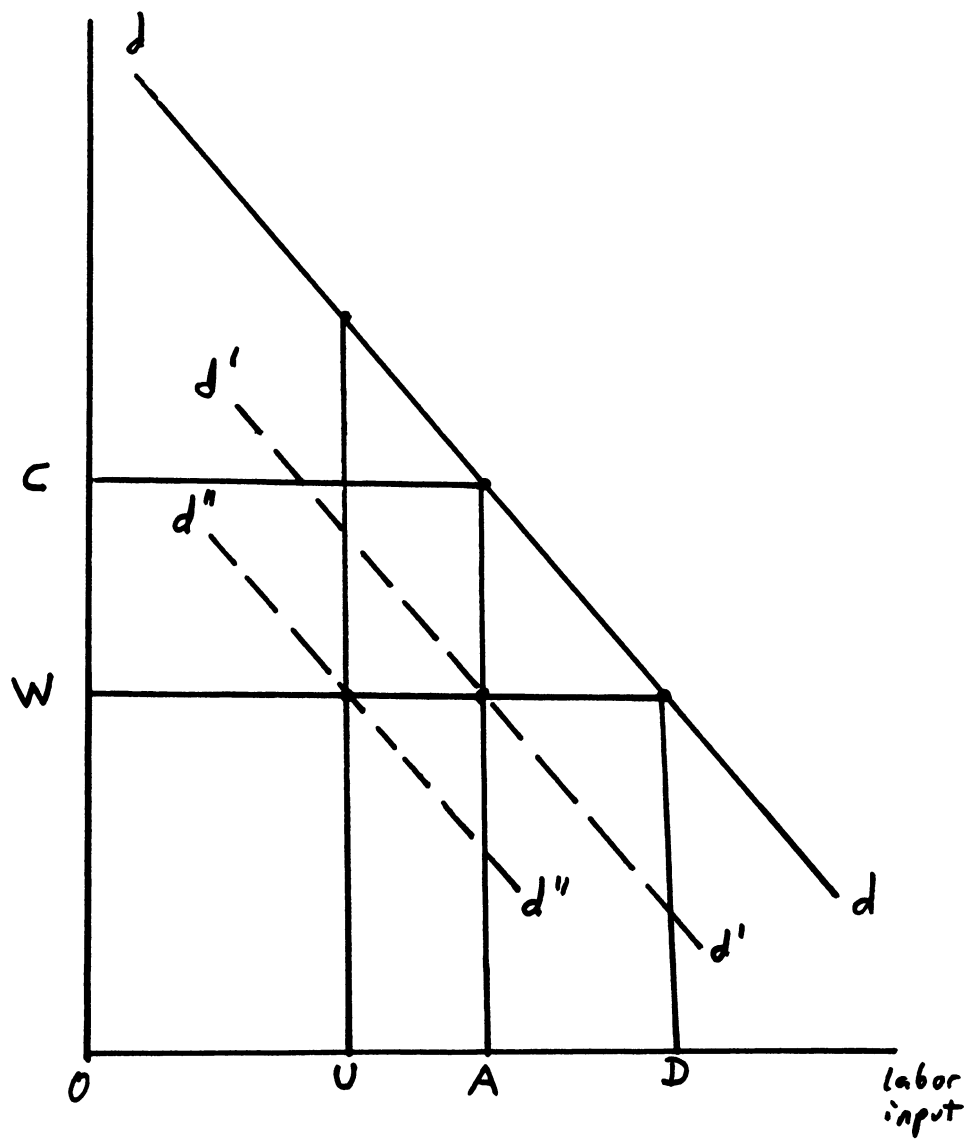
Assume first that the firm shown on Figure 3 is nonunion. It pays a wage W and has a profit sharing bonus formula which brings expected hourly compensation up to level C , the market rate. The firm would like to hire D units of labor but can only hire A (since further hiring would push compensation below C). Thus, the nonunion firm has a shortage of AD units of labor.

If there were a downward demand shock in excess of $d'd'$, the firm would begin to reduce its labor utilization. In contrast, assume now that the firm has been unionized and that the union has restricted employment to level U , in order to raise the share per worker. The firm could now withstand a downward demand shock of up to $d''d$ before shedding labor. Thus, unions could FURTHER the Weitzman objective of smoothing out cyclical employment fluctuations.

iii. Nonshortage Situations.

If the tax incentive for share compensation systems is relatively weak, a union might obtain an hourly wage rate W which was above the market rate for expected compensation. To W , the union might add provision for a profit sharing bonus. In such a case, the macro-economic effects Weitzman seeks might be greatly attenuated, although -- as will be discussed below -- this result need not be the outcome.

Figure 3



A wage W above the market rate of compensation would mean that the firm had no labor shortage. Indeed, the firm would perform the employment limitation (as under a conventional wage system) by rationing access to jobs. The firm WOULD have a somewhat higher level of employment, since some compensation is taken as a profit sharing bonus, than it would if the union took all of its compensation in the form of a wage.

But even in this nonshortage case, profit sharing might have an employment stabilizing effect. Suppose the union were interested in job security as a bargaining objective. In principle, it could demand that the employer guarantee both a wage and an employment level, i.e., a fixed dollar commitment. Such a demand -- if granted -- might well take the employer off its demand curve, particularly if demand were to fall.

In the real world, there are few cases in which unions have achieved such ironclad employment protection. More typically, employers resist such demands since turning labor into a fixed cost could endanger firm survival in the face of a downward shift in demand. The compromise for unions is typically some form of workrule restriction which may push the employer off its demand curve, but still permits employment to fluctuate with output.^{17/} Alternatively, a system may be established which protects an "in" group (usually those with high seniority) at the expense of other (junior) workers.^{18/}

A profit sharing system could make it easier for an employer to provide an employment guarantee in a nonshortage situation. With profit sharing, an employment guarantee would not make labor a fixed cost. If demand turned down, profits would decline. But some of the impact would be absorbed by declining profit sharing bonuses for workers. This motivation appeared to be a factor in the coincident negotiation of profit sharing and job/income guarantees in the automobile industry. Thus, profit sharing opens up a greater range of bargaining possibilities for employment stabilization than exists under a wage system, even in the nonshortage case.

iv. Nonunion Employment Limitations.

At least some of the complications which collective bargaining adds to the Weitzman model could be present in nonunion firms, despite the absence of bargaining in those cases. Recent research has demonstrated that large, nonunion enterprises often take on "unionese" personnel practices. (Foulkes, 1980) In addition, theoreticians have argued that firm wage policy partially reflects a need to maintain employee discipline. Firms in these models attempt to pay a wage premium, so that workers will have something to lose in the event of a disciplinary discharge. The result of many firms following this policy is unemployment. (Shapiro and Stiglitz, 1984)

In a Weitzman share economy, nonunion firms might impose on themselves employment restraints in an attempt to hold up their compensation levels (wage plus bonus) and create a discharge penalty

for worker malfeasance. Indeed, given the labor shortage tendencies of the Weitzman system, the need for a discipline "premium" would be enhanced. Such behavior on the part of nonunion firms would mean that the unemployment rate would be somewhat higher than would otherwise be the case, although undoubtedly lower than what real world wage systems have typically produced.

v. Conclusions on Employment Limitation.

There is no doubt that introducing collective bargaining into the Weitzman framework adds an element of uncertainty about micro and macro outcomes. How unions would behave is quite important to the Weitzman proposal, since -- although much of the workforce is nonunion -- unions are concentrated in larger firms which would be most likely to adopt gain sharing. And, as noted above, nonunion firms might exhibit some characteristics of unionized companies.

Despite the uncertainties, there is reason to believe that unionized firms would provide greater employment stability in a share economy than they do under a wage system, particularly if the tax incentive for gain sharing is made substantial. In the worst case, Weitzman's employment expanding effects would be concentrated in nonunion firms. And there are some qualifications, even to the worst-case scenario.

First, it is incorrect to compare the behavior of unionized firms under a share economy with nonunion firms under a wage system. Rather, the performance of union firms (nonunion firms) under a share system must be compared with union firms (nonunion firms) under a wage system. The notion that share systems UNIQUELY create an incentive for unions to restrict employment which is not present in the current wage system is incorrect. That incentive exists in both types of systems.

In a conventional wage arrangement, with a downward sloping demand curve for labor and a set of preferences reflecting the inframarginal member, unions have incentives to push their way up the labor demand curve (obtain higher wages), thereby limiting employment. Although the micro-economic analysis of the two systems is different, on this dimension the result is similar in both. Weitzman's proposal tends to improve the macro-economic performance of union and nonunion firms relative to what is observed under a wage system.

Second, the institutional objectives of unions should not be neglected. Increased membership -- which will accompany increased employment -- enhances the union's financial position and may allow more services to incumbent workers. There are, in short, limits on how far unions would go, and could go, in placing restrictions on employment.

VII. The Wider Implications of Share Bargaining.

At the very least, a share-bargaining union would face a problem of administration and policing without substantial counterpart under a wage system. Under a wage system, if a union bargains a wage of, say, \$12 per hour for a group of workers, it is easy to verify whether or not the employer is living up to the agreement. Workers will quickly know if they are being shortchanged. Under profit sharing, however, shortchanging might not be obvious. Profits are notoriously subject to accounting manipulation. Thus, a union with profit sharing requires access to the employer's books AND the ability to interpret what is in them._19_/

It is only a step from access to information to critiquing what that information reveals. If company profits were to decline, the union is likely to be interested in the reason for the decline, not just its verification. At the company level, profit fluctuations will reflect more than just the economy-wide business cycle. They will also reflect managerial decisions. A share system inevitably opens up questions of shared decision making as well as shared financial outcomes.

Share systems would tend to break down the longstanding role for unions as passive demanders. After World War II, the American management community successfully channeled union energies into improvements in wages and benefits and away from a decision making role. The model of management acting and union reacting became the norm and was reflected in the labor legislation of the 1940s._20_/ But share unions would be under strong pressure to revise that role and take a hand in making the decisions which affected the size of the share.

There is good reason to doubt that contemporary unions are well suited, in their present organizational form, to play the enlarged role which a share economy would ultimately bring. The American model of unionization has always been one of a weak center (the AFL-CIO) with autonomous constituent unions. In some of the constituent unions, in turn, the center is weak and local or regional bargaining is the norm. But the need for expertise, which is inherent in share bargaining, would call this decentralized structure into question. Expertise carries with it a large fixed cost in professional staffing. Economies of scale would suggest union mergers and centralization to meet this cost.

Even that treasured American institution -- the multiyear union contract -- would not be sacrosanct under share bargaining. Managerial decisions are continuous; they do not take place only once every three years. If multiyear contracts were used to specify wages and share formulas, there would also need to be processes of continuous union-management consultations under share bargaining. Such consultations would weaken the principle that revisions in the union-management relationship should occur only at regular, specified intervals.

Obviously, the pressures which share bargaining would create raise many questions. There are potential costs to both parties --

labor and management -- in share bargaining as well as gains. What is clear empirically is that under the existing wage system, "mature" collective bargaining -- with its limited role for unions -- leads to declining collective bargaining coverage. A share system would automatically encompass a new and larger role for unions. There is no guarantee that an enlarged union role would also lead to an enlargement of the collective bargaining sector, i.e., of the fraction of the workforce unionized. But there are some reasons to expect that it could have that effect.

Nonunion employees under a share system operate under a disadvantage. The issue for them is not just the economist's concern about new hires diluting the bonus pool. Nonunion employees, too, would have an interest in the management decisions which affect their shares. But they would not have channels for implementing even the elementary task of verifying the size of the share. This lack could ultimately provide unions with an organizing issue.

Unions could argue that they would be able to intervene with management to audit and influence the workers' share. Of course, management might react by trying to create a nonunion alternative to an outside union. But apart from the legal complications entailed, it would be difficult for management to create a captive auditor/critic and still give that entity integrity.

Ultimately, then, Weitzman's share economy has implications which go far beyond macro-economic stability and lowered unemployment, important as those objectives are. A share economy might eventually require very different labor market institutions from those which presently exist. Yet the Weitzman proposal seems capable of attracting a broad coalition ranging from ESOP-loving congressional representatives, to managements looking to share risks, and to unions looking for a new role in the 1980s and beyond.

Gain sharing has a latent appeal across the political spectrum. To the left it can be interpreted as back-door socialism (worker ownership). To liberals it can be sold as a new route to industrial democracy. And the right can view it as a way of fostering appreciation for the operations of a free enterprise economy among workers. This potential of attracting a broad range of support is yet another parallel between Weitzman's proposal in the 1980s and Keynesian ideas in the 1930s and after._21_/

FOOTNOTES

1. A more theoretical presentation appears in Weitzman (1983).
2. The comparison of Weitzman's idea to those of Keynes was suggested in two NEW YORK TIMES editorials (1985a, 1985b) endorsing the Weitzman proposal.
3. In a simple, static model -- starting at less than full employment -- real compensation (including the bonus) per worker will be reduced as employment is increased. But see the qualification below.
4. For expositional purposes, it might be convenient to consider line dd as a textbook marginal revenue product of labor curve. However, real world firms use both labor and materials as variable inputs and there may well be a fixed coefficient relationship between the two in the short run. In such cases, the marginal revenue product of the labor/materials unit of input would have to be above the wage to pay for the costs of added materials. Referring to dd on Figure 1 (and subsequent figures) as a labor demand curve rather than a marginal revenue product curve permits greater generality.
5. Some research suggests that the stop/go cycles of the 1970s had a deleterious effect on productivity growth. (Bruno, 1982)
6. This is a reasonable assumption in the short run period relevant for business cycle analysis. Note that the assumption does not require that there be no "overhead" labor employed by the firm which is not linked tightly to output.
7. The analysis here follows Weitzman's assumption that firms can generally be represented as imperfectly competitive, i.e., facing downward sloped demand curves. In the case of perfect competition, a similar analysis could be made using the INDUSTRY demand curve rather than the firm demand curve. It would be necessary to incorporate into that demand curve the price changes which would occur in response to wage changes.
8. The marginal revenue curve will be twice as steep as the averaged revenue (demand) curve. Hence, a \$1 increase in marginal costs should translate into a 50 cent price increase.
9. The production and nonsupervisory distinction does not cleanly distinguish between overhead workers and non-overhead workers. For definitions, see U.S. Bureau of Labor Statistics (1982, p. 14) Thus, the distinction is used simply as a rough guide and is not critical to the point made in the text.
10. Existing tax incentives favor profit sharing plans which provide deferred benefits, typically for retirement. Cash profit sharing bonuses are not given favorable treatment. The tax code is quite loose about what constitutes profit sharing. There need be no

formula in the plan linking payouts to profits. Thus, plans called "profit sharing" may in fact be ersatz pension plans where the employer wishes discretion over contributions and investment policies. Appropriate tax incentives would stipulate that a formula linked to profits must be specified and would provide favorable treatment to any form of payout, deferred or current.

11. The example in the text makes no specific reference to retained earnings versus dividends. In theory, since the stock in the ESOP represents a claim against reinvested earnings, no distinction need be made. It should be noted that ESOP plans vary widely in their policies with regard to worker ability to cash out ownership. Not all ESOPs should be assumed to have Weitzman-type properties. The critical element for such properties to be present is that ESOP stock is held for the benefit of all workers and that the number of shares is not increased or decreased with the number of employees. This feature permits the bonus "dilution" effect to occur which drives the Weitzman model.

12. The first tangible sign of Keynesianism in the U.S. was the Employment Act of 1946. Even this legislation was considerably watered down from the original full employment proposal.

13. See Weitzman (1984, pp. 73-77). Weitzman has continued to do research on Japanese practices and believes that the Japanese bonus system does function as a form of profit sharing. Other supportive studies are Gordon (1982) and Hashimoto (1979).

14. One such exception was Paul H. Douglas (1935, pp. 67-77).

15. Although it failed to raise compensation per workers, the union would have induced an employment increase which it might view as advantageous from an organizational viewpoint.

16. Nuti (1985) makes much of this analogy. See also Matthews (1985). On worker owned firms, see Vanek (1970).

17. Crew size rules -- for example, use of a fireman on diesel locomotives -- require the firm to use more labor per unit of output than it otherwise would. But output variation still leads to employment variation, e.g., more trains require more crew members.

18. For example, in longshoring workers have been divided into various classifications with a most protected class receiving first claim on available work.

19. For example, the profit sharing plan negotiated at General Motors in 1982 uses domestic profits as its base. Since the Corporation reports its international profits in its public financial statements, it is not possible to determine the bonus from readily-available records. A separation of domestic from international profits must be made -- an exercise with potential accounting ambiguities.

20. After World War II, the management community was anxious to protect erosion of its control of the workplace. The distinction in the Taft-Hartley between supervisors and nonsupervisors was one product of this effort.

21. On the reactions to Keynesianism, see Collins (1981).

REFERENCES

- AFL-CIO, "Report of the AFL-CIO Committee on the Evolution of Work and the Changing Situation of Workers and Their Unions," DAILY LABOR REPORT, February 25, 1985, pp. D1-D22.
- Bruno, Michael, "World Shocks, Macroeconomic Response, and the Productivity Puzzle," Working Paper 942, National Bureau of Economic Research, 1982.
- Bureau of National Affairs, "Comparative Industrial Relations," DAILY LABOR REPORT, special supplement, September 11, 1985, pp. S1-S24.
- Collins, Robert M. THE BUSINESS RESPONSE TO KEYNES, 1929-1964, New York: Columbia University Press, 1981.
- Cooper, Lyle W., "Profit Sharing," in R.A. Seligman and Alvin Johnson, eds., ENCYCLOPEDIA OF THE SOCIAL SCIENCES, New York: MacMillan, 1934, pp. 487-492.
- Douglas, Paul H. CONTROLLING DEPRESSIONS, New York: W.W. Norton & Co., 1935.
- Foulkes, Fred K. PERSONNEL POLICIES IN LARGE NONUNION COMPANIES, Englewood Cliffs, N.J.: Prentice-Hall, 1980.
- Freeman, Richard B. and Medoff, James L. WHAT DO UNIONS DO?, New York: Basic Books, 1984.
- Gordon, Robert J., "Why U.S. Wage and Employment Behavior Differs from that in Britain and Japan," ECONOMIC JOURNAL, vol. 92, March 1982, pp. 13-44.
- Hashimoto, Masanori, "Bonus Payments, On-the-Job Training and Lifetime Employment in Japan," JOURNAL OF POLITICAL ECONOMY, vol. 87, part 1, October 1979, pp. 1086-1104.
- Hardy, Charles O. Book review of Keynes' GENERAL THEORY, AMERICAN ECONOMIC REVIEW, vol. 26, September 1936, pp. 490-493.
- Interindustry Economics Division, "The Input-Output Structure of the U.S. Economy, 1977," SURVEY OF CURRENT BUSINESS, vol. 64, May 1984, pp. 42-84.
- Jacoby, Sanford M. EMPLOYING BUREAUCRACY: MANAGERS, UNIONS, AND THE TRANSFORMATION OF WORK IN AMERICAN INDUSTRY, New York: Columbia University Press, 1985.
- Kelso, Louis O. and Hetter, Patricia. HOW TO TURN EIGHTY MILLION WORKERS INTO CAPITALISTS ON BORROWED MONEY, New York: Random House, 1967.

Keynes, John Maynard. THE GENERAL THEORY OF EMPLOYMENT, INTEREST, AND MONEY, New York: Harcourt, Brace & World, 1936.

Matthews, R.C.O. Book Review of Weitzman's SHARE ECONOMY, JOURNAL OF ECONOMIC LITERATURE, vol. 23, June 1985, pp. 658-660.

Meriam, R.S., "Some Theoretical Aspects of Unemployment Reserves," AMERICAN ECONOMIC REVIEW, supplement, vol. 23, March 1933, pp. 22-30.

Metzger, Bert L. and Colletti, Jerome A. DOES PROFIT SHARING PAY?, Evanston, Ill.: Profit Sharing Research Foundation, 1971.

Mitchell, Daniel J.B., "Gain-Sharing: An Anti-Inflation Reform," CHALLENGE, vol. 25, July-August 1982, pp. 18-25.

Mitchell, Daniel J.B., "Inflation, Unemployment, and the Wagner Act: A Critical Reappraisal," STANFORD LAW REVIEW, 1985a, forthcoming.

Mitchell, Daniel J.B., "Shifting Norms in Wage Determination," BROOKINGS PAPERS ON ECONOMIC ACTIVITY, (2:1985b), forthcoming.

Mitchell, Daniel J.B., "Wage Flexibility: Then and Now," INDUSTRIAL RELATIONS, vol. 24, Spring 1985c, pp. 266-279.

NEW YORK TIMES, "Best Idea Since Keynes," (editorial) March 28, 1985a, Section I, p. 30.

NEW YORK TIMES, "How to Cut Unemployment, Without Magic," (editorial) April 25, 1985b, Section I, p. 20.

Nuti, D.M., "The Share Economy: Plausibility and Viability of Weitzman's Model," unpublished paper presented at the Arne Ryde Symposium, Lund University, August 26-27, 1985.

Okun, Arthur M., "Upward Mobility in a High-Pressure Economy," BROOKINGS PAPERS ON ECONOMIC ACTIVITY (1:1973), pp. 207-252.

Rosen, Sherwin, "Implicit Contracts: A Survey," JOURNAL OF ECONOMIC LITERATURE, vol. 23, September 1985, pp. 1144-1175.

Shapiro, Carl and Stiglitz, Joseph E., "Equilibrium Unemployment as a Worker Discipline Device," AMERICAN ECONOMIC REVIEW, vol. 74, June 1984, pp. 433-444.

Slichter, Sumner H., "The Changing Character of American Industrial Relations," AMERICAN ECONOMIC REVIEW, supplement, vol. 29, March 1939, pp. 127-137.

Sutcliffe, J.T., "Wages and Production," ECONOMIC RECORD, vol. 1, November 1925, pp. 63-72.

Thurow, Lester, "Revitalizing American Industry: Managing in a Competitive World Economy," CALIFORNIA MANAGEMENT REVIEW, vol. 27, Fall 1984, pp. 9-41.

U.S. Bureau of Labor Statistics. HANDBOOK OF LABOR STATISTICS, bulletin 2217, Washington: GPO, 1985a.

U.S. Bureau of Labor Statistics. PRODUCTIVITY MEASURES FOR SELECTED INDUSTRIES, 1954-83, bulletin 2224, Washington: GPO, 1985b.

U.S. Bureau of Labor Statistics. BLS HANDBOOK OF METHODS, vol. 1, bulletin 2134-1, Washington: GPO, 1982.

Wallich, Henry C., "Why Bonuses Make Sense for Unions," NEW YORK TIMES, January 22, 1984, Section 3, p. 3.

Weitzman, Martin L. THE SHARE ECONOMY: CONQUERING STAGFLATION, Cambridge, Mass.: Harvard University Press, 1984.

Weitzman, Martin L., "Some Macroeconomic Implications of Alternative Compensation Systems," ECONOMIC JOURNAL, vol. 93, December 1983, pp. 763-783.

Vanek, J. THE GENERAL THEORY OF LABOR-MANAGED MARKET ECONOMIES, Ithaca, N.Y.: Cornell University Press, 1970.