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THE OWNERSHIP OF JOBS:

VARIATIONS ON A THEME BY MEYERS

Meyers

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Daniel J.B. Mitchell *

In his 1965 paper on "The Analytic Meaning of Seniority", Frederic Meyers began with an important observation. Although the term "seniority" is associated with union practices, the use of length of service to determine various entitlements of employees does not appear to have originated with unions. Rather, it appears to be rooted in employment situations "where the attachment of the employee was essentially to a particular employer..."¹ Further, he notes, "career progressions of some kind are the usual, although not the universal concomitant of seniority rules."²

*Director, Institute of Industrial Relations and Professor, Graduate School of Management, University of California, Los Angeles.

¹Frederic Meyers, "The Analytic Meaning of Seniority," **Proceedings of the Eighteenth Annual Meeting of the Industrial Relations Research Association**, December 1965, p.196 (Madison: IRRA, 1966).

²Ibid., p.201.

The seniority paper was the product of more than fifteen years of research by Professor Meyers. During that period, Meyers was troubled by certain glaring inconsistencies between accepted economic theories of the labor market and institutional realities. Of course, he was not alone among industrial relations specialists in academia who faced this problem. Yet it was to be more than a decade - as will be shown below - before theory and practice began to converge.

Seniority is but one expression of the concept of equity rights in employment. In his *Ownership of Jobs*, Meyers traces the development of this concept in both legislation and labor-management relations in four countries: the United States, Britain, France, and Mexico.³ Perhaps the most significant observation from that study is that the concept of equity rights was common to all four of these otherwise diverse nations, although it expressed itself in different ways. In Mexico and France, for example, the concept developed into formal court systems for worker protection which provided certain remedies available to workers whose rights were violated. In the U.S. and Britain, such formal protections were found mainly in the collective-bargaining sector to the extent they were incorporated into a labor-management agreement. Yet, as Meyers notes, "unorganized workers feel much the same sense

³Frederic Meyers, *Ownership of Jobs: A Comparative Study* (Los Angeles: UCLA Institute of Industrial Relations, 1964).

of job ownership [as union workers] they merely have not found means to enforce it."⁴

Meyers' work tended to concentrate on two aspects of job ownership: dismissal and lay-off. Without legal or union constraints, individual workers may be dismissed for such reasons as unsatisfactory performance, misconduct, or personal frictions with supervisors. In periods of slack demand, when labor requirements fall, workers may be temporarily or permanently separated from their employer. Without constraints, the question of who goes and who stays is decided solely by the employer. This is not to say, of course, that there are no constraints on employers other than the legal and the contractual. However, at the time Meyers wrote *Ownership of Jobs*, there was little in conventional wage theory which would have suggested any such constraints. Indeed, in the final paragraph of his study, Meyers reacted sharply to a paper by Simon Rottenberg in which the concept of job ownership (in this case applied to the analysis of severance pay) was deemed out of keeping with standard price theory and therefore inefficient.⁵

It is only recently that wage theory has begun to offer some insights into the job ownership concept. That it took so long for theory to catch up with institutional reality is both a sorry commentary on the pace of academic

⁴Ibid., p.15.

⁵Ibid., p.114. The paper is Simon Rottenberg, "Property in Work," *Industrial and Labor Relations Review*, Vol. 15 (April 1962), pp.402-405.

advance, as well as a tribute to those who contributed to the breakthrough. Institutional economics had long pointed to the theoretical discrepancies, but Meyers noted, even institutionalists - including himself - had a hard time overcoming the preconception of neoclassical wage theory in their own writings.⁶ Meyers, in a 1951 paper entitled "Is A Theory of Wages Possible?" noted that a considerable diversity of wage rates for given occupations existed within labor markets, a contradiction of notions of an equilibrium wage rate and the law of one price.⁷ Wage imitation seemed to be a factor in wage determination, and labor markets did not necessarily clear, even in non-union settings. In the union sector, the union-management agreement (which Meyers differentiated from the worker-employer "contract") set wages but did not specify the level of employment.⁸ Wage theory had little to say about these unmistakable observations. Meyers was not adverse to playing with conventional theory at an abstract level.⁹ But as he suggested in a

⁶Frederic Meyers, "Notes on Changes in the Distribution of Manufacturing Wage Earners by Straight-Time Hourly Earnings, 1941-48," *Review of Economics and Statistics*, Vol. 32 (November 1950), p.355.

⁷Frederic Meyers, "Is A Theory of Wages Possible?" *Southern Economic Journal*, Vol. 17 (January 1951), p.321.

⁸Ibid., p.324.

⁹See his "Price Theory and Union Monopoly," *Industrial and Labor Relations Review*, Vol.12 (April 1959), pp.434-445, in which he uses the conventional model to deal with union wage and employment effects.

paper with Roger L. Bowlby, "The task is to identify relationships which exist in a real world and integrate them into a body of theory."¹⁰

Fortunately, the economics literature has begun to follow that prescription for sound analysis. It has done so by observing the gap between the "auction markets" that permeate the elementary price theory textbooks, but characterize relatively few systems of exchange, and the special features of the labor market. In particular, by incorporating transactions costs and information gaps into the model of exchange in the labor market, economic analysis is capable of giving convincing explanations of such real-world phenomena as labor hoarding, layoff systems, situations of no vacancies, wage imitation and wage structures, seniority systems, and the interaction of price inflation and wage determination. It has also developed a view of the function of the trade union that differs from the simple wage monopoly which has been so often found in the literature on union behavior.

I

AUCTION MARKETS

The behavior predicted in the labor market from the auction model is depicted in Figures 1-4. Demand and supply curves are drawn in Figure 1

¹⁰Frederic Meyers and Roger L. Bowlby, "The Interindustry Wage Structure and Productivity," *Industrial and Labor Relations Reviews*, Vol. 7 (October 1953), pp.93-102.

Figure 1
SUPPLY AND DEMAND OF LABOR

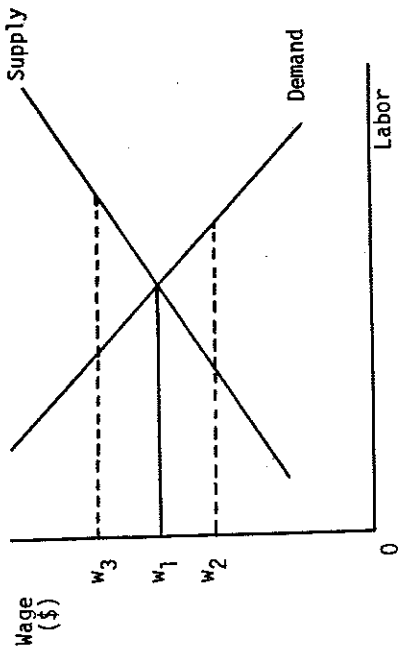


Figure 2
MARGINAL PRODUCT OF LABOR

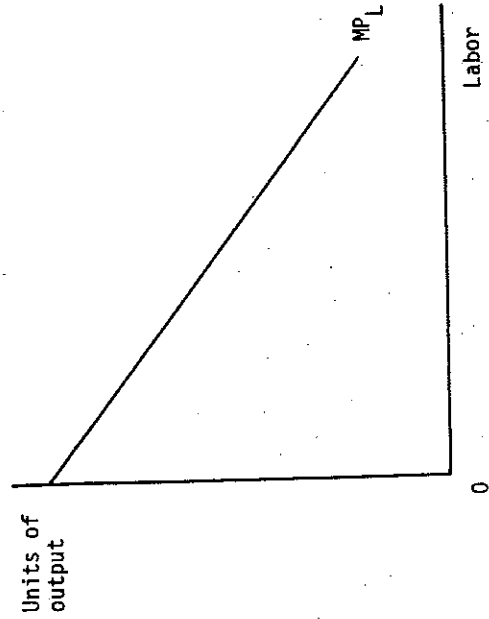


Figure 3
MARGINAL REVENUE PRODUCT OF LABOR

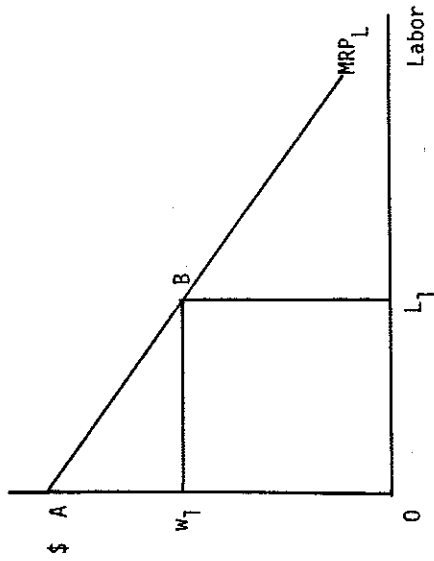
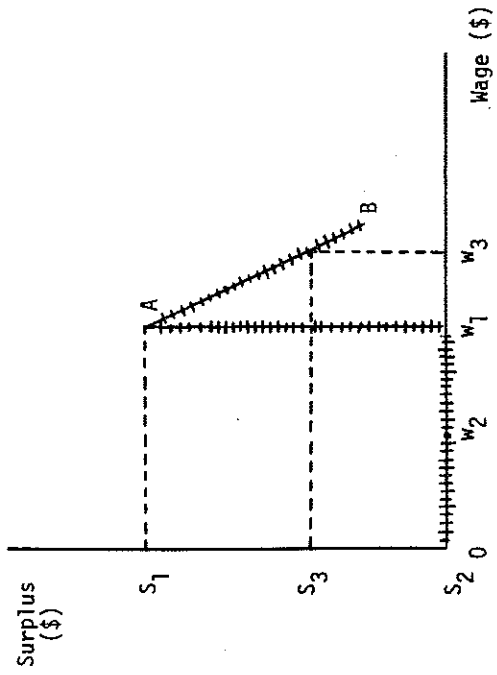


Figure 4
SURPLUS-WAGE RELATION



with their traditional slopes. The demand curves represent the sum of demand of all firms in the labor market for a particular, homogeneous kind of labor. Similarly, the supply curve represents the sum of behavior of all actual and potential participants in the labor market.¹¹ The same sort of demand and supply curves would be drawn for any market; exchanges of labor are treated analogously to any product exchange. However, "wage" has been substituted for "price" on the vertical axis and "labor" has been substituted for "quantity." All participants in the market have perfect information about job opportunities. It is assumed that in situations where demand exceeds supply, such as when $w = w_2$, the "going" market wage rate will rise until the point where the excess demand is choked off by the higher cost and the market "clears" (at w_1). Adjusting the wages upward is costless so there can be no shortages of labor. Similarly, when supply exceeds demand, such as when $w = w_3$, wages fall until the excess supply is eliminated. There can be no involuntary unemployment in this model. Anyone not working has made a deliberate decision to "purchase" leisure by sacrificing wage-earning opportunities due to dissatisfaction with the prevailing wage rate (w_1).

In the auction world, transactions are made continuously and without cost. Workers are joined to employers only by daily (hourly?)

¹¹The labor supply curve is drawn upward sloping in Figure 1. It need not have an upward slope, however, in the relevant range. For example, the concept of a backward-bending labor supply curve is well known.

employment contracts. They do not have "jobs," if that word connotes any continuous association with a particular employer. Firms do not have "employees" with any sort of lasting relation. Indeed, it is not clear that there are "firms" in this market. Rather there are owners of "plants" who transact with owners of labor power, i.e., potential workers. The owners of plants may experience variations of demand for their output which causes them to vary their demand for labor. However, when demand for the output of a particular plant falls off, the plant owner does not really "lay off" workers. Rather, he simply buys less labor in the open market the next day. Workers who are not hired by such a plant would have no interest in recall rights; they immediately find employment at the going wage at some other plant. Such workers lose no income since all employers pay the same wage and - due to perfect information - no work time is lost in job search.

Within plants, there would be no wage structures as such. Obviously, different occupations would receive different wage rates, depending on relative demand/supply conditions. However, there would be no linkage of wage rates through traditional (i.e., enduring) wage differentials. Occupational wages would not be totally independent; they would be linked through substitution and complementary relationships on the demand side, and interoccupational mobility possibilities on the supply side. However, wage differentials would vary each day and, in any case, plant owners would not really "set" wages. Rather they would simply passively accept the wage rates determined by the external market.

Each plant owner in the simple model has a production function, that is, a relationship which links inputs (including labor) to output. With given levels of other inputs, increments of labor are assumed to provide a positive, but diminishing, amount of output. This feature is illustrated in Figure 2 which shows a diminishing marginal product of labor curve. The increments of output can be valued by the amount of extra revenue (marginal revenue) they provide for the firm. If the firm is perfectly competitive, the marginal revenue is simply the price of the output. Hence, the marginal revenue product of labor curve shown in Figure 3 is simply the marginal product curve of Figure 2 multiplied by the marginal revenue.

The "surplus" generated by the plant (revenue minus variable costs = profits + fixed costs) can be determined from Figure 3. If the going market wage is w_1 , profit maximization will lead the firm to set its wage at w_1 and to hire just enough labor (L_1) to equate the marginal revenue product with the wage. Below w_1 , the firm could hire no labor; above w_1 the firm would simply be paying its workers an unwanted "rent." The firm's surplus at w_1 is the area under the MRP_L curve minus the wage bill Ow_1BL_1 , i.e., the surplus is depicted as w_1AB .

Figure 4 illustrates the relationship between the surplus and the wage. Given a market wage w_1 , a plant owner who set wages below that level (example, w_2), would have no labor and therefore no production and no surplus. If the plant owner for some reason decided to pay more than w_1 (example, w_3), labor could be easily hired. (Indeed, a vast line of applicants

would appear at the door since the plant would be outbidding the rest of the market!) However, the higher wage would induce the firm to hire less labor and move up the MRP_L curve, contracting the triangular surplus area of Figure 3. Hence in Figure 4 wages higher than w_1 result in lowered surpluses. The surplus-wage relation is shown as the bent line S_2w_1AB (indicated in Figure 4 by serrations) with a maximum surplus S_1 at wage w_1 . A wage below w_1 yields a zero surplus S_2 . A wage above w_1 such as w_3 yields a diminished surplus w_3 .

Elementary labor economics texts present models of this type. They have the virtue of simplicity and elegance. Their problem is one of restrictiveness; the assumptions made are so constraining that the model is not capable of producing explanation of many important labor-market phenomena. Yet the model is sufficiently beguiling that it is sometimes deemed to explain events which in fact are inconsistent with auction-market behavior.

Consider, for example, the evidence from wage equations that wage inflation slows - all other factors held constant - when unemployment rises. A common interpretation of this finding is that the excess supply of labor exerts a downward pressure on wage determination.¹² While this is probably the explanation for what is observed, note that it is not in keeping

¹²For an exposition of the "Phillips curve" based on excess supply/demand influences, see Bent Hansen, "Excess Demand, Unemployment, Vacancies, and Wages," *Quarterly Journal of Economics*, Vol. 84 (February 1970), pp. 1-23.

with the auction-market mode. In such a model, excess supply provokes an absolute fall in wages; not simply a slowing in the rate of wage increase.

A second such example, and one perhaps fairer to the auction model's micro-level orientation, can be seen in Table 1. During the late 1960s, a surge in demand for engineers and other similar personnel connected with research and the aerospace industry was associated with both real and nominal gains in engineer wages. After 1968, however, the aerospace industry contracted, and there was a well-publicized surplus of engineers. In real terms, engineering salary gains fell (1970) and then rose slowly (1971-72). Obviously, in telling the story of engineer wage determination during this period, the excess-supply situation would be relevant. However, the continuing growth in nominal pay for engineers is inconsistent with an auction-style labor market. As Meyers noted in 1950, while such anomalies may be explained by citing disequilibria in the labor market, once such disequilibria are invoked, the auction theory's assumptions have been violated.¹³ Disequilibria typically involve costs of adjustment which are not part of the model.

II

RELAXING THE ASSUMPTIONS

A modified model of the labor market must be capable of explaining that market's impor-

¹³Meyers, "Notes on Changes in the Distribution of Manufacturing Wage Earners," op. cit., p.355, footnote 9.

Table 1

ENGINEER SALARY DEVELOPMENTS AND RELATED DATA

	Average Annual Employment In Aircraft and Parts* (000s)	(1)	Average Salary for Engineer (2)	Annual Percent Change In Engineer Salary (3)	Annual Percent Change In Consumer** Price Index (4)
1965	620.0		\$ 7512a	2.3%	1.2%
1966	748.2		7764a	3.4	2.8
1967	828.0		8388b	6.4c	2.8c
1968	846.3		9023b	7.6	4.3
1969	799.3		9662b	7.1	5.5
1970	664.2		10209b	5.7	6.0
1971	524.9		10677b	4.6	4.5
1972	494.9		10921a	3.1d	2.7d

Source: U.S. Bureau of Labor Statistics, Handbook of Labor Statistics 1978 (Washington: GPO, 1978), Bulletin 2000, p.330; U.S. Bureau of Labor Statistics, Employment and Earnings, United States, 1909-78, (Washington: GPO, 1979), Bulletin 1312-11, p.363; U.S. Bureau of Economic Analysis, Business Statistics 1979 (Washington: GPO, 1978), p.230.

* All wage and salary earners.

** Same dating as column (3).

aAs of March

bAs of June

cAnnualized March 1967-June 1968

dAnnualized June 1971-March 1972

tant real-world features. A critical feature of the modern labor market is the tendency of buyer (employer) and seller (employee) to stick together. This point is illustrated in Table 2 which shows median years on the current job of employees in 1978. The table shows that at the younger ages time on the current job is quite short, reflecting the part-time and seasonal work behavior of teenagers and younger workers and their recent entry into the workforce. Workers in their late 30s show significant time attachments to their current employer, 6.9 years for males and 3.6 years for females. By the time workers reach their late 50s and early 60s, males typically have spent 14.6 years on the current job and women have spent 8.5 years. These figures, especially for men, show the earmarks of a career attachment, with declining mobility as the career continues.

As might be expected, the degree of job stability varies by industry. In construction, for example, workers often remain with particular contractors only a short time; their tie is more to the industry than to the employer. In the trade sector, career ladders extending from sales jobs are often lacking and younger workers, or workers with part-time attachments to the workforce are commonly employed. Thus, median tenure on the job is quite short. Overall, however, the figures suggest that some costs - either to workers or employers or both - are attached to interemployer mobility.

The costs of turnover to employers become visible during economic recessions. Trends in

Table 2

MEDIAN YEARS ON CURRENT JOB, JANUARY 1978

	Men	Women
All Workers	4.5	2.6
16-24 years	.7	.7
25-34 years	2.7	1.6
35-44 years	6.9	3.6
45-54 years	11.0	5.9
55-64 years	14.6	8.5
65 and older	13.5	8.4
Nonagricultural Wage and Salary Workers	3.7	2.6
Mining	3.5	---
Construction	2.5	1.6
Manufacturing	5.0	3.5
Transportation and Public Utilities	6.6	3.7
Wholesale & Retail trade	2.5	1.5
Finance, insurance, real estate	3.7	2.5
Services	3.5	2.6
Public administration	6.7	3.6

Source: Edward S. Sekcenski, "Job Tenure Declines as Work Force Changes," Monthly Labor Review, Vol. 102 (December 1979), p.50.

employment and hours during the 1974-75 contraction are reviewed in Table 3. By late 1974, employment in the nonfarm sector was dropping sharply. The table shows that the drop was especially concentrated among production and nonsupervisory workers. Thus, there appears to be a class of "overhead" workers whose employment is not tightly linked to output. Even within the production and nonsupervisory category, differential responsiveness of employment to output could be found among different types of workers. It can be seen from the table, for example, that employers partially "shielded" production and nonsupervisory workers from complete separation from employment by reducing weekly hours per employee and overtime. Similarly, as the recovery began, some of the expansion of hours was obtained by increasing hours per worker and overtime per worker rather than hiring new employees. The figures suggest that employers seek to avoid separations of employees during downturns. However, once such separations are made, there is a reluctance on the part of employers to make "commitments" to new workers.

There are two important labor-market characteristics that must be considered in formulating a revised model. First, some explanation must be developed for wage inflexibilities and the loose linkage between wage developments and labor-market slackness or tightness. Second, there must be an explanation of the relatively strong employer-employee linkages that are observed. Both of these characteristics are related and can be tied to transaction and information costs.

Table 3
TRENDS IN PRIVATE, NONAGRICULTURAL
EMPLOYMENT AND HOURS, 1974-75

Quarter	Annual% Change in pay- roll Employ- ment ^{a/c}	Annual% Change in Pro- duction & Nonsuper- visory workers ^{a/c}	Average Weekly Hours ^{b/c}	Average Weekly Hours in Manufac- turing ^{b/c}
	(1)	(2)	(3)	(4)
1974				
I	+ .8%	- .1%	36.7	3.5
II	+1.3	+1.1	36.6	3.4
III	- .6	-1.1	36.5	3.2
IV	-6.6	-7.7	36.1	2.7
1975				
I	-8.9	-10.0	35.8	2.4
II	+ .3	+ .3	36.0	2.4
III	+5.1	+8.9	36.1	2.8
IV	+3.4	+7.8	36.3	3.0

Source: U.S. Bureau of Labor Statistics, *Employment and Earnings, United States, 1909-78*, Bulletin 1312-11 (Washington: GPO, 1979), pp.829, 852, 864, 877.

^aEnd of quarter to end of quarter.

^bLast month of quarter. Production and nonsupervisory workers.

^cBased on seasonally-adjusted data.

At the most abstract level, the auction-market approach involves no individual price or wage setting. A mythical "auctioneer" determines the price or wage for the homogeneous product being exchanged. Buyers and sellers then trade at that price or wage; no individual negotiations are required. A relaxation of the homogeneity assumption - certainly justified in the case of employees - would suggest, however, that some individual haggling and negotiation should be expected. If employees are to some extent unique, and -- for that matter -- if places of employment are also somewhat unique, then employers and employees would have to settle on individual terms and conditions, even in a relatively perfect labor market.

Costs of Decision Making

The need for haggling in the absence of an auctioneer and with somewhat unique employers and employees suggests consideration of the costs of haggling. If haggling is costless, then heterogeneity really would not be of much consequence, although it would explain why a distribution of wages for a given occupation is the rule rather than the exception in the labor market. If haggling costs do exist, however, then rational economic actors would seek to reduce them where possible. And this could provide an explanation for wage inflexibility. Furthermore, it is obvious that haggling costs must exist if haggling takes time, time which could be spent on other pursuits. It will not be argued below that time costs are the major element to be considered; other more important costs will be suggested. However, the time

costs provide a sufficient rationale to begin the analysis.

Consider two alternative strategies for an employer. Strategy 1 involves adjusting wages on a daily basis in negotiations with individual employees. From the employer's viewpoint, the value of a day's work by a given employee might vary due to shifts in product-market demand, changes in technology within the firm (plant), and changes in the employee's perceived productivity. From the employee's viewpoint, these same factors, plus potential alternative employment opportunities, would also be grounds for wage renegotiation. Strategy 2 involves the minimization of haggling costs by reducing their frequency. Under strategy 2 the employer would establish a "policy" of maintaining a given wage rate for an extended period of time. Both employer and employee have a potential surplus to split under strategy 2 if haggling costs are reduced, although how this surplus will be split between them is uncertain. Nevertheless, simply because strategy 2 is formulated as an employer policy it should not be assumed that employees would receive no benefit from it.

Strategy 2 is clearly closer to actual practice than strategy 1. Hence, it can be assumed that the reduction of haggling costs is seen as justifying the loss of flexibility obtained under strategy 1. (As noted above, these costs may involve more than just haggling time.) However, strategy 1 is not totally absent from the labor market. Piece rate payments may be viewed, for example, as a compromise between strategy 1 and strategy 2. Piece rates

are like strategy 1 because they provide an income stream which can vary on a day-to-day, or even hour-to-hour basis. Thus, variations in employee productivity will be reflected automatically in the wages they earn. But the automatic feature is drawn from strategy 2. The piece rate is the policy, and the policy can be changed infrequently. The proportion of workers paid on a basis other than time is relatively small, suggesting that there are costs of implementing such systems including the obvious measurement problems for many occupations.¹⁴

So far, individual employee-employer haggling costs have been considered. Given that there are such costs, still a third strategy, strategy 3, emerges. Even though individuals are unique, and might therefore command different wages, haggling costs can be reduced by avoiding individual decisions. If individuals can be lumped together, then policies can be

¹⁴A recent study of major collective bargaining agreements (those covering 1,000 or more workers) found that wage incentives were included in roughly one-third of them. However, not all the workers covered by the agreements may have been paid on an incentive basis. And the union sector probably contains a disproportionate number of incentive-paid workers due to the overrepresentation of production workers in unions as compared with the overall workforce. See "prevalence of incentives in Major Bargaining Agreements," *Monthly Labor Review*, Vol. 102 (July 1979), pp.32-34. During 1968-70, a survey found that 14 percent of urban "plantworkers" were paid on an incentive basis, down from 20 percent in 1961-63. Office workers were almost all paid on a time basis in both periods. See John Howell Cox, "Time and Incentive Pay Practices in Urban Areas," *Monthly Labor Review*, Vol. 94 (December 1971), pp.53-56.

made on a class basis. Occupations are an obvious distinction, but other suboccupational distinctions can be made. For example, a range of wage rates might be assigned to a particular occupation, and then individuals within the occupation classified by "steps," where the steps are defined by such factors as length of service (which might be correlated with productivity) or the results of relatively infrequent "merit reviews." Occupations can also be grouped by approximate wage levels into "grades," and decisions can be made about the wage rate ranges applied to the grades.¹⁵ The difficulty with such systems is that individuals, and sometimes whole groups, may become misclassified. But the advantage is a reduction in the costs of decision making.

There is nothing in the above discussion which is incompatible with economic rationality. Some readers might be tempted to label the behavior described as "satisficing" rather than maximizing. Yet the distinction is largely

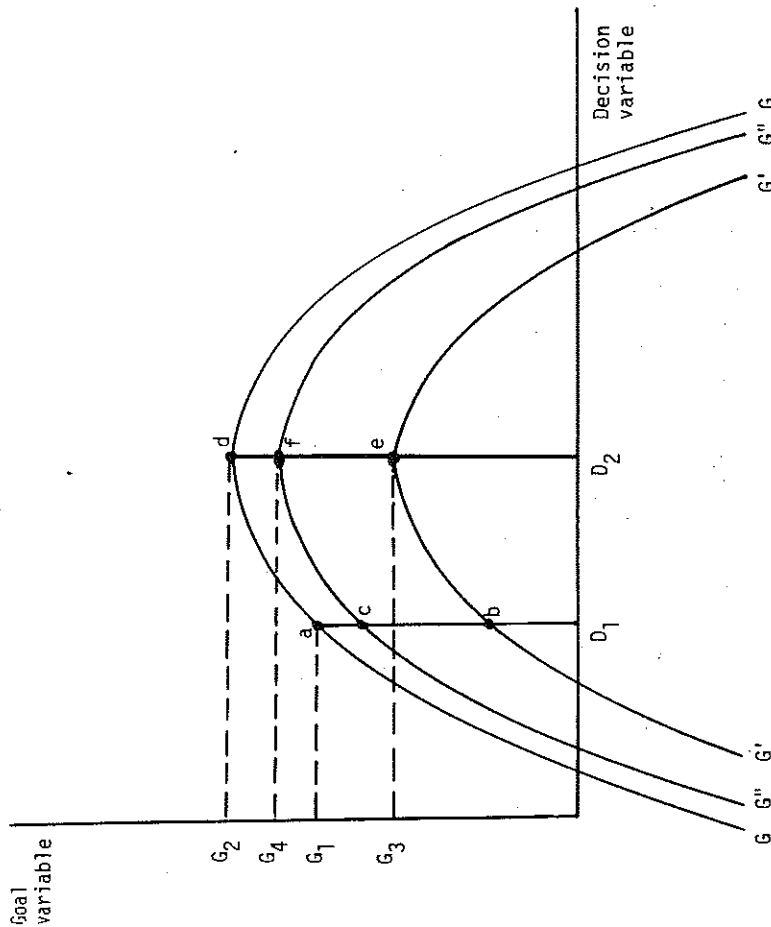
¹⁵In the major union sector, 37 percent of the agreements surveyed as of January 1, 1978, contained some type of "progression plan" for at least some of the covered workers. See U.S. Bureau of Labor Statistics, *Characteristics of Major Collective Bargaining Agreements, January 1, 1978* (Washington: GPO, 1980), p.38. A survey by the Bureau of National Affairs, Inc., in 1972 revealed that 68 percent of companies with plant employees applied a wage progression schedule to them. The comparable figures for office workers, professional/technical workers, and sales workers were 55 percent, 47 percent, and 44 percent. See Bureau of National Affairs, Inc., *Wage and Salary Administration*, Survey No. 97, Personnel Policies Forum (Washington: BNA, 1972), p.14.

semantic in the context of decision costs. Economic maximization models are usually posed as the achieving of the maximum amount of some goal (profits, utility) subject to constraints imposed by costs and technological conditions. The distinction between such models and what has already been sketched is that typical maximization models assume no costs of adaptation to changes in constraints, whereas it has been argued above that adaptation costs are as real as any others.

Figure 5 indicates one example of such adaptation costs. Assume that some goal is being maximized. The amount of this goal that is obtained is measured ordinally on the vertical axis. Assume further that variations of some "instrument" influence the amount of the goals which can be achieved. This instrument is designated the "decision variable" and is measured on the horizontal axis. The relationship between the goal variable and decision variable - absent any decision costs - is shown as the GG curve. Readers familiar with conventional price theory can substitute "profit" for goal variable and "price" for decision variable as an example of a specific case. (Conventional price theory suggests that a firm facing a downward-sloping demand curve will find an optimal, profit-maximizing price somewhere along that curve.)

It is assumed in Figure 5 that the decision variable has been set at level D_1 in the previous "period," but that the underlying relations between the goal variable and the decision variable have been altered in the current period. At present, leaving the decision vari-

Figure 5
GOAL DECISION VARIABLE RELATION
(With one-time decision costs)



able at D_1 would provide G_1 of the goal variable. If a modification of the goal variable can be made costlessly, G_2 could be obtained - the maximum obtainable value of the goal - by setting the decision variable to D_2 . Suppose, however, that a one-shot cost equal to line segment ab in terms of the goal must be paid for changing the decision variable. (Following the profit-price example, suppose that customers feel that they have a contractual entitlement to buy at the old price and will litigate - imposing legal fees - if the price is changed). If any change produces this cost, then GG is effectively shifted down to $G'G'$ which is simply GG minus ab . If only increases in the decision variable produce the cost, then the new relationship between goal and decision variables is the broken line formed by GG to the left of D_1 and $G'G'$ to the right. In either case, G_1 is the maximum amount of the goal variable that can be achieved. At D_2 for example, the goal achievement level is only G_3 .

The existence of one-shot decision costs does not necessarily mean that changes in the decision variable will not be made. If the GG curve shifted up, or if the cost of decision were less than ab , a change might be made. For instance, consider the case of a smaller decision cost ac . A cost of only ac would lower GG to $G''G''$. A decision of D_2 would achieve goal maximization given ac since $G''G''$ reached its highest point at D_2 and the level of the goal achieved (G_4) is greater than the original G_1 . In short, one-shot decision costs restrict, but do not necessarily eliminate, decision changes.

Decision costs might be variable rather than one shot. Figure 6 illustrates a case in which increasing costs are imposed in terms of the goal variable as the decision variable is raised above D_1 . If there were no costs of changing the decision variable, the optimal decision would be to raise the variable to D_2 and obtain G_2 of the goal rather than the original G_1 . If there are "moderate" costs of raising the decision variable, the GG relation is lowered at points to the right of D_1 to a curve such as aG' . The maximum goal that can be achieved along aG' is G_3 , consistent with an increase in the decision variable to D_3 . In this case, the increasing costs of departing from D_1 both lowers the maximum goal that can be achieved (G_3 is below G_2) and the increase in the decision variable (D_3 is less than D_2). If the costs of raising the decision variable rise steeply, the GG relation might drop to a curve such as aG'' to the right of D_1 . In that case, G_1 is the maximum amount of the goal variable that can be obtained and the decision variable remains unchanged at D_1 .

There is nothing especially novel about Figures 5 and 6. Such analysis has been used in other contexts. For example, the various proposals for tax-based incomes policies (TIPs) are based on the proposition that by taxing (subsidizing) excessive (moderate) wage and price behavior, inflationary pressures can be lessened.¹⁶ The various TIP plans are essen-

¹⁶For a review of such plans, see Laurence S. Seidman, "Tax-Based Incomes Policies" in Arthur M. Okun and George L. Perry, eds., *Curing Chronic Inflation* (Washington: Brookings Institution, 1978), pp.65-112.

tially schemes to alter the shape of the GG function.

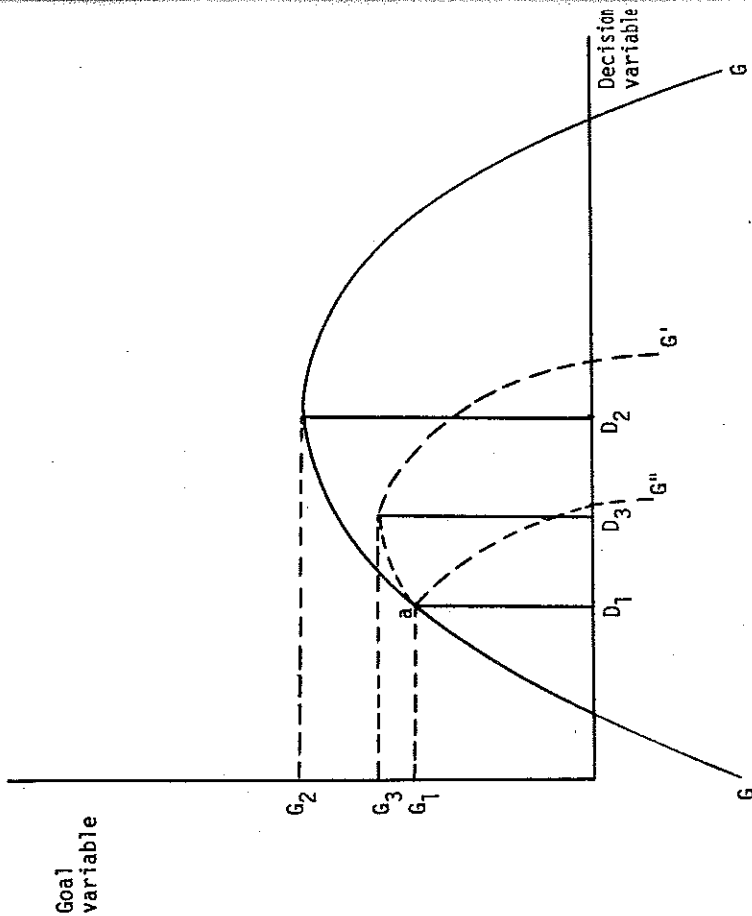
It is clear from the analysis so far that decision costs are likely to "matter" with regard to wage determination. If employers' profits are linked to wages in the manner by which the goal variables of Figures 5 and 6 are linked to the decision variable, decision costs will tend to reduce the frequency and extent of wage changes. It will be suggested below that there are decision costs surrounding wage determination which go beyond (but include) the time costs of haggling with individuals or even gathering information on occupations or other classes. These costs relate to the cost of turnover and mobility, both to the employer and employee, and form a powerful analytical justification for observed labor-market behavior.

The Turnover-Costs Approach

There are costs associating with the coming and going of employees to both employers and workers.¹⁷ From the employer viewpoint, costs arise because information in the labor market is, in fact, imperfect. Potential

¹⁷The discussion in this section is based heavily on the analysis developed in Arthur M. Okun, *Prices and Quantities: A Macroeconomic Analysis* (Washington: Brookings Institution, 1981). See also Michael L. Wachter and Oliver E. Williamson, "Obligational Markets and the Mechanics of Inflation," *Bell Journal of Economics*, Vol. 9 (Autumn 1978), pp.549-571.

Figure 6
GOAL-DECISION VARIABLE RELATION
(With variable decision costs)



employees are not identical and must be "screened." Screening can involve interviewing, testing, investigation of previous work histories, etc. Moreover, potential employees may not simply be standing around in the personnel office awaiting screening. They may have to be recruited, a process that can involve advertising, employment agency fees, transportation of potential candidates for interviews, and so on.¹⁸

Once hired, entering employees may require some training. While certain skills may be readily found in the labor market (general skills), the human capital literature also recognizes skills which are specific to the employer and therefore not readily available outside. In some cases these may be tangible skills which can be learned in a formal on-the-job or classroom training arrangement. Such

¹⁸The direct costs of recruiting applicants are not likely to be high for nonmanagerial employees. Many firms are able to rely on "walk-ins" (although such policies imply maintaining an office where walk-ins can be accommodated) or referrals by current employees (although in some cases employees receive some sort of bonus for referrals). See Bureau of National Affairs, Inc., *Recruiting Policies & Practices*, Survey No. 126, Personnel Policies Forum (Washington: BNA, 1979), pp.2-7.

formal training is costly and involves use of resources - including the time of other employees. Apart from formal training, a new hire may simply need to learn his or her way around the organization, e.g., who is in charge of what, how problems are resolved, etc. Informal acclimation may be required before the new hire is able to function efficiently and without placing burdens on others. Since all organizations function differently, such socializing of new employees can be considered a form of training in employer-specific skills.

At the point of exit (quits), costs may also arise. There may be specific costs of exit involving record keeping, exit interviews, etc. (In the case of involuntary exits there may also be unemployment insurances related costs, especially for employers affected by experience-rating systems.) Abrupt quits may, in some cases, result in production disruptions, depending on the function of the person leaving. In the main, however, it is likely that the cost of quitting is closely associated with the cost of hiring. That is, in the steady state, each quitting employee imposes the cost of hiring a replacement on the employer. Put another way, each quitting employee embodies a certain investment made by the firm in recruiting, screening, and training. The depreciation of this previous investment in employees must be made up in the form of new investment, just as the depreciation of physical capital requires replacement. And, as in the case of physical capital, firms will find it worthwhile

to invest in employee "maintenance" to retard the rate of depreciation.¹⁹

It is easy to speculate on the costs of turnover but more difficult to point to hard data about them. To the extent that measurement has been attempted, however, it does appear that the costs can be considerable. Table 4 presents the results of a survey of the Merchants' and Manufacturers' (M&M) Association, an employers' group in Los Angeles. The Association asked 2300 companies to participate in a survey of turnover costs in 1979. About 26 percent volunteered to cooperate, and about 18 percent of these produced detailed statistical breakdowns following the M&M Association's format. Obviously, this is a very limited sample. Moreover, it appears that those who produced detailed (and presumably more reliable) data were firms with higher turnover cost. That is, firms with special reasons to be concerned about such costs appear to have self-selected themselves into the sample.²⁰ Nevertheless, the costs do bulk large relative to the annual salary levels that probably prevailed in the

¹⁹Appendix A demonstrates that employers with turnover costs will pay a wage less than the marginal revenue product of labor and will offer a higher wage as the cost of turnover increases.

²⁰Firms not represented in Table 4 - those who could not provide detailed estimates but could provide totals - reported to the M&M Association the following costs of turnover (separation plus replacement) for production/maintenance, office/technical, and salaried exempt employees: \$1,029.09, \$1,332.84, and \$4,260.39, respectively.

Table 4
MERCHANTS AND MANUFACTURERS ASSOCIATION
SURVEY OF TURNOVER COSTS

	Production's Office & Salaried	
	Maintenance Technical	Exempt
I SEPARATION COSTS		
A. Lost production between declination to terminate and effective date	\$ 100.00	\$ 200.00
B. Exit interview costs	78.00	13.33
C. Paperwork processing costs	54.75	7.00
D. Severance pay (if applicable)	-----	1,020.00
Sub-Total	\$ 233.25	\$ 1,240.33
II REPLACEMENT COSTS		
A. Advertising (all media)	\$ 351.25	\$ 288.33
B. Recruitment (travel expenses for recruiters and/or applicants)	27.50	6,000.00
C. Administrative costs (Interviewing, reference check, paperwork, testing)	489.00	150.00
D. Medical examination	403.00	207.00
E. Induction procedures	207.75	72.33
F. Break-in cost (sub-standard production of new employee)	1,000.00	1,550.00
G. Breaking-in cost (time spent by supervisors or fellow workers performing on-the-job training)	900.00	400.00
Sub-Total	\$3,378.50	\$ 9,115.83
Total	\$3,611.75	\$2,291.50
		\$10,356.16

Source: Merchants and Manufacturers Association, *Turnover Absenteeism Manual* (Los Angeles: M&M, 1980), Section III, Table 1. Data collected March, June, September, and December 1979.
NOTE: Only a small number of manufacturing firms were able to provide these figures.

three occupations reported in Table 4, particularly in view of the relatively short time available to amortize these costs implied by median tenure on the job data of the type found above in Table 2.21

Employees also bear costs of turnover, especially if the turnover is involuntary as in the cases of layoffs or discharges. The costs revolve around the job-search process. Upon losing a job, a former employee may not immediately be able to locate another one which can provide equal or better pay or satisfaction. To some extent, the problem may be attributed to imperfect information in the labor market, i.e., it may take time for an employee to find a new position. Thus, the economics literature has developed a theory of job search in which employees "sample" alternative opportunities over a period of time, at each step calculating whether it "pays" to search more or accept the latest offer.²² However, the problem of unem-

²¹Median tenure on the job in the production/maintenance category will vary according to the specific type of job. For example, male nonfarm laborers reported median tenure of 1.6 years in January 1978, while male craft workers reported 4.9 years. For females, the figures were 1.6 and 2.7 years respectively. The office/technical group might be compared with clerical workers who reported tenure of 2.6 years for females and 4.7 years for males. See the reference cited in Table 2.

²²See, for example, Reuben Gronau, "Information and Frictional Unemployment," *American Economic Review*, Vol. 61 (June 1971), pp.290-301; and Dale T. Mortensen, "Job Search, the Duration of Unemployment, and the Phillips Curve," *American Economic Review*, Vol. 70 (December 1970), pp.847-862.

ployment is not well described by this model. An employee may be aware of where employment exists and the pay rates associated with it, may be willing to work at those rates, and may be unable to find an "opening." That is, employers who supply employment at a given wage may be unwilling to offer it to outsiders. They do not accept new applicants and they have no procedure whereby an outsider can underbid the existing workforce. Such employers have "no vacancies," a concept which is incompatible with an auction market, even one in which it takes time to uncover information.²³

In short, the primary cost of involuntary turnover to employees is the loss of income associated with unemployment.²⁴ The fact that the market produces situations of no vacancies is a central feature to the cost of unemployment. And, as will be seen in a moment, turnover costs themselves can explain why situations of no vacancies exist, i.e., why employers do not permit underbidding by job applicants of their current workforces. Obviously, there is a class of employers who do not permit underbidding because they are obligated to

²³This point is particularly stressed in the Okun study cited in footnote 17.

²⁴Severance pay is often considered to be a union-related fringe benefit. However, many employers appear to offer it to nonunion employees. In effect, the employer is recognizing the separation cost to the employee and showing "good faith" by offering such a payment as part of personnel policy. The existence of such pay is an assurance to nonseparating workers. See Bureau of National Affairs, Inc., *Separation Procedures & Severance Pay*, Survey No. 121, Personnel Policies Forum (Washington: BNA, 1978), pp.14-18.

maintain the existing wage due to union contract or minimum wage law. Since many employers do not fit into either situation, their unwillingness to permit underbidding must also be explained by some type of "obligation." The task remains, therefore, to explain why turnover costs might produce such obligations.

Incentives for Implicit Contracts in the Labor Market

The existence of turnover costs creates a margin of uncertainty and ambiguity in wage determination. Consider the following circumstance. Suppose a new employee has been offered a salary of \$450 per week and accepts the offer. Suppose further that the employee believes that the \$450 is about the salary that could be commanded on a comparable job elsewhere, but that it would probably take 5 weeks to find a comparable job. If the employer after hiring announced that a new policy of paying only \$440 for the job had gone into effect, the new employee might remain, even if he or she would not have accepted a \$440 offer initially. The new employee would have to weigh the probable loss of \$2,200 (\$440 x 5 weeks) against an indefinite "loss" of \$10 per week relative to what was initially expected. Thus, the existence of turnover costs - in this case the costs of lost income during job search of the employee - opens up a possible bargaining margin for the employer.

There is a symmetrical problem from the employer viewpoint. Employees do not have "policies" about wages in the same way that employ-

ers do. But they do have the possibility of quitting a job. Obviously, one check on the quitting option is the state of the external labor market. Table 5 illustrates this basic point by matching quit-rate data in manufacturing against the manufacturing unemployment and layoff rates. As can be seen from the table, periods of labor-market slack (high unemployment and layoff rates) are usually marked by reductions in the rate of quitting. Nevertheless, there is always some quitting going on and the opportunities for alternative employment can vary substantially by occupation and individual circumstances.

When an employee quits, an investment in hiring costs and training costs is lost to the firm; to replace the quitting employee, someone else must be hired and trained. Hence, once an employee is hired, the employer should be willing to pay a premium to reduce the possibility of a quit.²⁵ The bigger the premium relative to the market average wage for the particular type of employee, the more attractive is the job relative to outside opportunities. However, neither the employer nor the employee may be fully aware of the range of outside opportunities. Moreover, the opportunities and degree of mobility of workers will vary according to such circumstances as family status and "tastes." In principle, a different premium might be set for each employee. But this might be difficult to accomplish since in the negotiations for the premium, the employee and em-

²⁵As noted earlier, this point is shown in Appendix A.

Table 5

QUIT RATES, LAYOFF RATES, AND UNEMPLOYMENT RATES IN MANUFACTURING, 1969-1979
(Monthly Average)

Year	Unemployment Rate	Layoff Rate	Quit Rate
1969	3.3%	1.2%	2.7%
1970	5.6	1.8	2.1
1971	6.8	1.6	1.8
1972	5.6	1.1	2.2
1973	4.3	.9	2.7
1974	5.7	1.5	2.3
1975	10.9	2.1	1.4
1976	7.9	1.3	1.7
1977	6.7	1.1	1.8
1978	5.5	.9	2.1
1979	5.5	1.1	2.0

Source: U.S. Bureau of Labor Statistics.

ployer would both have incentives to obscure their true motivations. A problem of haggling costs is inherent in the existence of turnover costs, since turnover costs create an uncertain range of wage determination.

To avoid haggling costs and turnover costs, it may pay both parties to develop a long-term implicit understanding. An employer may not wish to bargain with each employee but instead to set forth to all prospective job holders a general set of policies. A new hire would receive an assurance of a starting wage and a vaguer assurance that it was company policy to act in a "fair" manner in wage setting practices. "Fair" is obviously a vague concept but it might convey a willingness to keep up wages with the outside market, to avoid arbitrary dismissals, to accommodate to such contingencies such as employee absence or tardiness under "reasonable" circumstances, etc. Not all employers might find it advantageous to offer such conditions. Those with low investments in their employees would not. Even where such understandings were offered, of course, there might well be room for dispute at some future date over whether the agreement had been fulfilled.

If an employer does find it advantageous to offer implicit understandings, a variety of social conventions may help to determine what is entailed. The notion that employers are more obligated to long-term employees than to newcomers would be widely accepted. It is basically a seniority criterion in which the increased costs of mobility to older workers are

recognized. And it also reflects a general employer preference to cater to those who embody the greatest employer investment. As a social norm, it is reinforced by the existence of publicized union contracts which formalize seniority and by legislative enactments such as the Age Discrimination in Employment Act.

The social norms of fairness suggest equal treatment in equivalent situations. Equal and equivalent lend themselves to various interpretations. However, a policy of granting comparable wage adjustments, i.e., maintaining traditional pay differentials can easily be rationalized in such terms. Phenomena such as setting wages in relation to some outside group can be justified on equity grounds (fulfilling the implicit contract), as well as by short-term supply/demand criteria.

Left to their own devices, employers prefer to have the option of overriding the implicit agreement. They recognize that actions which appear unfair, arbitrary, or inequitable may cause morale, productivity, and turnover problems. Hence, their behavior will be self-constrained. This does not mean, however, that circumstances can never arise in which it pays to bear those costs, rather than attempt to live up to an outmoded commitment. If the product market sours, readjustments which had not been contemplated may seem necessary. Thus, the employer has mixed motivations; the implicit contract must be attractive. However, it should also be flexible enough so that the frequency with which it has to be overridden can be kept low. The implicit contract is likely to be somewhat fuzzy. Despite its existence,

employees will be frustrated with its application from time to time. They will have "grievances," whether or not a formal procedure for hearing those grievances is available.²⁶

Turnover costs ultimately provide a rationale for the existence of organizations. Organizations are groups of people who are stuck together for some indefinite period to accomplish some given end. Handling the frictions that result is usually considered the realm of the psychologist, sociologist, and organizational development expert. Students who take formal training in "personnel management" are usually referred to the writings of such individuals. Yet the economist has a role here, too. That role is to define why the organization exists in the first place. In the simple auction market model, the economist is at a loss to understand organizations or grievances. Where there are no relationships, such problems cannot arise. But with the addition of turnover and haggling costs, economic rationality points to the establishment of relationships and organizations.

The Nature of the Implicit Contract

As already noted, turnover costs lead to implicit long-term understandings in the labor

²⁶Nonunion employers often have complaint or grievance systems, sometimes with an outside arbitrator as a final appeal. Of course, the motivation for offering such systems is partly to avoid unionization. See Ronald Berenbeim, **Nonunion Complaint Systems: A Corporate Appraisal**, Report No. 770 (New York: Conference Board, 1980).

market. Under these understandings, issues of equity and fairness become important. Wage decisions, therefore, become linked to influences which do not necessarily reflect the short-term ups and downs of the labor market. Equity and fairness do not dictate that wages should fall in the face of excess labor supply. To the contrary, equity considerations suggest that employers should not "take advantage" of the external situation by cutting wages. Workers might well expect a "normal" wage increase - particularly in a period when nominal wage increases have become the norm - despite a recession. On the employer's side, however, the exact obligation is not precisely defined and in a general recession the average employer's "ability to pay" is diminished. The employer may well give an increase but perhaps not as generous as what might have occurred in more prosperous times. Given knowledge of the recession by employees, an employer can invoke a fairness argument for somewhat reduced increases. ("We would like to give more, but due to depressed business conditions..."). Employees receive a limited "property right" in their jobs as part of the implicit contract. But, as with other equity participants in the enterprise, their returns may suffer if the employer experiences a decline in demand.

The behavior of wages in aggregate economic studies can be explained by the implicit contracts scattered throughout the labor market. Typically such studies find that wage change can be explained by a combination of nominal and real influences. Slackness in the

labor market - measured by the unemployment rate or some other variable - plays a role in showing the rate of wage increase. However, the effect is quite moderate, particularly when recent years are included in the observations, and does not suggest auction-market behavior. At most, in the range of unemployment rates experienced in the late 1970s, a one percentage point increase in the rate of unemployment has an initial impact on wage change of half of one percentage point or less.²⁷ The aggregate equations suggest that lagged price or wage inflation has a stronger influence on current wage change. Wages seem to be trying to keep up either with prices or other wages (equations do not easily distinguish one hypothesis from the other because wage and price changes are so highly correlated), with some deviations from normal attributed to fluctuations in the degree of excess supply or demand.²⁸

Since the implicit contract imposes a certain insensitivity of wage change to supply and demand considerations, the labor market may not

²⁷Daniel J.B. Mitchell, "Union Wage Determination: Policy Implications and Outlook," *Brookings Papers on Economic Activity* (3:1978), pp.544-545.

²⁸Mitchell, "Union Wage Determination," op. cit. pp.554, reports the common result that when wage increases of a particular group pull ahead of the general average, a tendency seems to develop to bring them back in line later. This tendency is not always dominant, however, and some units seem able to change their position in the wage hierarchy permanently.

"clear" in the conventional sense.²⁹ That is, it may be observed that firms give wage increases despite a fall in the external demand for labor and their own demand. They may indicate that they have no vacancies, while at the same time raise wages. Or, they may experience periods of labor shortage and unfilled vacancies without accelerating their rate of wage increase sufficiently to fill those vacancies.

During periods of unemployment and falling demand, the firm may itself experience a decline in the amount of labor it needs for production at the wage rates it offers. Initially, the firm may be reluctant to shed labor, since laid off workers might eventually have to be replaced with new workers when prosperity returns, requiring new investments in recruiting, screening, hiring, and training. Firms may initially hoard labor - producing the well known decline in productivity that usually accompa-

²⁹There is an alternative view of the implicit contract which attributes observed wage insensitivity to an attempt by employers to iron out fluctuations in income for risk-averse workers. This alternative approach, while theoretically elegant, is not persuasive to this author. However, those who follow the risk-aversion approach are inclined to redefine the notion of market "clearing" so that layoffs and involuntary unemployment are subsumed in the definition. That is not the definition employed in this paper. For an example of the "risk-aversion" approach, see Robert E. Hall, "Employment Fluctuations and Wage Rigidity," *Brookings Papers on Economic Activity* (1: 1980), pp.91-123, especially p.112.

nies recessions - hoping that the fall in demand is temporary³⁰

In principle, firms might offer their workers reduced wages in lieu of layoffs. The firm might be indifferent between a ten percent wage cut and a ten percent layoff, since both lead to the same reduction in the wage bill. However, two problems would arise from such a strategy. An across-the-board wage cut hits all workers, senior and junior, while the firm may prefer to favor its senior workers during a slack period. Moreover, the firms would have to convince workers that a 10 percent cut is warranted by financial conditions, a difficult contention to "prove." The layoff alternative seems more attractive because it favors senior workers (who retain their jobs and full-time incomes), and because it obviates the need to prove that the implicit contract is not being violated. Workers can verify that 10 percent fewer widgets are coming down the assembly line and it may seem logical that a ten percent smaller workforce is required. At least in a layoff, the employer cannot be accused of exploiting those who are not working!

Layoffs are also an attractive adjustment strategy because the employer need not lose all the investment in laid-off workers. Firms can establish recall systems whereby laid off em-

³⁰A literature on labor hoarding related to turnover costs (often attributed to specific training expenses) emerged from Walter Y. Oi, "Labor as a Quasi-Fixed Factor," *Journal of Political Economy*, Vol. 70 (December 1962), pp.538-555.

ployees are notified when new jobs become available.³¹ In a general recession, the prospect is reduced that a laid-off worker will find an alternative job that would be more attractive than returning to the initial position. Thus, some of the past investment in workers can be recovered. If laid-off workers believe that the implicit contract will make them less prone to future layoffs as they accumulate seniority with the firm, they may be more willing to stick around - even while receiving no salary - for the opportunity of eventually returning and strengthening their own rights.

As with other aspects of the implicit contract, the practices which develop become reinforced by social norms and public policies. A certain justice in protecting senior workers from income fluctuation is seen in layoff systems. And the federal/state unemployment compensation program is built around the layoff system; it discourages adaptation by wage re-

³¹U.S. Bureau of Labor Statistics, **Characteristics of Major Collective Bargaining Agreements**, op. cit., p.90, reports that 71 percent of the union contracts studied permitted the retention of seniority rights during layoff, thus giving laid-off workers a vested interest in retaining an affiliation with the employer. Nonunion practices in this area are difficult to determine. However, it does appear that the principle of recall from layoff is universal. Firms do not regard laid-off employees as permanently separated and make an effort to recall them by mail or telephone when vacancies develop. See Bureau of National Affairs, Inc., **Layoff and Unemployment Compensation Policies**, Survey No. 128, Personnel Policies Forum (Washington: BNA, 1980), p.11.

ductions since the resulting income losses are not compensable. (In fact, workers who accept wage cuts might reduce the payment for which they would eventually qualify if a layoff later occurred.)

In summary, the implicit-contract approach is sufficient to explain the commonplace observations of non-clearing labor-market phenomena such as layoffs, unfilled vacancies, wage imitation and maintenance of traditional differentials, pay increases in the face of slack demand, and - indeed - the existence of the "internal labor market" within firms.³² It can also be invoked to explain the peculiar (from the viewpoint of classical economics) behavior of aggregate wages in the face of real economic fluctuations. The implicit-contract approach does not require rejection of economic rationality as an explanation of observed behavior. However, it does become difficult to distinguish between maximizing and satisficing behavior in a complex world with indefinite horizons.

Unions and the Implicit-Contract Approach

There has been a tendency in the economics literature to view unions as labor-selling

³²An oft-cited reference on the internal labor market is Peter B. Doeringer and Michael J. Piore, **Internal Labor Markets and Manpower Analysis** (Lexington, Mass.: D.C. Heath and Co., 1971). In this work, Doeringer and Piore seemed receptive to the turnover-cost approach. However, in later writings, Piore - at least - tended to downplay this interpretation for a more "sociological" approach. See his comments in reply to a criticism of dual labor market theories in **Brookings Papers on Economic Activity** (3:1974), pp.684-688.

principles of fairness cannot be specified for every conceivable circumstance. The widespread use of grievance-arbitration systems in the collective-bargaining sector is a response to the need for interpreting contractual obligations over which differences of opinions can arise.³⁴ It has been noted that union workers tend to have lower rates of turnover than non-union employees. This is partly due to the wage premiums which accompany unionization. But it may also be due to the ability to resolve disputes internally rather than severing the employer-employee relationship.³⁵

Unions can be viewed as occupying a point on a spectrum running from casual employer-employee arrangements to implicit understandings to formal contracts. Obviously, the union contract falls within the last category. In many cases, the practices that are formalized in union contracts - including seniority - reflect less formal arrangements that pre-date unionization.³⁶

³⁴U.S. Bureau of Labor Statistics, **Characteristics of Major Collective Bargaining Agreements**, op. cit., p.105, found that over 96 percent of the union contracts studied contained grievance-arbitration provisions.

³⁵Richard B. Freeman and James L. Medoff, "The Two Faces of Unionism," **Public Interest**, Vol. 57 (Fall 1979), pp.78-79.

³⁶Feller, for example, notes that union contract provisions often arise out of standard industrial practices. See David E. Feller, "A General Theory of the Collective Bargaining Agreement," **California Law Review**, Vol. 61 (May 1973), p.721.

firms. Such models are at best highly oversimplified and at worst highly misleading.³³ They lead to a heavy focus on the wage demands of unions - an interesting topic to be sure - but fail to place those demands in the broader perspective of the complete union contract.

The implicit-contract approach suggests that nonunion employers will often find it advantageous to offer promises concerning future treatment to employees. Such promises might be unwritten understandings, although in larger firms they might well be incorporated in personnel department documents. It is likely to be desirable from the employer viewpoint that the understandings not be ironclad commitments since all future circumstances that may affect the firm cannot be foreseen. Given the fuzziness that results, employees may feel at times that the commitments as they understood them are not being honored. Or there may be a disagreement over whether "fair" treatment is being applied in a given situation, say, a case of employee discipline.

A significant element of what unions do can be seen as a formalization of the implicit understanding which may exist in a nonunion firm. Thus, formal arrangements regarding seniority, such as layoff procedures, are common in labor-management agreements. Even with a written document, however, the application of

³³Daniel J.B. Mitchell, "Union Wage Policies: The Ross-Dunlop Debate Reopened," **Industrial Relations**, Vol. 11 (February 1972), pp.46-61.

III

CONCLUSIONS AND AFTERTHOUGHTS

Meyers described the division of the union and nonunion sectors as "so sharp...that for purposes of employment tenure, they may almost be called two worlds."³⁷ In the view expressed above, there are definite distinctions to be made between union and nonunion situations in terms of compensation levels and the formality of the relationship. However, the dichotomy is probably sharper from a strictly legal viewpoint than from an economic perspective. Legally, an unwritten contract may be only as good as the paper it's written on. In practice, economic life is filled with unwritten understandings that govern how things are generally done, although they allow little direct recourse when violated. This is not only a property of the labor market; business relationships between buyer and seller are common. When credit is tight, banks may limit their lending to "old" clients. When order backlogs pile up, sellers may give preference to traditional customers. In fact, even apart from the economic sphere, unwritten codes of behavior govern family life, the relations between neighbors, and expected conduct when riding a bus or elevator, to cite a few among many examples.

Unions are one avenue through which workers dissatisfied with the way in which employment understandings are followed can express themselves. Yet one of the distinguishing fea-

³⁷Meyers, *Ownership of Jobs*, op. cit., p.4.

tures of the union sector in the U.S. since the mid-1950s has been its decline as a proportion of the workforce. The causes of this decline are interesting subjects for speculation.³⁸ But the fact is unmistakable. Hence, Meyers' comment - cited at the outset of this essay - needs to be emphasized. Meyers noted that non-union workers have a sense of job ownership but lack the means to enforce it. If unions, for whatever reason, are less available as enforcement agents, where will such workers turn?

One possibility is that the relative decline in the union sector will return the labor market eventually to a *laissez-faire* and unprotected position, much as it was in the 1920s. However, recent evidence suggests that nonunion workers - even those who have no desire to unionize - still would like some type of "representation."³⁹ Increasingly it has been the practice, when dissatisfied with a market outcome, to turn to government for redress. Thus, the alternative possibility - assuming a continued decline of relative unionization - is that government mandates will play an increased role in the labor market of the future. To some extent this trend is already evident; the government now plays a direct role in regulating occupational health and safety, the con-

³⁸See Daniel J.B. Mitchell, "Collective Bargaining and Wage Determination in the 1970s," *Proceedings of the Thirty-third Annual Meeting of the Industrial Relations Research Association*, September 1980 (Madison: IRRA, 1981).

³⁹Thomas A. Kochan, *Collective Bargaining and Industrial Relations: From Theory to Policy and Practice* (Homewood, Ill.: Irwin, 1980), p.498.

tent and financing of pension plans, and the offering of certain kinds of medical benefits. As a byproduct of the Civil Rights Act of 1964 and related efforts, the federal government and the courts have a considerable influence on the operation of internal personnel systems with regard to recruiting, screening, promoting and layoffs. Although there is no simple quantitative guide to the cumulative effects of these programs, their influence has most certainly been to formalize personnel management processes.

There are other demands being heard for governmental underwriting of workplace guarantees. Some nonunion firms have established arbitration systems, possibly to fend off unionization drives. But the suggestion has been made that all workers should have recourse to arbitration. Labor court systems of the type described in Meyers' *Ownership of Jobs* and his later research⁴⁰ are in use elsewhere in the world; they might be adapted in some way to the American system. One possible wedge in expanding formal due process rights to nonunion workers might be the argument that private federal contractors should be subject to the same type of grievance mechanisms to which government em-

⁴⁰See also, Frederic Meyers, *Mexican Industrial Relations from the Perspective of the Labor Court* (Los Angeles: UCLA Institute of Industrial Relations, 1979).

ployers are subject.⁴¹ There have also been legislative demands to restrict the rights of employers to shut down or move plants.⁴² In short, while informal understandings in the labor market may well develop "naturally" in response to economic pressures, the absence of an enforcement mechanism may well be a spur to future government regulation.

⁴¹In one case, a private defense contractor was held to be required to provide due process to employees by virtue of the linkage with the federal government. See Benjamin Aaron, "The Impact of Public Employment Grievance Settlement on the Labor Arbitration Process" in Joyce Corrage, Virginia A. Hughes, and Morris Stone, eds., *The Future of Labor Arbitration in America* (New York: American Arbitration Association, 1976), pp.21-23.

⁴²See, for example, the provisions of the proposed "National Employment Priorities Act of 1979" (H.R. 5040) which would have provided advance notification for plant closings, government investigations of such closing, and compensation (at employer expense) for affected workers.

APPENDIX

WAGE DETERMINATION IN THE FACE OF TURNOVER COSTS

In the simple auction-market model, the employer can hire an unlimited amount of labor at the market wage. If, for some reason, an employer offered more time than the market wage, turnover (quits) would be extremely low. And since labor is assumed to be homogeneous, any quits could be easily (costlessly) replaced from the excess supply of labor willing to work at an above-market wage. If an employer paid less than the market wage, no labor would be employed at all. Hence, the auction-market model does not deal with turnover problems.

A simple modification of the model, however, is sufficient to demonstrate two points. First, in the face of turnover costs, employers will pay a wage which is less than the marginal revenue product of labor (MRP_L). In contrast, the auction model suggests a wage equal to the marginal revenue product. Second, as turnover costs increase, the employer will set a higher wage, i.e., will pay a "premium" to reduce the costs of turnover.

In the auction model, since the wage is fixed externally, the only variable the employer controls is the amount of labor. By changing the labor-to-capital ratio, the firm can adjust the marginal product (and, hence, the marginal revenue product) of labor.

A more realistic model must permit turnover considerations. The employer can still determine the stock of labor employed. However, the quit rate from the stock will vary inversely with the wage. A low-wage employer can maintain a given stock of labor. However, a high quit rate will have to be balanced by a high new-hire rate. The employer's labor pool can be compared with a bathtub with an open drain. A full tub can be maintained providing a sufficient flow of water into the tub (enough to balance the outflow) is provided. The bigger the outflow, however, the bigger the inflow must be.

Suppose the labor costs of the firm - which will be assumed for convenience to be the only variable costs - are represented as:

$$(1) C = wL + tT$$

where C = costs, w = the wage per worker set by the employer, t = the steady-state costs of turnover per quitting employee (recruiting, screening, training, etc.), L = the number of employees, and T = the number of quitting employees per "period." Suppose further that the number of quitting employees is determined by equation (2):

$$(2) T = qL$$

where q = the quit rate (quits per employed worker). The quit rate q can be assumed to be negatively related to the wage; but with a diminishing effect, since q cannot be less than zero. That is:

(3) $q = q(w), \quad q' < 0, \quad q'' > 0.$

The firm has two variables with which to maximize profits: w and L . Profits can be maximized by maximizing the difference between revenue, R , and variable costs. At the point of profit maximization, the partial derivatives with respect to w and L should be equal to zero. Partial differentiation with respect to L yields

(4) $\frac{\partial R}{\partial L} - w - tq = 0$

or

(5) $w = MRPL - tq$

Since t and q are positive, the wage is less than the marginal revenue product of labor. The employer "recoups" the costs (t) associated with probability that any given employee might quit (q), i.e., the expected quit costs per employee (tq), by adjusting the marginal revenue product of labor to be higher than the wage. Such adjustments can be made by manipulating the labor-to-capital ratio.

Partial differentiation of R-C with respect to w in fact involves only the costs component of the difference, since revenue is a function only of output (and, hence, labor) and not a function of w . This is because it is assumed that L is not a function of w . (Recall that w affects turnover, but that even high quit rates are compatible with any level of L , providing that an equivalent rate of new hires is maintained.) Differentiation with respect to w yields:

(6) $-L - \frac{\partial q}{\partial w} Lt = 0$

or

(7) $L = - \frac{\partial q}{\partial w} Lt$

Equation (7) highlights the tradeoff with regard to costs facing the employer. The increase in the wage bill (wL) due to raising the wage by one dollar is simply L , i.e., the left-hand side of equation (7). An increase in w clearly raises the wage bill. In contrast, the effect of a one dollar increase on the wage or turnover costs is the product of the resulting decrease in the quit rate times the number of employees to which the quit rate applies times the cost per quit. This product is the right-hand side of equation (7). Thus, equation (7) says that the employer should raise the wage until the marginal cost increase associated with the wage bill is just offset by the marginal cost decrease associated with turnover reduction.

The wage associated with this marginal cost calculation is invariant with the level of employment. This observation is inherent in equation (7) since L appears on both sides and can be divided out of the equation. The resulting condition is therefore:

(8) $1 = - \frac{\partial q}{\partial w} t$

Equation (8) can be used to solve for the optimum w , since $\partial q / \partial t$ is a function of w . An

increase in t results in a decrease in l/t . This reduction requires a corresponding reduction in the absolute value of the marginal effect of w on q . Such reduction can only be achieved by an increase in w , since $q'' > 0$. That is, it is reasonable to assume that the wage effect on the quit rate is subject to diminishing returns and therefore $\partial q / \partial w$ in absolute value becomes smaller as w is raised. Hence, turnover costs result in a wage "premium" relative to the average wage for this type of labor, and this premium increases as the steady-state cost of a quit increases.

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