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MAKING GENERAL PAY ADJUSTMENTS,

by

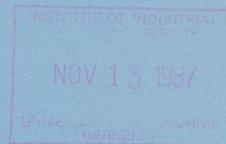
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CHAPTER 7:

Making General Pay Adjustments

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Chapter 7: Making General Pay Adjustments

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Chapter 7: Making General Pay Adjustments

Over time, pay levels in the labor market change. Hence, a firm with a given pay strategy must regularly update its wage levels to keep pace with the market. Generally, in the post World War II period, average pay levels have risen. Aggregate pay has not declined since the Great Depression of the 1930s. Hence, "updating" pay typically means raising pay.

What is typical across the economy does not necessarily apply to every firm, of course. In the 1980s, examples of pay cuts became far more commonplace than at any time since the 1930s. These cuts were generally associated with union wages which, it will be argued in a later chapter, were affected by special circumstances. Nevertheless, even in the nonunion sector, pay setters are not bound simply to follow general pay trends mechanically.

Moreover, pay trends of a firm must be differentiated from pay trends experienced by any particular employee within that firm. As noted in previous chapters, employees may receive merit pay adjustments based on their own performance. These adjustments are intended as individual awards. This chapter, however, will deal with across the board pay adjustments affecting all (or many) members of the firm's workforce.

I. Frequency of Adjustment.

There are no good data on the frequency with which firms consider general pay adjustments. In the union sector, labor-management contracts are usually negotiated for multiyear periods, three years being the most common duration. Under these agreements, wage adjustments are generally provided at the beginning of the contract and at each anniversary date, although many variations exist. Sometimes, wage adjustments under union contracts are more frequent than annual; quarterly adjustments are sometimes made, especially if wages are linked to prices by an escalator clause.

For the nonunion sector, there is some evidence that annual pay review cycles are the most common practice. Relatively few nonunion workers appear to be covered by multiyear pay decisions.¹ A study by the Conference Board found that pay increases for clerical workers (who are largely nonunion) were considered annually by proportions of employers ranging from two-thirds to three-fourths, depending on sector.² And surveys taken by management consulting firms regarding prospective pay decisions generally assume a one year cycle.

Of course, the fact that the Earth has traveled once again around the Sun is no reason that pay must be readjusted, or even reviewed. However, there is little alternative practical advice

that can be given concerning the optimum frequency of adjustment or review. All that can be said is that reviews should be made more frequently during periods in which the relevant factors determining pay adjustments are changing rapidly. Generally, an annual review will prove adequate unless unusual conditions are occurring, either externally or internally. An annual pay review cycle will also tend to be linked to other budgetary and planning processes within the firm.

Some nonunion firms claim that they do not make general pay increases at all. It appears that this approach is more likely to be taken for white collar than blue collar employees, and that it is more common the higher up the pay/responsibility ladder one travels.³ Essentially, the argument is made that "we pay only on merit." In effect, the employer is asserting that if employees are not found meritorious, they will not experience any upward wage adjustment.

Such a merit-only policy may seem appealing on its face. However, it raises serious problems, particularly during periods when external pay is rising rapidly. Whether the firm wishes to acknowledge it or not, its pay must ultimately be kept in some relationship to the outside market. Thus, the firm risks corrupting its merit system by repeatedly having to find that virtually all workers were especially meritorious (in order to keep them apace with the external market). Such artificial merit

pay raises will make employees skeptical about the degree to which their performance has anything to do with their pay. In what follows, therefore, it will be assumed that firms either make general pay adjustments explicitly, or that they find some covert way of doing so.

II. Criteria for Pay Adjustments.

Although the point has been made many times in previous chapters, it is nevertheless important to stress that the issue of setting pay by individual firms arises only because the real world labor market departs from the classical auction-style model of wage determination. In the classical model, firms do not worry about how to set pay any more than stock brokers worry about how to set stock prices. The market makes all decisions and the firm simply meets the market.

Once there is departure from the classical model, however, and recognition of the ongoing employer/employee attachment which characterizes the labor market, discretionary pay setting becomes important. Employees at the time of hire agree to a designated pay level. But they know that over time, this level will be altered. Workers may well expect that the criteria which will be used to adjust the level of pay will be "reasonable" and "fair." Thus, it is important to examine criteria for pay adjustments which are commonly cited.

Discussions of pay setting often cite five possible criteria for making adjustments: price trends, productivity trends, profitability, labor market conditions (unemployment), and the general pace of pay adjustments being made by other employers. Each of these criteria seems to be relevant to the pay decision. Yet exactly what role they play (or should play) is at the heart of pay policy.

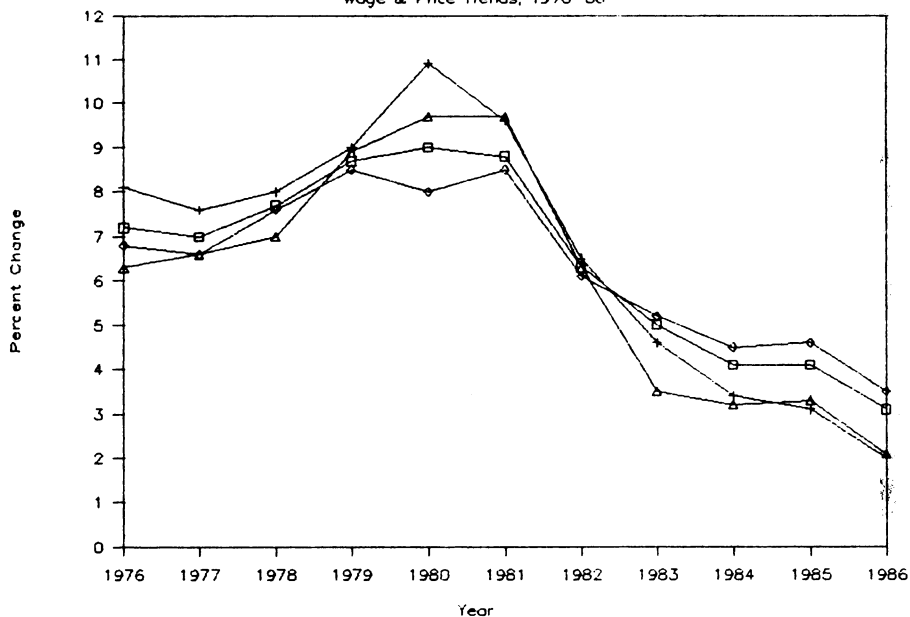
III. Price Trends.

The notion that general price inflation should have some bearing on pay adjustments is deeply ingrained. Common parlance refers to general, across the board pay adjustments as "cost of living increases," even if criteria other than changes in the cost of living were used in their determination. Figure 1 suggests that there is good empirical reason for this perception.

Three indexes of wage change are plotted on the figure along with a broad index of price change. The line marked with squares (■) plots the annual percentage change in wages and salaries for all workers in the private nonfarm sector, as recorded by the Employment Cost Index (ECI). Two subcomponents of the ECI are also shown; the line with the plus signs (+) covers wage changes experienced by union workers. The line with the diamonds (◆)

Figure 1

Wage & Price Trends, 1976-86



- = Annual Percent Change in Employment Cost Index for Private Sector, fourth quarter to fourth quarter basis.
- + = Annual Percent Change in Employment Cost Index for Private Union Workers, fourth quarter to fourth quarter basis.
- ◆ = Annual Percent Change in Employment Cost Index for Private Nonunion Workers, fourth quarter to fourth quarter basis.
- Δ = Annual Percent Change in Nonfarm Business Price Deflator, year to year basis.

applies to nonunion workers. Finally, annual percent changes in the nonfarm business price deflator are marked with triangles."

It is quite clear from Figure 1 that periods in which price inflation is high (such as 1979-81) are also periods in which wage inflation is high. Similarly, when price inflation is low (as during 1983-86), wage inflation is also low. Of course, this correlation says nothing about causation. Moreover, the precise relationship between wages and prices may vary across sectors (as it does on Figure 1 with regard to the union and nonunion sectors). Still, the reason for the perception that general pay adjustments are "cost of living" increases is obvious from the figure. Pay raises are larger and more likely when the cost of living, i.e., the price level, is rising.

i. Wage Push or Price Pull?

Labor costs are an important element of aggregate pricing. This fact is obscured at the firm level because much of the cost of production is simply the expenditure on materials and inputs purchased from other firms. In the manufacturing industries listed on Table 1, for example, labor costs as a percentage of sales fell into a range of roughly one tenth to one third in 1981. However, at the aggregate level, one company's material purchases are another company's sales, and the intermediate transactions net out. Thus, in 1985, labor compensation

Table 1

**Employee Compensation as a Percent of the Total
Value of Output in Selected Industries, 1981**

Industry	Employee Compensation as Percent of Value of Output
Tobacco manufactures	12%
Chemical products	19
Motor vehicles & equipment	23
Apparel	25
Furniture & fixtures	32
Leather & leather products	32

Source: Mark A. Planting, "Input-Output Accounts of the U.S. Economy, 1981," Survey of Current Business, vol. 67 (January 1987), Table 1; U.S. Bureau of Economic Analysis, The National and Income Product Accounts of the United States, 1929-82 (Washington: GPO, 1986), p. 264.

accounted for 84% of the national income originating in the corporate sector.■

Given the importance of labor costs in total costs, it is evident that periods can occur in which wages push up prices rather than prices pulling up wages. However, it would be a serious mistake to assume that this direction of causation is the normal state of affairs, i.e., that wage setting is the usual cause of inflation. An important element in the price inflation surge of the 1979-81 period was the boost in world oil prices administered by the OPEC cartel, an event having little to do with American wage determination. Similarly, the drop in oil prices in the subsequent period -- as OPEC lost control of the international oil market -- played a very significant role in bringing down the general rate of price inflation in the U.S. Again, wages were followers, rather than leaders, during that episode.

ii. Prices from the Employer Perspective.

The classical model of wage determination indicates that firms will hire labor until wage = marginal revenue product of labor (MRP_L). In a competitive firm, $MRP_L = MP_L \times P$, where MP_L = the marginal product of labor and P is the price of the firm's output. For a noncompetitive firm, $MRP_L = MP_L \times MR$, where MR = marginal revenue, a value which moves in a positive relation to

the price.⁶ Thus, the classical model suggests that prices should have something to do with the level of labor demand (the MRP_L schedule).

Implicit contracting models of the employee-employer relationship also suggest a connection between labor demand and prices. The relationship is long term, so that the firm's demand for labor would depend on the MRP_L over the expected duration of the relationship rather than in the immediate period. Profits would be maximized where the expected flow of wages (appropriately discounted) = the expected incremental flow of revenue over the duration. Since the incremental revenue is a function of the price level, changes in the price level would move the firm's demand for labor curve in the same direction.

If prices are generally increasing due to domestic demand pressures, wages can be expected to move up along with them, based on the preceding analysis. Another way to explain this expectation is that employer "ability to pay" (as indicated by the P or MR in the classical formula) has risen. However, as the oil price example cited earlier illustrates, prices may increase for reasons other than general demand expansion. Thus, an oil price increase due to foreign developments may actually reduce labor demand, as firm profits are squeezed by energy costs.⁷

Another important qualification to the linkage between prices and wages must be recognized. Price developments may have diverse effects on employer wage policies, even if they are domestically caused. In any period of time, certain firms are more likely to experience faster rates of price increases of their outputs than other firms are experiencing. Part of the implicit contract between employer and employee may be that some element of this firm-specific demand fluctuation will be shared with employees. Thus, wages might rise more rapidly or more slowly than the market average for firms experiencing above or below average price increases (or decreases) for their products.

As an example, in the wake of the first major OPEC price increases in the mid 1970s, major oil companies reopened their labor contracts voluntarily and gave extra wage increases to their employees. In contrast, in the mid 1980s, when oil prices fell, pay increases in the industry were very moderate. The 1986 wage agreements in the petroleum industry called for no basic wage increase in the first year of the contract, and only a small increase in the second year.² Examples can also be found in mining pay systems in the U.S. and abroad in which an element of pay is explicitly linked to the price of the product being mined.

iii. Price Increases from the Employee Perspective.

The classical formula can be rewritten as $W/P = MP_L$. W/P is the real wage in terms of the product made by the employer.⁷ However, since employees consume many products other than those made by their employers, the price index they will consider relevant to their welfare must cover the outputs of many industries. There are various price indexes available which include many products. But undoubtedly, the most widely used price measure which is applied to worker welfare is the Consumer Price Index (CPI) reported monthly by the U.S. Bureau of Labor Statistics (BLS).

The Consumer Price Index and Worker Welfare.

The history of the CPI goes back to the World War I period, when government tribunals felt they needed data on price changes to settle wartime wage disputes.¹⁰ As noted in the previous chapter, the idea that wages should be set to provide "decent" standards of living gained currency during that era. A corollary position was that -- since prices were generally rising during the war -- wage decisions had to be regularly updated for price changes to account for the increased cost of a "decent" standard.

Although the methods of collecting price data by the BLS are far more sophisticated than those of the World War I years,

certain elements still remain. First, the CPI is based on a periodic budget survey, in which actual consumption patterns are observed. Second, prices of items representative of the consumption pattern are tracked by BLS field agents on a regular basis.¹¹ The index thus reflects changes in the cost of maintaining the original reference budget.

In fact, the CPI since the late 1970s has really been two indexes. One version is the Consumer Price Index for All Urban Consumers (CPI-U); the other applies to Urban Wage Earners and Clerical Workers (CPI-W). These indexes differ in the consumption "baskets" they measure, i.e., their weights are somewhat different. The former index is considered to be a good measure of general price inflation, while the latter is most often used for union wage escalator clauses (contractual clauses which automatically link wages to prices).¹²

Because it prices a fixed basket of goods and services based on past consumption patterns, the CPI is what is called a "Laspeyres" price index. Let period 0 be the reference period during which the consumption pattern has been surveyed. Then the index's basic formula in subsequent period 1 can be expressed as:

$$\frac{\sum_{i=1}^n P_{11} Q_{10}}{\sum_{i=1}^n P_{10} Q_{10}}$$

where the denominator of the fraction is the cost of the consumption pattern at period 0 prices of goods $i = 1, 2, 3, \dots, n$ and the numerator is the cost of the same pattern of consumption at period 1 prices.¹³

The CPI is expressed as a pure index number, set equal to 100 in an arbitrary base period, currently 1967.¹⁴ Its value in December 1985 was 327.4 and in December 1986, 331.1, using CPI-U. Thus, the CPI-measured rate of price inflation for all areas from the end of 1984 to the end of 1985 was $1.1\% = [(331.1/327.4) - 1]$. If it was desired to protect the purchasing power of someone earning \$10.00 per hour in December 1985, it would have been necessary to have raised his/her wage to \$10.11 a year later.

Because CPI's are available for many cities, we also have the option of adjusting local wages on the basis of a corresponding local index.¹⁵ For example, CPI-U rose 2.1% from December 1985 to December 1986 in the Los Angeles area and 2.6% for the New York City area. To protect the real value of a December 1985 \$10.00 wage, an increase to \$10.21 in Los Angeles and \$10.26 in New York would be needed. A national firm with workers all around the country might use the national CPI if it had a centralized wage policy. Local firms, or national firms which make wage policy on a decentralized basis, can use local indexes.

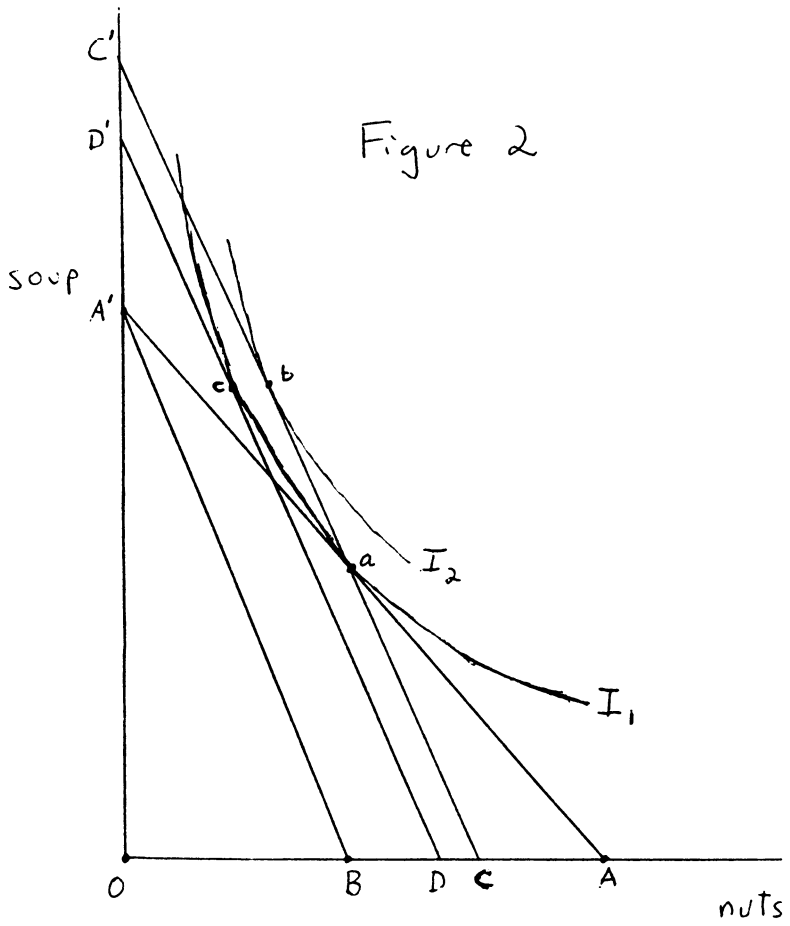
The Index Number Problem.

Economists and statisticians are fond of pointing out that the percentage wage adjustments cited above (1.1%, 2.1%, and 2.6%) may not be quite right, if the goal is to maintain welfare standards. Specifically, the increases may be bigger adjustments than necessary to maintain worker wellbeing unchanged. The difficulty with the method of adjusting wages proportionately to movements in a price index is often called "the index number problem." Its conceptual basis is illustrated by Figure 2.

Consider a consumer who chooses between two goods: "soup" and "nuts." Initially, the consumer has a budget line represented by AA' and consumes at point "a" on indifference curve I_1 . Suppose that the price of nuts rises, so that the budget line now drops to A'B. If it is desired to enable the consumer to continue consuming at point "a", his/her budget must be raised to CC'. (This raise is analogous to giving the worker a 1.1% raise because "prices" rose by 1.1% in the previous example).

However, Figure 2 shows that such a budget increase would actually raise welfare, not just maintain it. With budget line CC', the consumer shifts consumption to point "b" and reaches a higher indifference curve I_2 . The consumer does not consume at

Figure 2



point "a" (even though it is possible to do so) because point "b" is superior. If the goal is simply to maintain the consumer's welfare, the budget should be raised only to DD', allowing consumption at point "c" on the original indifference curve I_1 .¹⁶

The reason for the discrepancy between maintaining purchasing power (going to CC') and maintaining welfare (going to DD') is that the former fails to recognize the ability of consumers to make substitutions away from a product whose price has increased. Thus, when gasoline prices rose very dramatically in the 1973-74 and 1979-80 periods, a pure purchasing power adjustment would have assumed that worker welfare could be protected only if workers were given sufficient wage increases to allow them to maintain previous driving habits unchanged. The welfare approach recognizes that it is possible to buy smaller cars, take vacations closer to home, use public transportation, etc. when gasoline prices rise, thus cushioning the shock.¹⁷

In reality, however, the discrepancy between the purchasing power approach and the welfare approach is not likely to be large. It arises only when certain products experience dramatic price increases relative to other items. Empirical studies have not found the discrepancy to be of major importance.¹⁸ During periods of inflation, however, unhappiness with the state of the economy tends to give rise to complaints about the ways in which prices are measured and the index number problem is inevitably

raised. However, there are other objections to moving wages up mechanically with price inflation which are of greater practical significance.

Alternative Price Indexes.

Among the problems relating to gearing wages to prices is that various price indexes are available. Table 2 presents some of the alternatives. Even the two CPIs -- CPI-U and CPI-W -- do not always coincide.¹⁷ Nor do they agree precisely with price indexes constructed using other methodologies. Which is the best index to use, CPI-U or CPI-W? The simple answer is that the choice between the two CPIs is not very important, but that either one is likely to be superior to alternative (non-CPI) price indexes as a wage indicator.

As examples of alternative available indexes, the table shows three price deflators from the national income accounts: the deflator for the entire GNP,²⁰ for nonfarm business, and for personal consumption expenditures. Note, however, that none of these deflators produce results drastically different from the CPIs for the periods reported.²¹ Thus, the availability of reasonable alternatives from the national income accounts is not a good argument for discarding the CPI as the key indicator of price trends.

Table 2

Price Trends According to Selected Indexes, 1970-86

Price Index	Annualized Percent Change in Prices	
	1970-80	1980-86
Consumer Price Index (CPI)		
All urban consumers (CPI-U)	n.a.	4.9%
Urban wage earners and clerical workers (CPI-W)	7.8%	4.6
All items excluding food, energy, and shelter	7.1	5.8
GNP Deflator	7.4	4.9
Nonfarm Business Deflator	7.3	4.7
Deflator for Personal Consumption Expenditures	7.3	4.7
Producer Price Index for Finished Goods	8.4	2.7

Source: U.S. President, Economic Report of the President: 1987 (Washington: GPO, 1987), pp. 248, 294, 3101; Monthly Labor Review, vol. 110 (June 1987), pp. 95-97, 102.

Moreover, the deflators from the national income accounts all are subject to continuing revision, as the accounts themselves are revised. In contrast, the CPIs are almost never revised once issued, precisely because BLS recognizes their use in wage setting and wage escalation. This lack of revision is useful in avoiding the potential for after-the-fact arguments about how much wages should have been adjusted.

There is only one index shown on Table 2 which is in widespread use and which differs significantly from the two CPIs. The Produce Price Index (PPI) for finished goods (an outgrowth of what was once termed the Wholesale Price Index) shows a higher rate of inflation than the other indexes for the 1970s and a lower rate for the 1980s. But although the PPI is widely used a barometer of inflation by economists, it has only limited value as a measure of worker purchasing power.²²

First, the PPI measures prices charged by producers, not retailers. Second, the index omits the service sector and includes only goods and commodities. Consumption of services is an important element of the typical worker's budget, so that omission of services makes the Producer Price Index unsuitable as a wage guide. Thus, despite the attention often paid to the PPI for economic forecasting purposes, it is of little use for setting pay policy.

Given the methodological improvements made by BLS in the 1980s, the two Consumer Price Indexes should be regarded as the best measures of price change to use as a criterion for wage setting.²⁹ They were designed specifically for that purpose and, although they not "perfect" in a theoretical sense, the two CPIs represent a pragmatic, reasonable attempt to provide the necessary information. As to the choice between CPI-U and CPI-W, there is unlikely to be a substantial difference between them in the future. CPI-W has weights which come closer to the budgetary patterns of the "typical" nonsupervisory worker than CPI-U. But CPI-U is more widely cited in the popular press, and will be the index workers will hear most about. The choice between them is largely a matter of taste.

However, the fact that the CPIs can be used as guides to wage setting does not mean that their indicated price trends should be used for that purpose. The analysis so far has examined the price issue separately from the employer and employee perspective. Perhaps the greatest problem with the use of prices as a wage guide is that these two perspectives need not coincide.

iv. The Employee Perspective vs. the Employer Perspective.

Any broad based price index, including the CPIs, will contain "volatile" elements. In the main, these elements are

commodities sold in auction-style markets, typically agricultural products and energy products. If these volatile prices rise, pressures inevitably will ensue to protect real wages from the fluctuations by granting nominal wage increases. Such wage increases are in line with the employee viewpoint. However, from the average employer's viewpoint, the fact that, say, oil prices have risen does not increase "ability to pay" for wage hikes (except for oil producing companies). Indeed -- as noted earlier -- if oil prices rise, employer ability to pay may actually be reduced due to the added costs of energy.

The third row of Table 2 shows price movements recorded by the CPI, excluding its volatile elements.²⁴ As can be seen, the difference in the inflation rates of the 1970s and early 1980s turns out to have been concentrated in the volatile components. When these components are removed, the two periods a significantly smaller difference in rates of price increase. Yet wage pressures varied considerably (from the employee perspective) as the volatile prices shifted.

Non-volatile price movements of the CPI are sometimes termed the underlying rate of inflation by economists and approximate the "ability to pay" concept. Given the relative constancy of the underlying rate during the periods shown on Table 2, it must be concluded that attempts to adjust wages by prices in the 1970s would have produced a cost squeeze from the employer perspective.

But in the 1980s, this tendency reversed; gearing wages to prices would have permitted a profit expansion.

From the HRM perspective, therefore, there can be no single, unchanging policy regarding the significance of price changes for wage setting. Because of the importance of volatile elements in the CPI, employers are unlikely to want to guarantee to maintain real wages -- regardless of which prices are rising -- in the face of inflation. The price trends employers consider relevant (namely, the price trends of their outputs) are not necessarily going to accord with the price trends relevant to employee consumption patterns.

Not surprisingly, given the analysis above, explicit employer guarantees to protect the real wage are rarely found in the nonunion sector. Only in the union sector, where pressure to reflect the employee viewpoint is greatest, are automatic escalator formulas commonly found. It is to the use of explicit escalation of wages that the analysis now turns.

v. Escalation of Wages.

As already noted, an escalator clause is a contractual device in a union-management contract which links wage changes to recent price changes. In principle, a nonunion employer could offer such a practice to its workers. But, as noted above, such

practices are extremely rare in the nonunion sector. Nonunion escalation, where it does exist, is usually a reflection of a union element elsewhere in the company. Thus, if a company has a union contract with escalation for blue collar workers, it may sometimes offer the same feature to nonunion white collar employees.²⁵

Escalators exist in the union sector for two primary reasons. First, as already indicated, the notion that purchasing power should be protected is basically an employee perspective. Since unions represent that perspective, it is not surprising that they have pushed for escalation (sometimes also termed "indexation") in their contracts.

Second, unions typically negotiate long-term contracts with employers. This fact means that in the absence of escalation, negotiators may have to guess the rate of inflation over the next two or three years. Forecasting inflation is difficult and including an escalator clause provides a way to avoid the risks of forecast errors.

There are five stylized facts about escalation in the U.S. that can be reported:

- 1) Escalators are more likely to be found in longer duration union-management contracts than in shorter

ones. There is nothing very surprising about the correlation between duration and escalation. In a short contract, the risks of an inflation forecast error are smaller than in a longer one. Even if an error is made, a short contract will soon re-open and the error can be corrected. Also, historically employers sought long contracts from unions as a way of lowering the risk of strikes by reducing the frequency of negotiations. Escalators were used a "carrot" by management to win union acceptance of long term contracts.²⁶

2) The use of escalation tends to increase during periods of relatively high inflation and to diminish during periods of low price inflation. Thus, escalation diminished during the early 1960s, when inflation was very low, but rose in the 1970s when it was high. Escalation again diminished in the 1980s as inflation fell.

Many economists, while acknowledging this empirical correlation between the frequency of escalation and the rate of inflation, prefer to explain the relationship as one of inflation uncertainty.²⁷ They argue that what matters is the risk of forecast error, which should be a function of uncertainty about inflation's future variation, rather than of its magnitude. Since,

however, periods of high inflation have also been periods in which inflation has been variable and uncertain, it is difficult empirically to disentangle the two influences.

3) The use of escalation varies considerably across industries. Escalation has tended to be strongly resisted by unionized employers where either the prices of their own products are volatile (as in the petroleum industry) or where prices are fixed in advance in nominal terms (as in construction). Under such circumstances, an employer who undertook to gear wages to general prices would be taking a substantial risk. Wages might rise rapidly relative to the employer's product price because inflation of other prices was pushing up the CPI. However, employers who have resisted escalation often must live with relatively short duration union-management contracts.

4) Escalator formulas are almost never "simple." The "obvious" formula which comes to mind is that each 1% price index increase should translate into a 1% wage increase. But such simple approaches are virtually never found in union-management contracts. Especially in the 1980s, escalator clauses have been qualified with limitations. Sometimes, a given amount of inflation (a

"corridor") must occur before the escalator operates. Thus, a contract might indicate that no escalator payments will be made unless inflation exceeds 5%. Still another common type of limitation is a "cap" which limits the escalator payout to some maximum level, regardless of the inflation rate.

Basic escalator formulas often link a 1¢ wage increase to a given index point rise.²⁸ As an example, the escalator negotiated in the automobile industry in 1984 provided for quarterly 1¢ increases for each .26 point increase in CPI-W (1967=100).²⁹ An index point's value will change, depending on the base of the index and the period of time which has elapsed since the base. When the CPI stood at 200 on a base of 1967 = 100 (as it did around 1978), each index point rise was equivalent to a 0.5% increase in inflation ($1/200 = 0.5\%$). When it reached 300 (around 1985), each index point increase translated into only a 0.33% increase ($1/300$).

Often these complex formulas serve to disguise the fact that the average worker will receive less than a 1% wage increase for each 1% price index increase.³⁰ In the 1970s, the net effect of the formulas then in use was that each 1% price increase translated into roughly a 0.6% wage increase. Concession bargaining in the

1980s reduced this ratio to an average of about 0.5%. The reason for this formula obfuscation is to be found in the bargaining process itself, which is one of compromise. As the formula departs (in a downward direction) from proportionality, the employer assumes less risk. The end result is that some risk is assumed by the employer and some by the employees. That is, the compromise over escalation is one of de facto risk sharing by both sides.

5) Escalator formulas almost always use the CPI as the price inflation indicator. Most use CPI-W. National contracts (involving firms with facilities in multiple areas) use the national CPI. But some purely local contracts use the local index, if one is available.

Among major union-management contracts in the private sector in late 1986 (those involving 1,000 or more workers), 40% of the workers covered had some form of escalator.³¹ A smaller, but unknown, proportion under non-major contracts also had escalators. Escalators exist, but cover relatively few workers, in the state and local government sector. Under major state and local contracts, only 14% of covered employees had escalation in late 1986. All told, therefore, even with generous allowance for escalated agreements among non-major contracts, it is doubtful

that more than 4-5% of wage and salary earners had formal escalation of their pay. A majority of union workers did not have escalator coverage in late 1986, and only a fifth of wage and salary workers were unionized.

vi. Money Illusion.

Given that formal escalation is comparatively rare in the U.S., an interesting question is whether workers actually "think" in real terms when evaluating their pay. Do they consider W/p , where p is a price index such as the CPI, or do they just worry about W ?²² Economists term the tendency to consider only W as "money illusion," an obviously pejorative phrase suggesting unawareness of real purchasing power.

Money illusion, as a concept, has been an important element in macroeconomic theory. The originator of modern macroeconomic theory, John Maynard Keynes, postulated that workers would "accept" a real wage cut brought about by a price increase (with no change in the nominal wage), but that a nominal wage cut in the face of a stable price level would be less acceptable.²³ This seemingly peculiar behavior of employees was attributed to their concern about wages relative to other workers.

Workers would be content, in the Keynesian view, as long as their wages were not decreased relative to those of other

workers. Since a nominal wage cut at any moment of time will be a cut in wages relative to someone else not then experiencing a cut, nominal wage decreases would meet with resistance. On the other hand, a real wage cut caused by a general increase in prices is experienced by everyone simultaneously, and is therefore acceptable. It causes no change in wage "relativities."

Calling such behavior the product of an "illusion" is unnecessarily harsh terminology. When inflation is low, it is reasonable that workers (like everyone else) would tend to rely on the official yardstick of value, i.e., nominal money. Moreover, there is nothing inherently irrational about judging one's position relative to others. Indexes such as the CPI are abstractions to most people. As a result, most wage contracts are set in money units -- which people have learned to accept-- rather than CPI units. Only when inflation (or deflation) becomes so pronounced that it can no longer be ignored does the official system of value measurement break down.

Within a nominally-based, monetary economy, an employer who cuts wages must take an overt act "against" the employees involved. It is not surprising that the overt nature of the act, and the fact that it takes place within the firm, triggers a hostile employee reaction. In contrast, an employer who lets real wages erode by not giving wage increases (or giving nominal

wage increases below the rate of inflation) does not have to take an overt act against the employees.

The problem (price inflation) is seen by workers as external to the firm. If other firms had not raised prices, real purchasing power would not have been eroded. Thus, anger over the real wage erosion is directed outside the firm, against the greedy "them" who raised prices, or perhaps against the government (which let it happen).

Although Keynes never cited empirical evidence for this nominally-oriented behavior, its symptoms are apparent. During periods of high inflation, it is not unusual for significant groups of workers to find their wages falling substantially behind the inflation rate. But during periods of low inflation, real wage erosion is limited (since nominal wage decreases are inhibited).

Survey evidence also suggests that nominal wage cuts are viewed as unfair, even if they produce no more of a real wage erosion than an equivalent situation caused by price inflation. Thus, when asked if a company making a small profit in an area with high unemployment, but no inflation, might cut wages by 7%, 62% of a sample of the general public said such a pay cut would be unfair. But when asked if the same firm could give only a 5% wage increase when inflation was 12%, 78% thought the policy was

fair.³⁴ Yet a 7% wage cut with zero inflation is equivalent to a 5% wage hike with 12% inflation in terms of real purchasing power; both amount to a 7% real wage reduction.

When evaluating such attitudes, it is important carefully to designate the horizon over which wage decisions are being judged. In the short run, with moderate price inflation, it is likely that real wage erosion can occur without a major employee counterreaction. But over the long run, or with high price inflation, workers will come to understand that they are losing purchasing power. Thus, money illusion is likely to be only a temporary phenomenon.

Indeed, one of the reasons that inflation becomes a major domestic political issue is that people eventually come to understand that price increases are distorting the nominally-oriented implicit contract in the workplace. Suppose the implicit contract has a "rule" that nominal-dollar wage cuts should be undertaken only in dire circumstances. Then workers' real wages will be protected only so long as inflation is not "too" high and does not continue for "too" long.

But if price inflation is high and/or prolonged, the rule loses its meaning, and the labor market begins to resemble an auction market, with large swings in real wages becoming a possibility. Democratic societies at that point either elect new

political leaders pledged to disinflation, or -- alternatively-- adopt widespread escalation, effectively recasting the no-wage-cut rules in real, rather than nominal, terms. That is, continued high inflation is likely to accentuate the nominal/real difference, and lead to an end of money illusion.

IV. Productivity Trends as a Criterion for Wage Setting.

Productivity has been discussed in various contexts in previous chapters. At this point, however, the concern is not with individual productivity and its rewards, but rather with whether productivity can be a guide for setting across-the-board wage adjustments. Two types of productivity trends can be usefully distinguished: national and firm.

It has already been seen that real wages across the economy tend to rise with national productivity over long periods of time. As a rough approximation, $\text{nominal wage changes} = \text{price changes} + \text{national productivity changes}$.³⁵ Indeed, a famous labor contract between General Motors and the United Automobile Workers union in 1948 adopted this formula as a basic pay policy. It was believed that wages would follow the price/productivity trend anyway, and that explicitly adopting the formula would help avert labor disputes and strikes.

The 1948 GM-UAW contract provided for a 3¢ nominal wage increase in each year of a two-year contract plus an escalator clause. Three cents, converted to a percentage, was considered a rough approximation of the trend rate in national productivity increase at the time and was dubbed the "annual improvement factor."³⁴ The escalator clause was designed to protect the annual improvement factor from being eroded by price inflation. Eventually, 3% became the accepted annual productivity growth estimate in such formulas. Up until the 1980s, the notion that "3% plus COLA" (COLA = cost of living adjustment or escalator) was the normal rate of pay increase to be expected was common in union circles.

However, the 3% plus COLA formula illustrates the pitfalls of using national productivity as a guide to wage setting. While it is true that, in the aggregate over long periods, productivity plus inflation = wage increase, it need not be the case for any particular industry or group of workers, nor for any given period. In addition, a formula such as 3% plus COLA, if followed universally, would produce a rigid, unchanging wage structure in which everyone received exactly the same increase, regardless of demand conditions in their firms, industries, or occupations.

Moreover, the trend rate of national productivity improvement need not be a constant, such as 3% per year. We know, for example, that productivity growth slowed markedly in

the 1970s relative to earlier decades. Even if past productivity can be accurately observed, future productivity is difficult to forecast. The locking in of the 3% productivity assumption in the auto and other unionized industries was one of the factors causing union wages to rise faster than nonunion in the 1970s, when actual productivity growth stagnated. As we will see in a later chapter, this relative union wage rise contributed to the dramatic wage concession movement of the 1980s and to accompanying substantial losses of union membership and unionized employment.

An alternative to national productivity as a guide for pay policy is firm productivity. In an earlier chapter, the use of gain sharing plans, which build firm (or plant) productivity improvements into their pay formulas, was discussed. However, economists have criticized arguments that firm productivity should be used for wage setting on the grounds that such a policy -- if widely followed -- would lead to excessively divergent wage trends between firms and industries.

Some firms find themselves in industries -- such as telephone communications -- where technical change happens to permit long term, above-average productivity improvements. Others are in the position of barber shops, where the scope for productivity improvement is extremely limited. Taken to its logical conclusion, wages geared exclusively to firm productivity

would eventually produce both impoverished barbers (or severe shortages of barbers) and wealthy telephone operators (with large queues of anxious job seekers applying to the telephone company for work).

But it is not necessary to take the use of firm productivity as a guide to pay setting to its all the way to its "logical" conclusion. Employers in firms where productivity improvement is inherently low will obviously not base their wage adjustments on their internal productivity trends. But in cases where productivity trends are favorable, some employers will take the opportunity to follow a high wage policy (but not an indefinitely faster than average wage increase policy). That is, a trend toward rapid productivity growth may be shared with employees for a time. The stakeholder relationship of employees in the firm makes this a reasonable policy, one which is reflected in the use of profit sharing and gain sharing plans among some employers.

Still, most employers are unlikely to commit themselves to permanent productivity sharing, since such policies could result in wage levels substantially out of line with those of other firms. Perhaps this consideration is part of the reason why productivity gain sharing plans (such as the Scanlon plans discussed in an earlier chapter) are so rare. Employers are unwilling to let their pay levels be dictated by internal

considerations which are largely independent of the outside labor market.

V. Profitability.

Use of profitability as a guide to adjusting wages raises some of the problems found with the productivity criterion. Wages might rise substantially above the external labor market average in firms where profitability was high and improving. The opposite would occur in firms where profits were low and declining. However, despite this problem there are some offsetting considerations.

First, a firm whose profitability is high and rising may well be in an expansion mode, and thus in need of more workers. Having a pay advantage relative to other employers could help in recruitment of high quality workers. Similarly, firms which have low and declining profits may well be contracting production. Having lower wages would tend to induce needed voluntary quits, thus reducing the necessity of employer-sponsored layoffs.

Despite these tendencies, the critical variable is expansion or contraction rather than profitability. A firm with low and declining profits may need to recruit new workers if it sees the prospects of reversing its fate by developing new markets or

lines of business. Or it may want to retain its best workers to help it change direction toward better future productivity.

A highly profitable firm may need to shrink its workforce if, say, the technology it is using is highly labor displacing. To the extent that pay policy is being dictated by recruitment, retention, or displacement, profitability should not be a direct consideration in making wage rate adjustments. But there are other goals -- such as having flexible labor costs -- which profit sharing can accomplish.

Profit sharing pay plans have already been discussed in an earlier chapter. Most profit sharing plans involve the payment of a bonus, either in cash or into a deferred savings arrangement, rather than an adjustment of the wage rate. A typical profit sharing compensation system includes both a basic wage and a bonus. The basic wage rate can be adjusted by the same criteria used by firms without profit sharing, while the bonus is geared to internal firm profitability.

Making the profit-related element of pay into a bonus is helpful in dealing with a characteristic of profits, namely their variability. Economists usually view profits as a residual, i.e., what is left over after expenses are deducted from receipts. Both receipts and expenses can vary substantially, thus making profits especially volatile. If wage rates were

geared to profits, wages would rise and fall frequently, violating the implicit contract rule of avoiding nominal wage cuts.

Labeling the profit sharing element a bonus alerts employees that the resulting payment will be variable. If the bonus is used to finance a deferred savings plan, employees will not directly and immediately "feel" the impact of the fluctuations. Over a period of time, the ups and downs of the bonus will tend to net out, thus providing a supplement to other retirement savings arrangements.

In theory, American firms could pay bonuses to employees without directly referencing profits as their determinants, while nevertheless considering profits as a guide to bonus determination. Some researchers have argued that the Japanese compensation system, under which bonuses are a significant element of total pay, functions as a de facto profit sharing plan, but without the profit sharing label.³⁷ In the U.S. context, however, employers who use profitability as a guide to pay setting are likely to do so through an explicit profit sharing plan. However, even when there is no explicit profit sharing plan, firms which experience severe financial reverses may freeze pay (or occasionally cut pay).

The fact that pay is sometimes affected by profit reversals, even in firms without profit sharing plans, illustrates the stakeholder relationship workers have with their employers. Ultimately, workers' jobs depend on the economic success of the firms which employ them. Although equity owners assume much of the fluctuation in the form of changes in share prices, pay policy is unlikely to insulate the stakeholder/workforce completely from variations in profitability.

VI. Labor Market Conditions.

Suppose a firm making "reasonable" profits discovers that it could hire workers at lower wages than it is currently paying. Perhaps other firms in the area have had to lay off their workforces, creating a pool of desperate job seekers. Should the firm cut the wages of its incumbent or "inside" workers?

i. Insiders and Outsiders.

Economists oriented toward the classical model might well argue that the employer should gear pay policy to "outsiders" (job seekers) rather than "insiders."³⁸ In this view, inside workers should simply accept the external market price of labor as the determinant of their pay. However, survey evidence suggests that public opinion would find wage cuts of inside workers because of the presence of outsiders to be unfair.³⁹

In effect, society -- and therefore the inside workforce-- expects employers to protect insiders from "outsiders" who would compete down their wage levels. Of course, employers do not always provide such protection. But the fact that such an expectation exists on the part of society and the inside workforce constrains employer wage setting behavior.

ii. Two-Tier Pay Plans.

Perhaps the most dramatic example of an attempt to reconcile the insider/outsider conflict occurred in the union sector in the 1980s with the development of "two-tier" pay plans. Under these plans, pay levels of inside workers was retained, but new hires (outsiders) were brought in at lower wage scales as vacancies occurred. Such plans became widely used in industries such as air transportation, where deregulation of the product market had undermined the earlier wage structure.

Unionized airlines faced competition from new nonunion firms, who enjoyed lower wage scales. By negotiating lower pay for new hires, unionized carriers received a reduction in the marginal cost of hiring, while inside workers (who were the constituents of their unions at the time of negotiation) received pay protection. Two tier plans were not confined to deregulated industries, however. They became common in other industries

facing lower-wage nonunion competition such as retail foodstores.⁴⁰

The two tier approach was found mainly in the union sector, where inside employees could pressure employers to afford them some protection from general wage cuts. However, a few cases of two tier plans did occur in nonunion firms as well.⁴¹ And the two tier approach to compensation has been used in other contexts.

For example, when the federal government decided that the pension program for its incumbent workers was growing too expensive in the mid 1980s, it instituted a less costly plan for new hires.⁴² Because retirement planning is inherently a long term strategy for employees, it was felt to be unfair for the federal government -- as employer -- to cut back on already promised pension benefits. But new employees, hired after the less costly program was initiated, had received no such promises and hence, it could be argued, could more fairly be given reduced retirement benefits.

iii. The Phillips Curve.

Labor market conditions do have some effect on wage change decisions, although the effect is attenuated by implicit contract and insider/outsider considerations. There is an abundance of

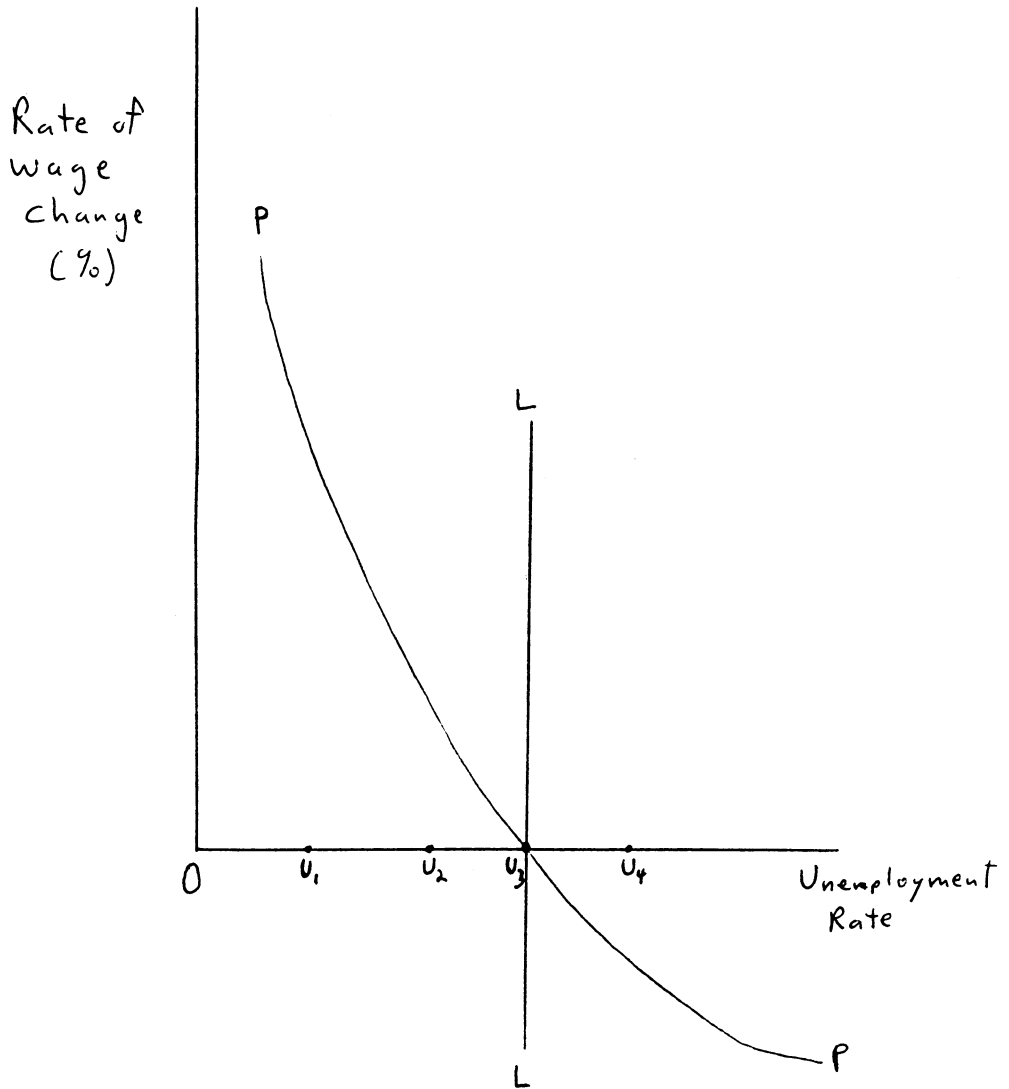
econometric literature which describes this effect. The relevant literature has its roots in work begun in the late 1950s.

Much of the econometric research on wage-change equations stemmed from the finding by A.W. Phillips that, over a period from the middle of the 19th century to the middle of the twentieth, British wages rose more slowly when unemployment was high than when it was low.⁴³ For sufficiently high unemployment rates, nominal wages might even decline. The so-called "Phillips curve," which summarizes these conclusions, is illustrated by line PP on Figure 3.

As originally put forward, the Phillips curve was seen as a stable relationship. At a low unemployment rate, such as u_1 on Figure 3, annual wage inflation ($\%W$) would be quite rapid. However, an increase in the unemployment rate to u_2 could greatly moderate the wage inflation rate. If unemployment rose to u_3 , nominal wages would not change at all. Finally, at a very high unemployment rate, such as u_4 , nominal wages would actually decline.

To the extent that unemployment can be viewed as a measure of "excess supply" of labor, the Phillips curve bears a superficial relationship to the auction model of the labor market. However, the apparent resemblance is misleading. With an auction labor exchange, the market always clears. Any excess

Figure 3
The Phillips Curve



supply would immediately cause the wage to plummet; excess demand would result in extremely fast wage increases.

In contrast to the classical approach, the Phillips curve suggests that excess supply simply slows down the rate of wage increase and that only at extreme levels will it trigger general wage reductions. Put another way, the Phillips curve includes unemployment as a variable explaining the wage inflation rate. But the classical model operates so that unemployment should not exist, and certainly should not persist.

The Phillips curve is more an empirical description than it is a theoretical model. Much of the work which developed in its aftermath has been an ad hoc search for empirical relationships. Most researchers who applied the Phillips approach to post World War II data found that wage change equations needed to be more complicated if they were to "fit" the data reasonably well. The basic Phillips curve can be expressed as:

$$\%W = F(u),$$

where u is the unemployment rate and $d\%W/du < 0$. But subsequent work generally expressed the equation as:

$$\%W = F(u, X_1, X_2, \dots, X_N),$$

where X_1, X_2, \dots, X_N are other variables found to be statistically significant in explaining wage inflation. Virtually all studies find it necessary to include some measure of lagged price inflation in the equation. Sometimes, roles are also found for variables related to profitability or productivity.

Five basic findings have emerged from the wage equation literature:

- 1) Unemployment rate increases have a modest, but significant effect, on the pace of wage change. Over the course of a year, an increase in the unemployment rate of one percentage point might reduce wage inflation by, say, one half to one percentage point. This limited impact is a far cry from the classical auction model. It suggests that employers are constrained from cutting wages, or even rapidly reducing the rate of wage increase, just because there are more outsiders seeking work.

- 2) In the short run, a one percentage point increase in the rate of inflation typically triggers something less than a one percentage point increase in the rate of wage inflation. This finding supports the notion of "money illusion" in wage determination (although might be preferable -- as discussed earlier--

to use the less pejorative phrase "nominal orientation"). Wages are not mechanically determined in relation to the CPI or any other wage index.

3) "Eventually," price inflation is recognized by pay setters and, in the long run, wages and prices will move proportionately, holding other influences constant. Exactly how long the long run is, however, is not clear. But many economists believe that in the long run, the Phillips curve evolves into a vertical line such as LL on Figure 3. At the "natural rate of unemployment" (u_n on Figure 3), whatever rate of inflation there is will tend to maintain itself. If unemployment falls below u_n , inflation (both wage and price) will accelerate; if unemployment falls below u_n , inflation will decelerate. The natural rate concept will be taken up more fully in a later chapter.

4) The empirical literature suggests that variables other than the unemployment rate (or some measure closely correlated with it) and lagged price inflation play an uncertain role in affecting wage change. Possibly, this uncertainty is due to measurement problems. Profitability, for example, might be measured by a profits-to-sales ratio or a return on equity or a

marginal return to new investment. Adjustments of profits for inflation may be needed.

But because the theory of wage equations is vague, which concept of a variable should be used is unclear. Perhaps profits play a stronger role in setting wages than econometric studies have so far indicated; the answer is just not known. Perhaps there are other relevant variables the literature has so far failed to capture.

5) There appear to be seemingly exogenous shifts in wage equations in certain periods. The early 1960s, for example, seemed to be a period in which there was less "push" behind wages than in the 1950s or the 1970s. And the 1980s seemed to reflect a downward shift in wage "norms," again.⁴⁴ These shifts in wage norms appear to be more concentrated in the union sector than elsewhere, and reflect swings in relative bargaining power between management and labor.⁴⁵

Some observers relate such swings to legal and political variables; others relate them to economic forces which are not well captured by time series wage equations. Again, the complete explanation is not well known. Both the early 1960s and the early 1980s were

periods when unemployment was comparatively high and persistent. Thus, it may be that prolonged unemployment pressure ultimately forces a downward wage norm shift.

VII. Wage Adjustments of Other Employers.

As noted in the previous chapter, most employers make comparisons between their wages and the wages of other employers as part of the wage setting process. Similarly, obtaining a sense of the "going" rate of wage increase is an important component of determining wage adjustments. However, examining outside wage increases does not imply a commitment to follow the external market mechanically. Finding out what others are doing is simply one more piece of information relevant to making a wage change decision.

i. Market vs. Equity Considerations.

The making of comparisons might be viewed as a purely market oriented process. A firm which collects information on the outside market may simply be trying to maintain its wage level at a competitive level with other employers in order to avoid recruitment/retention problems. However, it is important not to underestimate the "equity" or fairness element which is also involved.

In a recession, for example, the firm might not need to match other employers' pay increases in order to attract and retain labor in the short run. With regard to recruitment, there may be many unemployed job seekers willing to work, even if the firm did not keep its wages in line with the external market. And, with regard to retention, inside employees may not feel that outside opportunities exist which would warrant quitting.

However, a failure to grant wage increases comparable to other employers in such a period might be viewed as unfair by employees. Employees might feel that the employer was "taking advantage" of a temporary situation (the recession) to hold down costs at their expense. Resentment could take the form of reduced morale and productivity in the short run, and a rise in the quit rate in the long run, as the economic situation improved. Thus, the making of outside comparisons by employers has a more complex motivation behind it than simply meeting the market for competitive reasons.

ii. Internal Comparisons of Union vs. Nonunion Pay.

Employers may also make internal comparisons in determining wages, especially if the firm is partially unionized. A survey in the late 1970s found that one fifth of such firms had a policy of granting the same wage increase to nonunion employees that they had negotiated for unionized workers. Over 60% of

respondents indicated that they made comparisons of the wages of their union and nonunion employees in determining wage adjustments for the latter group, even though they had no standard policy of keeping both groups in a fixed relationship.⁴⁶

Internal comparisons between union and nonunion workers can be based on two considerations. The first is the general equity argument made above; nonunion workers who receive smaller pay increases than their union counterparts might become resentful, creating a variety of HRM problems. However, there can also be a second motivation, namely union avoidance. Employers may feel that their nonunion employees will be less likely to want to unionize, if their pay keeps pace with union wage increases. Such motivation -- as it affects wage decisions -- is sometimes termed the "threat effect" of unions by economists. Through the threat effect, nonunion workers may benefit indirectly from union pay gains.

As previously noted, union wage rates rose relative to nonunion in the 1970s. It appears that this tendency existed within partially unionized firms as well as across firms.⁴⁷ Thus, although the threat effect may have been operative for some employers, it was certainly not universally felt. Moreover, given the weakening of the union organizing threat in the 1980s (union membership fell sharply after 1980), the threat effect

probably became less of a factor in employer wage setting practices than it previously had been.

iii. Pattern Bargaining in the Union Sector.

From the end of World War II until the 1980s, "pattern bargaining" was a prominent feature of the union sector. Under pattern bargaining, a wage settlement between a union and an employer in one location was imitated at other employers. Thus, for example, a settlement reached by the United Automobile Workers (UAW) and one of the "big-three" automobile manufacturers (General Motors, Ford, and Chrysler) would be eventually adopted by the other two. Once the auto pattern was established at the big-three, it tended to spread into smaller auto parts manufacturers and farm machinery manufacturers with whom the UAW also bargained.

Generally, pattern bargaining has involved a fair degree of flexibility; more flexibility, in any case, than the literature on the subject often recognized. As the pattern spread from the lead settlement, it was increasingly varied. For example, smaller firms might make the same wage adjustment as the lead settlement, but be less generous with fringe benefits. Or wages might be absolutely lower at such firms, even if their wage increases followed the pattern.

In the 1980s, pattern bargaining broke down in many industries, or simply shrunk to encompass a smaller sphere of imitative contracts. A Conference Board survey, published in 1985, found that firms had generally become more inward looking in making pay adjustments than they were in the 1970s.⁴⁸ Broad, industry-wide patterns became less important than other considerations in making wage decisions.

The major factor behind this phenomenon of eroding and shrinking patterns was increased nonunion competition. As union membership declined within industries, newer lower-wage firms and plants undermined the earlier wage patterns. But even in the adverse climate of the 1980s, some patterns persisted. Thus, for example, Ford and General Motors continued to follow one another in their negotiations. And Chrysler, which had deviated from the auto pattern beginning in 1979, was gradually brought back into line by the UAW.

As with wage imitation generally, pattern bargaining partly reflects "equity" considerations. Workers may simply ask, "if someone else has received an X% wage increase, why shouldn't I receive one?" Unions, as political institutions, must respond to such pressures.

But there is another important consideration in the union sector: "taking wages out of competition." If the union succeeds

in raising wages above market levels at a given employer, that employer will be placed at a competitive cost disadvantage in the product market unless other firms are forced to make the same wage adjustments. To strengthen its bargaining position at any one employer, the union must be able to make wages at other relevant employers move according to the same pattern.

Indeed, unionized employers can be expected to press the union to make sure that their competitors make wage settlements similar to their own.⁴⁷ For this reason, pattern bargaining tends to be strongest within a given industry (such as automobile manufacturing) and less prominent across industries. And it will erode within industries if nonunion firms (whose wages the union cannot control) enter the product market.

iv. Available Data on Pay Adjustments.

For employers who wish to determine what kinds of pay adjustments have recently occurred in the labor market, a variety of measures are available from the U.S. Bureau of Labor Statistics (BLS). BLS wage data can be readily obtained from press releases and statistical journals published by the Bureau. However, the pay adjustment data produced by BLS tend to be oriented toward national averages, not detailed local labor markets.

Table 3 presents examples of BLS data on pay adjustments. Average hourly earnings data (discussed in the previous chapter) are available on a monthly basis for production and nonsupervisory employees. These data are published on a detailed industry basis, as the table shows. However, they can be distorted by shifts in the mix of overtime and non-overtime hours, shifts in the proportions of high and low paid workers, and -- at the aggregate level -- shifts in employment between high and low paying industries. Such shifts can affect average hourly earnings, even if wage rates are unchanged. Yet it is wage rate decisions which are of concern to employers.

As a partial remedy for this problem of distortion, the BLS uses the same data base from which average hourly earnings are developed to produce the hourly earnings index (HEI). The HEI is adjusted to exclude the effects of overtime hour shifts and interindustry employment shifts (but not inter-occupational shifts). Thus, it comes closer to being an index of pure wage rate changes than are movements in unadjusted average hourly earnings. However, the HEI is disaggregated only into broad sectoral classifications; detailed industry information is not available.

Neither average hourly earnings nor the HEI reflect fringe benefits such as pensions, health insurance, etc. And data for supervisory workers are not included. There are no monthly

Table 3

Selected Measures of Pay Change, 1986

Pay Index & Sector or Group	Wages & Salaries	Total Compensation
Average hourly earnings ¹ (M)	1.1%	-
Meat packing plants	1.8	-
Eating and drinking places	-.2	-
Banking	4.3	-
Hourly earnings index ² (M)	1.9	-
Manufacturing	1.5	-
Retail trade	1.2	-
Finance, insurance, real estate	3.4	-
Compensation per hour ³ (Q)	-	2.6%
Employment Cost Index ⁴ (Q)	3.5	3.6
Private sector	3.1	3.2
White collar	3.4	3.5
Professional & technical	3.7	3.6
Manufacturing	3.3	3.3
Union	2.0	2.1
Nonunion	3.5	3.6
West	2.4	2.3
State & local government workers	5.4	5.2
White collar	5.5	5.3
Elementary & secondary schools	5.7	5.8

Note: Indexes denoted (M) are available monthly; percentage pay changes shown for monthly indexes are on a December-to-December basis. Indexes denoted (Q) are available quarterly; percentage pay changes shown for quarterly indexes are on a fourth quarter to fourth quarter basis.

¹Production and nonsupervisory workers in the private, nonfarm sector.

²Production and nonsupervisory workers in the private, nonfarm sector. Index is adjusted to remove the effects of overtime in manufacturing and interindustry employment shifts.

³Nonfarm, business sector.

⁴Civilian workers excluding farm, household, and federal government employees.

Source: Current Wage Developments, Monthly Labor Review, Employment and Earnings, various issues.

sources for these missing data. However, on a quarterly basis, the BLS has published the compensation per hour index for many years. This index includes fringes and payroll taxes, as well as wages, and includes all occupational groups. Unfortunately, compensation per hour is distorted -- like average hourly earnings -- by shifts in overtime, occupational mix, and industry composition.

Since 1976, the BLS has published the quarterly Employment Cost Index (ECI) in an attempt to remedy the deficiencies of the other available wage measures. In the 1980s, the ECI was widened to include data on fringes and payroll taxes and on state and local government workers. Its industry detail is limited to broad sectors. However, unlike the other pay indexes, it does provide some occupational detail as well as a union/nonunion breakdown.

With information, such as that included on Table 3, an employer would know that 1986 was a year in which private sector nonsupervisory employees generally received wages adjustments of 1-2%. Private sector workers as a whole received increases in total compensation of 2-4%, with nonunion workers receiving larger increases than union workers. In the private sector, total compensation rose slightly faster than wages, a longstanding trend. Thus, benefits and payroll taxes were taking rising fraction of the total compensation dollar. Finally, state

and local government workers received larger pay increases than private sector workers.

Given these trends, a private nonunion employer contemplating a pay increase in early 1987 could have viewed an adjustment of 2% as falling in the "normal" range. A public employer might have considered 5-6% as the going rate of pay adjustment. As stressed earlier, such norms need not have been automatically followed. But an employer which was considering an adjustment outside these limits would probably have wanted to look carefully at the reasons for the deviation and the possible consequences.

For unionized employers, the BLS publishes data on union settlements in both the private and public sectors. These data, however, refer only to major settlements. For purposes of wage change statistics, "major" refers to settlements covering 1,000 or more workers. Where data are published on a total compensation basis, "major" refers to settlements covering 5,000 or more workers. Thus, smaller bargaining units are omitted.

Table 4 summarizes information on union settlements in 1986. In interpreting such data, it is important to keep in mind the existence of escalator clauses in the union sector. BLS simply notes the presence of such clauses, but does not attempt to estimate what wage increases will occur pursuant to them. (To do

Table 4

**Selected Pay Change Measures Related to the Union Sector,
1986**

	First-Year		Contract Life	
	Wages Only	Compensation	Wages Only	Compensation
U.S. Bureau of Labor Statistics data for major ¹ settlements				
All private settlements	1.2%	1.1%	1.8%	1.6%
Settlements with escalator clauses	1.9	2.0	1.7	1.7
Settlements with- out escalator clauses	.9	.5	1.8	1.5
All state & local government settle- ments	5.7	6.2	5.7	6.0
Bureau of National Affairs, Inc. data ²				
All settlements	2.4%	-	-	-

¹Major settlements for the wages only columns are those involving 1,000 or more workers. For the compensation columns, major settlements are those involving 5,000 or more workers.

²Settlements involving 50 or more workers.

Source: Current Wage Developments, vol. 39 (March 1987), pp.7, 10, 32; Daily Labor Report, January 20, 1987, p. B1.

so would require forecasting the rate of CPI inflation which the Bureau hesitates to attempt). As a result, the settlement data for settlements with escalators, and for all settlements, understate the actual wage adjustment that will actually be experienced.

Because of this escalator problem, it is easiest to start by looking at those settlements without escalator clauses. The table shows that such agreements provided for pay increases of 1-2% per annum over contract life. These modest settlements were influenced by the wage concession movement (which sometimes involved giving up, or freezing, the escalator clause).

As was noted earlier, escalator clauses in the 1980s have yielded roughly a 0.5% wage increase for each 1% CPI increase. Suppose that CPI inflation of about 4% per year were expected over the following 2 to 3 years. Then a very crude estimate of the adjustment to be experienced under settlements with escalator clauses would have been about 2 percentage points above the levels shown on Table 4. The escalated contracts -- which were less likely to involve concessions -- thus could be projected to provide roughly 4% pay increases per annum over life.

Generally, a unionized employer entering negotiations in early 1987 would know that pay adjustments of about 1-4% per annum could be considered "normal." Of course, the employer

might plan or expect to negotiate a settlement outside that range. But knowing the averages gives guidance for bargaining strategy and cost projections.

v. Pay Intention Surveys.

BLS data on pay changes are always retrospective. Unless economic conditions are changing drastically, such retrospective information may be a sufficient guide to the future. Generally, pay changes made in one year do not differ dramatically from the previous year unless, for example, the rate of inflation is markedly accelerating or decelerating. Even so, for planning purposes pay setters may want to know what other employers are considering as likely pay adjustments in the future.

Possible sources to meet this need are the various major economic forecasting services. These services, such as Data Resources, Inc. (DRI) use econometric wage change equations to forecast wage changes as part of their larger economic models. The wage equations in these models play an important role in the forecasting of general inflation trends.

Larger firms often subscribe to economic forecasting services through their economic research departments. Hence, pay setters within the HRM department may have access to such information, and certainly should take advantage of it. However,

economic forecasters typically provide no disaggregated information about wages. Generally, they forecast only compensation per hour at the aggregate level.

For more detail, employers must rely on various private surveys of pay intentions. These surveys are conducted by management and compensation consulting firms such as Hewitt Associates. They usually involve asking subscribing employers what kinds of wage and salary increases they gave for various occupations groups during the past year, and what they are contemplating as probable adjustments for next year.

Pay intention surveys are not always readily available to firms which are not in a commercial relationship with the consultants. However, the surveys are sometimes summarized by reporting services, such as the Daily Labor Report. In addition, the Human Resources Outlook Panel of the Conference Board makes and publishes its own forecast of likely pay adjustments and includes data from various pay intention surveys.

Users of pay intention surveys must be wary of interpreting the resulting data at face value. In a previous chapter, it was noted that confusion often arises concerning the cost effects of merit increases. In a steady-state situation, a properly functioning merit system should not raise average pay. However, HRM managers often confuse two concepts: the average pay

adjustment that will be experienced by current employees who stay with the firm and the average adjustment in pay for all workers (including those who arrive and those who depart).⁵⁰

The former concept will include the gross cost of merit increases for those employees eligible for them as well as any general across-the-board pay increase. But the latter includes only the across-the-board adjustment. And it is the latter which is the most relevant concept for an employer considering budgeting for future pay increases.

In many surveys, the respondents seem to include the gross cost of merit pay systems in their answers about future pay adjustments. The result is an upward bias in the reported figures of about 1-2 percentage points. A user, unaware of this bias, could come away with a misleadingly high estimate of the likely rate of wage inflation. One way to probe for possible bias is to look at the pay adjustments the respondents say they have already given and to compare them with appropriate retrospective BLS data. If the survey results seem high relative to BLS figures, merit bias is probably present.

Not all surveys reflect merit bias. For example, the National Federation of Independent Business, an association of smaller, largely nonunion firms, conducts a survey of member pay intentions on a quarterly basis. For example, its respondents

reported making pay and benefit changes of about 5% for 1985, a figure close to the 4.6% for nonunion firms reported by BLS. Forecasting one quarter ahead, the respondents estimated they would raise wages by about 4.3%.⁵¹ This degree of approximation is about as good a prediction as can be expected from survey data.

VIII. Is There a Single Formula for Making Pay Adjustments?

In this chapter, various relevant factors to be considered in making pay adjustments have been reviewed. Price inflation, labor market conditions, and a perception of the going rate of pay adjustment seem empirically to be most important as determinants of pay change. Profitability and productivity may play a role in some situations.

Where there are multiple guides to a decision, the question of weighting the guides inevitably arises. Is there some formula which incorporates all of the various factors and indicates precisely what decision an individual employer should make? The answer is "no." As is often the case in business decision making, quantification has both its benefits and limits. Ultimately, a subjective judgment -- based on available data-- is required.

Nevertheless, employers should have a general, long-term strategy concerning their pay policies. Such a strategy might simply be to pay average wages for given occupations in the local labor market over the long run. In any given year, however, there may be reason to deviate from the long range strategy. And from time to time, the strategy itself must be reexamined. But neither the annual decision, nor the periodic strategy determination, should be undertaken without reference to the indicators and considerations discussed in this chapter.

FOOTNOTES

1. A now-discontinued survey by the Bureau of Labor Statistics which covered nonunion manufacturing indicated that virtually all pay increases experienced by nonunion workers occurred pursuant to decisions made within the same year. See Sanford M. Jacoby and Daniel J.B. Mitchell, "Does Implicit Contracting Explain Explicit Contracting?" in Barbara D. Dennis, ed., Proceedings of the Thirty-Fifth Annual Meeting, Industrial Relations Research Association, December 28-30, 1982 (Madison, Wisc.: IRRR, 1983), p. 323.

2. Harriet Gorlin, Personnel Practices II: Hours of Work, Pay Practices, Relocation, information bulletin no. 92 (New York: Conference Board, 1981), p. 24.

3. Bureau of National Affairs, Inc., Wage & Salary Administration, PPF Survey no. 131 (Washington: BNA, 1981), p. 10.

4. The ECI-based series are on a fourth quarter to fourth quarter basis; the price deflator series is on a year to year basis.

5. See Survey of Current Business, vol. 66 (July 1977), p. 32.

6. Total revenue (TR) = PQ, where P = price and Q = quantity. Differentiating both sides by Q yields the following equation:

$$(a) \quad MR = [Q(dP/dQ)] + P$$

The elasticity of demand (e) is $[(dQ/dP)(P/Q)]$. Thus, it is easy to show that:

$$(b) \quad MR = P[(1+e)/e]$$

Note that e is a negative number (since a demand curve is downward sloping) and that a profit maximizing firm will always operate where $e < -1$. Thus, for example, if $e = -2$, marginal revenue will be one half the price.

7. An important consideration is whether labor is a complement to, or a substitute for, energy in production.

8. A lump-sum bonus was paid in the first year in lieu of a wage increase.

9. Economists sometimes refer to W/P, where P is the price of the product being produced, as the "product wage." The classical formula can be modified to deal with implicit contracting in terms of flows of wages and revenues as noted above in the text.

10. See Sanford M. Jacoby, "Cost-of-Living Escalators: A Brief History" in Barbara D. Dennis, ed., Proceedings of the Thirty-Seventh Annual Meeting, Industrial Relations Research Association, December 28-30, 1984 (Madison, Wisc.: IRRR, 1985), pp. 396-403.

11. Price data are collected from 24,000 retail establishments and 24,000 tenants (for rents) in 85 urban areas.

12. CPI-U is estimated to cover the consumption habits of 80% of the noninstitutional population; CPI-W represents about 40%.

13. Details concerning the actual construction of the CPI can be found in U.S. Bureau of Labor Statistics, BLS Handbook of Methods, Volume II: The Consumer Price Index, bulletin 2134-2 (Washington: GPO, 1984). Actually, the BLS does not need to collect data on precise quantities of goods and services consumed in the reference period. Rather, it is sufficient to determine the proportion of expenditure devoted to different classes of goods. These proportions become the reference period weights of the index. Goods and services which are "representative" of the expenditure class are then selected and the price changes from period to period of these representatives are collected. These price "relatives" form the heart of CPI data collection.

The rationale for this method of data collection can be seen by rearranging the formula in the text. That formula can be rewritten as:

$$\sum_i^n (P_{11}/P_{10}) [P_{10}Q_{10}/\sum_i^n P_{10}Q_{10}]$$

where the term in parentheses () is the price relative of good i from period 0 to period 1 and the term in brackets [] is the expenditure weight for good i in period 0.

Note that it is possible to apply this formula period after period as long as the expenditure weights are continuously updated by price trends (not consumption patterns). The weights for good i will increase if the price of good i rises faster than the average of other prices. To compute the index from period 10 to period 11, it is only necessary to have the weight for period 10 and the price relatives for period 10 to 11.

14. The arbitrary base period is not the same as the reference period in which consumption surveys were taken. As of 1986, the reference period was 1972-73, although the base was 1967.

15. It is important to note, however, that city CPI's cannot be used to compare absolute living costs. Thus, in December 1986, the Los Angeles area CPI-U stood at 332.9 while the Philadelphia

area CPI stood at 325.2, both based on 1967 = 100. These index values do not indicate that it cost more to live in Los Angeles in 1986 than Philadelphia; they meant only that prices rose more rapidly in Los Angeles than in Philadelphia from 1967 to December 1986.

16. Remaining on the same indifference curve is -- by definition -- equivalent to leaving consumer welfare unchanged.

17. Of course, if all prices rise by the same percentage amount, the index number problem does not arise since substitution effects are not triggered.

18. Steven D. Braithwait, "The Substitution Bias of the Laspeyres Price Index: An Analysis Using Estimated Cost-of-Living Indexes," American Economic Review, vol. 70 (March 1980), pp. 64-77; Daniel J.B. Mitchell, "Should the Consumer Price Index Determine Wages?," California Management Review, vol. 25 (Fall 1982), pp. 5-21; Marilyn E. Manser and Richard J. McDonald, "An Analysis of Substitution Bias in Measuring Inflation, 1959-82," working paper 142, U.S. Bureau of Labor Statistics, May 1984.

19. In the late 1970s, the CPI suffered from an acute problem relating to housing costs and the treatment of mortgage interest payments. This problem was remedied in the early 1980s, but at different times for CPI-U and CPI-W. Hence, the two indexes diverged for a time due to the separate treatments of housing, a problem which no longer exists. Discrepancies now between CPI-U and CPI-W are due only to the different weighting schemes of the two measures.

20. Part of the GNP consists of government services which are measured at wage costs. Thus, the GNP deflator has a wage component for the government sector; it is not a pure price index.

21. Deflators from the national income accounts are Paasche indexes rather than Laspeyres. Their quantity weights are based on the end period rather than some fixed reference period. In principle, Paasche indexes have reverse index number problems; they will underestimate the degree of budget increase needed to maintain welfare. The fact that they do not greatly diverge from the CPIs is another indication that the index number problem is not a major difficulty in practice. It might be noted that fixed-weight (Laspeyres) versions of the national income account deflators are available as are "chain-linked" versions. The latter use the previous period's consumption as the base for the current period.

22. The Producer Price Index is weighted by shipment values in a reference period. It contains components for different stages of production of which finished goods is the highest. Thus, it can

be used to trace the movement of an inflationary or deflationary shock from crude materials to intermediate goods to finished goods. About 3,200 commodities are included.

23. These improvements eliminated an unrealistic measure of housing costs involving use of mortgage interest rates.

24. Shelter has been excluded along with food and energy because of the treatment of mortgage interest rates in the CPI through the early 1980s. The index shown combines the original CPI-W with CPI-U, once the latter became available in 1978.

25. It should be noted that the CPI is used to index various forms of government benefits such as Social Security payments. A 1983 study suggested that a 1% increase in the CPI triggered \$2 billion in federal outlays. See U.S. General Accounting Office, Funds Needed to Develop CPI Quality Control System, report GGD-83-32 (Washington: GAO, 1983), p. 2. See also U.S. Congressional Budget Office, Indexing with the Consumer Price Index: Problems and Alternatives (Washington: GPO, 1981).

26. Although escalators were used on occasion before World War II, they became widespread after a 1948 settlement between General Motors and the Auto Workers union. This contract is discussed below in the text.

27. David Card, "Microeconomic Models of Wage Indexation" in Barbara D. Dennis, ed., Proceedings of the Thirty-Seventh Annual Meeting, Industrial Relations Research Association, December 28-30, 1984 (Madison, Wisc.: IRRR, 1985), pp. 404-412. It has also been argued that the apparent correlation of inflation and escalation usage is illusory and that it was really an artifact of the wage-price controls program of the early 1970s, which gave preference to escalated agreements. See Stephen G. Cecchetti, "Indexation and Incomes Policy: A Study of Wage Adjustment in Unionized Manufacturing," Journal of Labor Economics, vol. 5 (July 1987), pp. 391-412. However, the fact that when price inflation fell in the 1980s, a period of no wage controls, use of escalation also fell suggests that the illusion hypothesis is overstated.

28. Note that giving a flat cents-per-hour increase to all workers -- as most escalators do -- tends to flatten the spread of wage differentials between skilled and unskilled workers. The escalator thus functions as a back door method of redistributing income among the workforce. However, as skill differentials become depressed, pressure arises from skilled workers (and sometimes from management) to increase the differential in the course of subsequent negotiations.

29. The automobile formula also permits wage decreases if prices fall. Some brief episodes of escalator-triggered wage decreases did occur in the 1980s.
30. Escalators generally cover wages, not fringe benefits. Often, the escalator money is kept separate from the base wage, so that certain benefits -- such as pensions -- which reflect the base wage, are not adjusted by the escalator. From time to time, a negotiation may move some of the escalator money into the base wage, thus triggering a benefit increase.
31. Joan Borum, James Conley, and Edward Wasilewski, "Collective Bargaining in 1987: Local, Regional Issues to Set Tone," Monthly Labor Review, vol. 110 (January 1987), p. 33.
32. We are using a lower-case p to represent the price level rather than the upper-case P which has been used previously to designate the price of the particular product the worker produces.
33. This assumption is implicit in Keynes' definition of involuntary unemployment. See John Maynard Keynes, The General Theory of Employment, Interest, and Money (New York: Harcourt, Brace & World, 1936), p. 15.
34. Daniel Kahneman, Jack L. Knetsch, and Richard Thaler, "Fairness as a Constraint on Profit Seeking: Entitlements in the Market," American Economic Review, vol. 76 (September 1986), p. 731.
35. This formula ignores compounding. The reader is referred to the earlier chapter on productivity for more precise analysis.
36. Robert H. Ferguson, Cost-of-Living Adjustments in Union-Management Agreements, ILR bulletin no. 65 (Ithaca, N.Y.: New York State School of Industrial and Labor Relations, Cornell University, 1976), p. 5.
37. Production workers in Japanese manufacturing received about one fifth of their compensation in the form of bonuses in the late 1970s. The corresponding figure for American workers was less than 1%. See U.S. Bureau of Labor Statistics, Handbook of Labor Statistics, bulletin 2217 (Washington: GPO, 1985), p. 439.
38. The insider/outsider terminology has become common in economic literature. See, for example, Assar Lindbeck and Dennis J. Snower, "Wage Setting, Unemployment, and Insider-Outsider Relations," American Economic Review, vol. 76 (May 1985), pp. 235-239.

39. Kahneman et al, "Fairness as a Constraint on Profit Seeking," op. cit., p. 730.

40. Some two-tier plans were "permanent" so that new hires could never work their way up to the pay scales of incumbent workers. More common were "temporary" plans in which the pay scales eventually merged after a specified period on the job. Of course, under either plan, the outsiders become insiders once hired, creating the possibility of friction within the workforce. For more details on the two-tier phenomenon, see Sanford M. Jacoby and Daniel J.B. Mitchell, "Management Attitudes Toward Two Tier Pay Plans," Journal of Labor Research, vol. 7 (Summer 1986), pp. 221-237.

41. Delta Airlines, which is largely nonunion except for its pilots, instituted a two tier plan at the same time other, unionized airlines did so.

42. "New Retirement System for Federal Employees," Monthly Labor Review, vol. 104 (October 1986), p. 34.

43. A.W. Phillips, "The Relation Between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861-1957," Economica, vol. 25 (November 1958), pp. 283-299.

44. George L. Perry of the Brookings Institution is the originator of the concept of discrete shifts in wage norms. See George L. Perry, "Inflation in Theory and Practice," Brookings Papers on Economic Activity (1:1980), pp. 207-241; George L. Perry, "What Have We Learned About Disinflation?," Brookings Papers on Economic Activity (2:1983), pp. 587-602; George L. Perry, "Shifting Wage Norms and Their Implications," American Economic Review, vol. 76 (May 1986), pp. 245-248.

45. Daniel J.B. Mitchell, "Shifting Norms in Wage Determination," Brookings Papers on Economic Activity (2:1985), pp. 575-599.

46. Bureau of National Affairs, Inc., Policies for Unorganized Employees, PPF Survey no. 125 (Washington: BNA, 1979), p. 13.

47. Daniel J.B. Mitchell, Unions, Wages, and Inflation (Washington: Brookings Institution, 1980), pp. 175-177.

48. Audrey Freedman, The New Look in Wage Policy and Employee Relations, report no. 856 (New York: Conference Board, 1985), pp. 7-10.

49. Some union contracts feature "most favored nation" (MFN) clauses which provide that the employer will not be forced to abide by a more generous settlement than made by its competitors.

Thus, if the union makes a settlement with employer A, but is forced to accept a lower settlement at employer B, A receives a settlement equal to B's. (The MFN appellation is derived from international trade jargon).

50. The merit bias in pay intention surveys is discussed in Sanford M. Jacoby and Daniel J.B. Mitchell, "Alternative Sources of Labor Market Data" in Barbara D. Dennis, ed., Proceedings of the Thirty-Eighth Annual Meeting, Industrial Relations Research Association, December 28-30, 1985 (Madison, Wisc.: IRRRA, 1986), pp. 42-49.

51. The data cited in the text are drawn from the "Quarterly Economic Report for Small Business and the Economy" dated October 1986 and released November 15, 1986 by the National Federation of Independent Business.