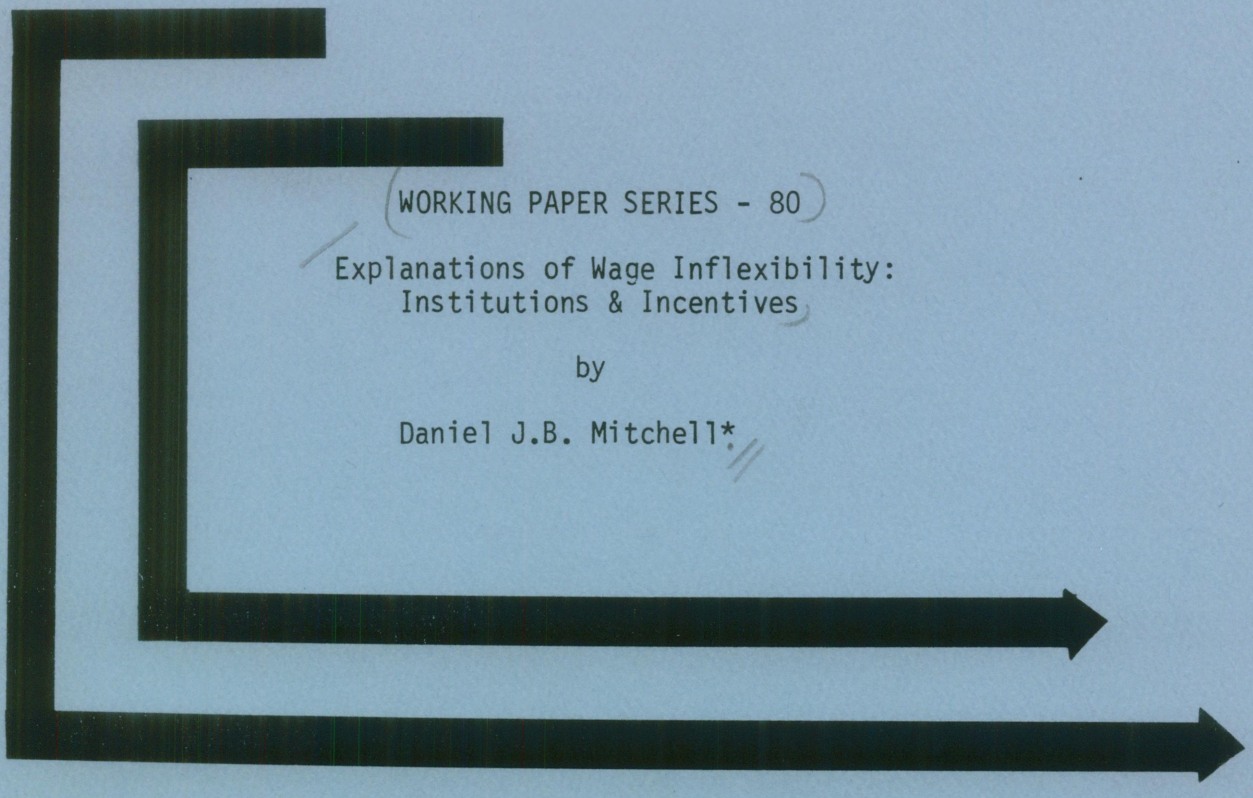

WORKING PAPER SERIES - 80

Explanations of Wage Inflexibility: Institutions & Incentives

by

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Los Angeles,
January 1985

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Draft: January 1985

Paper for a conference on "Wage Rigidity, Employment, and Economic Policy" to be held in Sewanee, Tennessee, April 19-20, 1985.

Table of Contents

Whenever a market doesn't clear, economists look for an influence which is hindering price adjustments. In introductory microeconomics classes, professors delight in demonstrating that farm "surpluses" are really artifacts of government price supports and that there can really be no such thing as a "shortage" of engineers, since employers would simply raise salaries if there were one. These are micro tales of demand and supply analysis. Yet they raise conceptual problems at the macro level.

The prime market that has trouble clearing at the macro level is the labor market. Yet it is difficult to point to government imposed wage floors or ceilings as the primary causes of the surpluses and shortages that develop cyclically. In the U.S. context, minimum wage floors affect only the lowest paid and cannot have a direct effect on the employment (or unemployment) of most workers. Ceilings on wages have been imposed only on rare occasions as components of anti-inflation policies.

Even after acknowledging warnings that micro models may be misleading at the macro level, economists have looked for elements of "rigidity" as the source of the aggregate economy's tendency to adjust to variations in demand through quantities rather than prices. And since the quantity variation tendency shows up most notably as variations in unemployment and job vacancy rates, rigidity of wages becomes the natural suspect.

But what precisely is meant by "wage rigidity"? Nominal and real

wages certainly change over time; they are not literally rigid. Hence, the word "rigidity" has a relative connotation. Wages are seen as rigid relative to something else, but not completely inflexible.

The central theme of this paper is that there is no unified theory of wage rigidity (however defined) and there probably cannot be one. Both the historical and the cross-country evidence suggest that wage setting practices are importantly influenced by institutional factors. While the definition of economic endogeneity can be stretched to encompass such factors, there is little to be gained by doing so. Recent theorizing on wage rigidity has provided insights into incentives which reinforce institutions. But these incentives by themselves would not have brought about contemporary wage setting practices.

Much of the analysis that follows is based on American data and economic history. The author apologizes in advance for this ethnocentrism. He suspects, however, that the story could be told -- with different details but similar conclusions -- for any industrialized market economy.

I. The Classical Auction Market.

The standard demand-supply analysis of the textbooks is really a representation of an auction market in which alternative prices are tried until the market clears. There are markets which approximate such conditions, mainly in the financial and commodity sectors. It

hardly requires acute perception to observe that labor markets do not function with the price flexibility which characterizes the markets for stocks, bonds, precious metals, or agricultural products.

In the context of the classical auction market, there is little meaning to the obvious question of whether by "rigid wages" one is describing the nominal or real wage rate. With an auction market, a whisper of excess supply would quickly cause the price to plummet, until the excess was removed._1_/ With labor as an important element of costs, such a plummeting in the labor market would most probably be associated with BOTH real and nominal wage declines.

Under an auction market model, an excess supply of labor would signal the auctioneer quickly to drop the real wage. But this would lead to nominal price declines in auction product markets, so that ultimately a real wage decline would have to be a nominal wage decline, too. The real versus nominal distinction is likely to be meaningful only when there are already departures from auction markets in the model.

It may seem unfair to pose the auction market's flexibility as a standard for wage setting. But consider the economic analyst who puzzles over why a worker with appropriate credentials and willing to work at a wage at or below the level paid by a given employer may be told that there is "no help wanted". Such an analyst is implicitly comparing the real world labor market with a classical auction system.

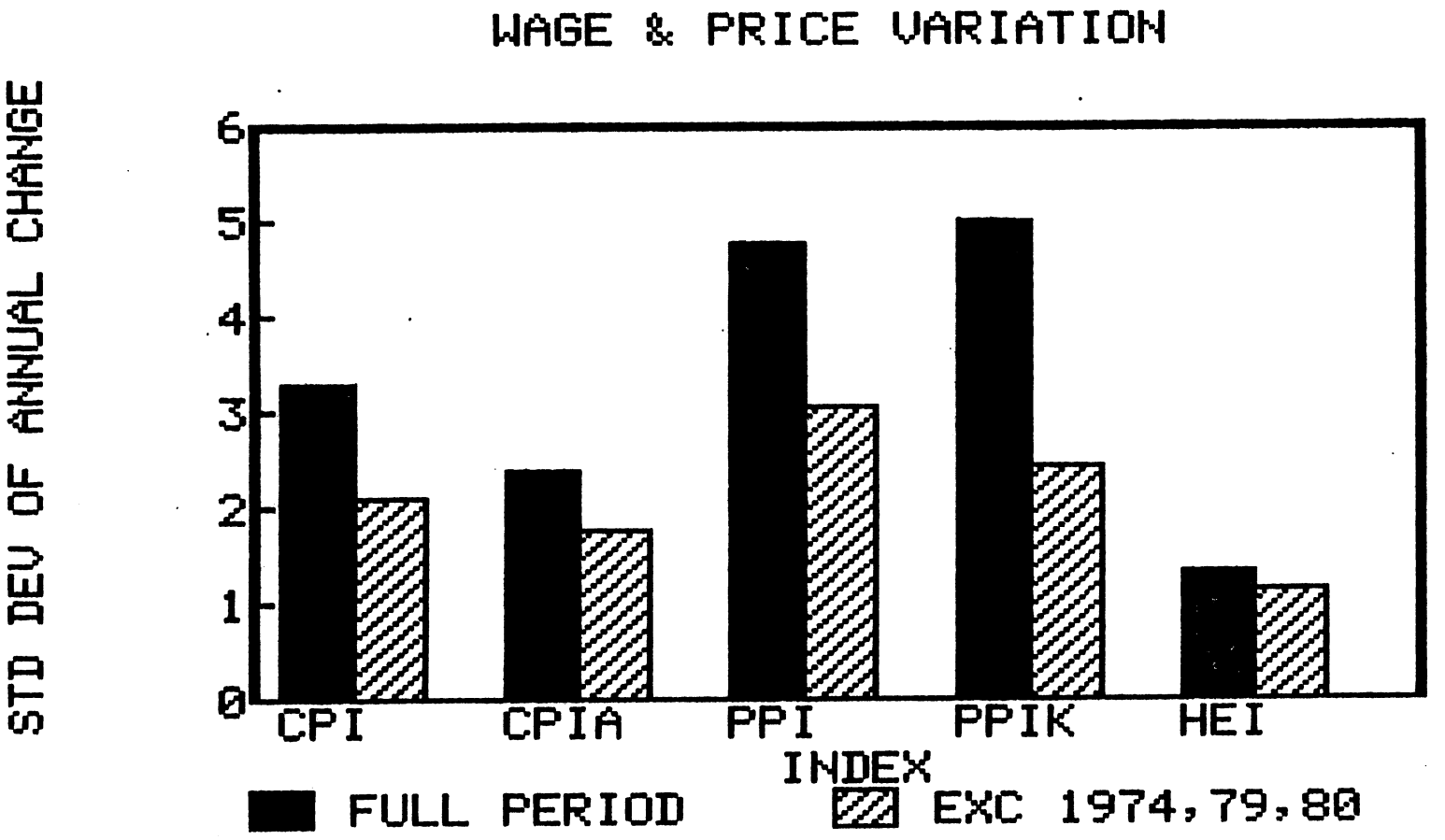
II. Wages and Real World Product Markets.

Of course, surpluses and shortages are found outside the labor market. There are examples of product markets which do not immediately clear, i.e., which are not characterized by auction style price adjustments. Yet, wage setting seems rigid, even when compared with "typical" product markets.

One measure of this characteristic can be seen from American data on Figure 1. The figure compares the standard deviation of December-to-December changes in a broad based wage measure (the hourly earnings index -- HEI -- for production and nonsupervisory workers) with the standard deviation of changes in various aggregate price indexes during 1968-83: the Consumer Price Index (CPI), the CPI adjusted to exclude energy, shelter, and food (CPIA), the Producer Price Index for finished goods (PPI), and the PPI component for capital equipment (PPIK). Wage change over this period exhibited a substantially lower standard deviation than price change, even after the price indexes are purged of "volatile" components and the influence of "abnormal" periods is deleted._2_/

This difference in price and wage setting has its counterpart in the degree to which product and labor markets rely on quantity rather than price adjustments. At the bottom of a recession, firms may well find themselves with excess inventories. But they liquidate these surpluses through distress sales, rebates, and other price adjustments after a relatively short period. The labor market has some similar

FIGURE 1



Sources of data: U.S. President, Economic Report of the President 1984 (Washington: GPO, 1984), pp. 283, 290; U.S. Bureau of Economic Analysis, Business Statistics 1982 (Washington: GPO, 1983), pp, 57, 171; Current Wage Developments, vol. 36 (November 1984), p. 33.

phenomena, but their scope is much more limited and the duration of the adjustment seems much longer. Thus, by the end of 1983, the inventory to sales ratio in U.S. manufacturing and trade suggested that the excess supply of goods which had built up during the severe 1982 recession had been dissipated. But the national unemployment rate remained substantially above anything which might be regarded as a normal level.

The lesser volatility of wage change compared with price change poses a theoretical puzzle for economists. If a model of wage rigidity is to be formulated on the basic building block of economic rationality, such a model is likely to assume that money is a "veil" and that all labor market behavior centers on the real wage. Thus, any justification for wage rigidity that emerges is likely to be for real wage rigidity, not nominal. But the fact that wages are less volatile than prices (even cleaned up prices) suggests that wage rigidity models need to explain the stickiness of nominal wages.

Perhaps the most striking illustration of the importance of the nominal wage -- at least in the American case -- can be found in the examination of distributions of wage change decisions. From 1959 to 1978, the U.S. Bureau of Labor Statistics surveyed wage decisions in manufacturing. Table 1 compares the distribution of wage decisions in 1961, a year in which the CPI rose by only 0.7% and the unemployment rate stood at 6.7%, with 1978, a more inflationary and buoyant year with a 9% inflation rate and 6.1% unemployment rate. In the later year there were no reported wage cuts; in the earlier year the proportion of

Table 1

WAGE DECISIONS IN U.S. MANUFACTURING, 1961 AND 1978
(Percentage of Workers Covered)

Type of Decision	1961	1978
Wage Decrease	0.2%	0.0%
No Wage Change	23.8	8.8
Wage Increase:		
0.1 - 1.9%	18.7	1.5
2.0 - 2.9%	20.3	1.9
3.0 - 3.9%	17.7	4.3
4.0 - 4.9%	6.4	4.3
5.0 - 5.9%	7.0	7.5
6.0 - 6.9%	1.5	11.0
7.0 - 7.9%	0.6	19.1
8.0 - 8.9%	0.3	15.7
9.0 - 9.9%	0.1	8.6
10% and above	2.5	17.2
Unknown	0.8	-

Note: Wage adjustments exclude escalator and deferred increases. Details need not sum to 100% due to rounding.

Source: MONTHLY LABOR REVIEW, v. 85 (September 1962), p. 1005; CURRENT WAGE DEVELOPMENTS, v. 33 (May 1981), p. 54.

workers experiencing wage cuts was only 0.2%.

Table 1 demonstrates the unusual nature of nominal wage decreases, even in periods of virtual price stability. During years of low inflation, the wage change distribution drifts down -- as might be expected -- but does not retain its bell shaped form. Rather it bunches at the zero level and just above. Real wage decreases are not uncommon; nominal wage cuts rate newspaper headlines._3_/

III. International Variation.

The evidence of Table 1 might be dismissed as a peculiar American characteristic of wage setting. Some analysts have argued that the U.S. is particularly prone to nominal wage rigidity due to multiyear union contracts (an issue addressed below) while other countries exhibit real wage rigidity. (See Grubb, Jackman, and Layard; Sachs; Gordon). This view developed after the experience in the mid-1970s of the OPEC oil price shock/recession. While U.S. real wages showed some decline, those in certain other industrialized countries did not.

In principle, an external price shock of the OPEC type should not have the same impact on nominal wages as a bout of price inflation induced by domestic monetary expansion. An external price shock does not increase the "ability to pay" of domestic employers. (It does not raise the marginal revenue product of labor of the typical firm). Indeed, if the price shock involves a major input to production such as oil, it may reduce the "ability to pay" of non-energy producing firms.

Moreover, the OPEC shock triggered restrictive macroeconomic policies in most countries for anti-inflation reasons, still another reason to expect a real wage decline.

Table 2 shows the diverse responses of manufacturing real wages in ten countries to the mid-1970s episode and the later oil shock/recession of the early 1980s. It indicates whether or not real wages declined in at least one year during 1972-78 or 1979-82. The U.S. exhibited a real wage decline in both periods, as did Canada (with a lag), Japan, Sweden, Denmark, and Italy. On the other hand, Germany and France did not experience a real wage decrease in either episode. Real wages did not decline in the Netherlands during the mid-1970s period but did so in the later one. Britain exhibited the reverse pattern: a decline in the earlier period, but not the later.

The variegated reactions of national wage determination systems poses a further challenge to any attempt to formulate a unified theory of wage rigidity. Variation in response to common phenomena suggests that institutional arrangements peculiar to each country play a role in explaining wage outcomes. While balance of payments constraints under fixed exchange rates may have once been important common determinants of these outcomes under fixed exchange rates (Nordhaus), the floating rates of the 1970s and 1980s provided more scope for such national differences to intrude on the wage setting process.

IV. Variation over Time.

Table 2

MANUFACTURING REAL COMPENSATION PER HOUR IN TEN COUNTRIES

	Mid-1970s Decline?	Early 1980s Decline?
U.S.	Yes	Yes
Canada	Yes	Yes
Japan	Yes	Yes
Denmark	Yes	Yes
France	No	No
Germany, West	No	No
Italy	Yes	Yes
Netherlands	No	Yes
Sweden	Yes	Yes
United Kingdom	Yes	No

Note: Mid-1970s refers to 1972-78; Early 1980s refers to 1979-82.

Source: U.S. Bureau of Labor Statistics, HANDBOOK OF LABOR STATISTICS, bulletin 2175 (Washington: GPO, 1983), p. 439.

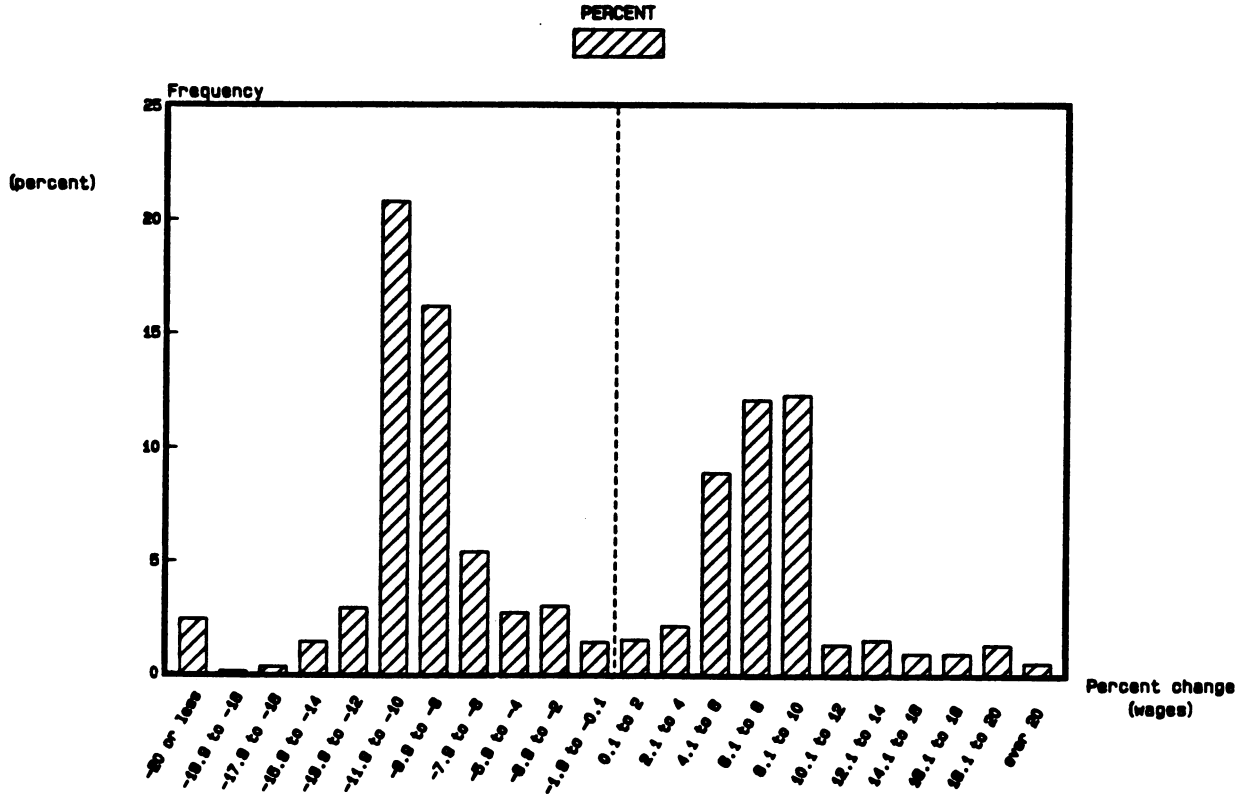
Historical evidence also poses a challenge to proposed theories of wage rigidity. There is evidence that the degree of wage sensitivity to market pressures has changed over time. Unified theories must be capable of explaining such variations; a model which applies only to a single period is inherently suspect.

Some studies have analyzed long-term time series of wage change at the aggregate level and have found that earlier periods were characterized by more wage responsiveness than during the post World War II period._4_/ Some recently developed American data from the 1920s confirms this impression in graphic terms. For example, Figure 2 shows the distribution of wage change decisions, as reported by the U.S. Bureau of Labor Statistics' establishment surveys, for 1924 and 1925, years in which consumer prices reportedly changed by -.2% and +4.0%, respectively. While these data must be interpreted with care (see Mitchell, 1985b), they give dramatic evidence of an earlier era in which both real and nominal wage decreases were well within the realm of employer discretion.

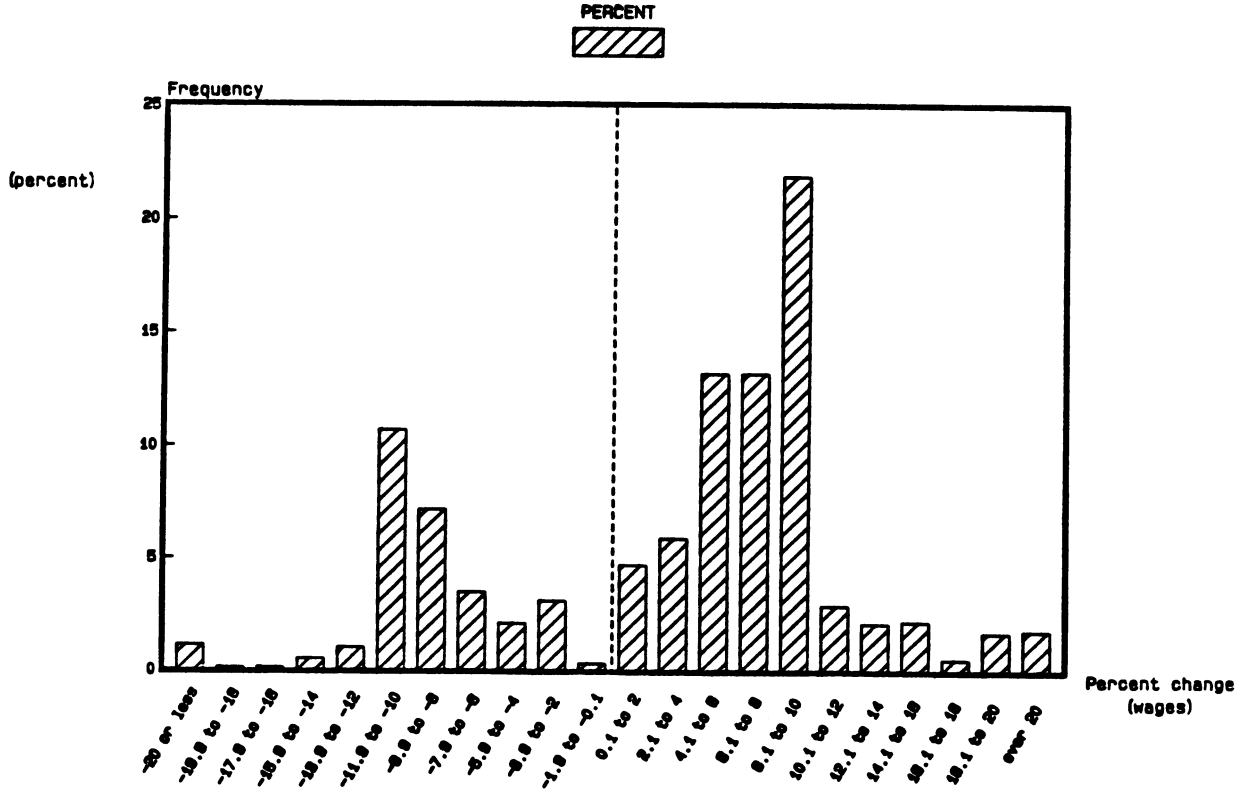
Figure 2 is even more impressive when compared with the wage distributions of Table 1. The wage change distributions of the 1920s showed substantially wider variance than those of the post World War II period. While the possibility that the difference in the two periods simply reflected a change in worker "preferences" of the type likely to figure in a wage rigidity model, there is historical evidence that wage cuts were not gladly received in the 1920s or before. Where unions existed, strikes over wage reductions were not uncommon._5_/

FIGURE 2

Distribution of Wage Increase or Decrease Decisions, 1924



Distribution of Wage Increase or Decrease Decisions, 1925



Source of data: See Figure 3; Mitchell, 1985b.

The evidence of Figure 2, and other historical studies as well, is that wages were once more flexible than is currently the case. If the source of this flexibility is not on the supply side of the labor market, i.e., worker preferences, is it on the demand side? Are employers situated today so that they need less wage flexibility than their predecessors? Undoubtedly, there are differences in economic structure that could be cited between the 1920s and the contemporary period. Probably the most outstanding difference is the lesser stability of the economy in the earlier period. In the 1920s, prices were as liable to rise as to fall and the possibility of severe depression -- not just recession -- lurked in the background. Government was not expected to play a stabilizing role. In such a world, greater flexibility of wages might be expected.

In short, theories of wage rigidity need to take some account of the general background of macroeconomic performance and policy. It is more difficult to fix a wage (or a price) in a world of substantial uncertainty than in one in which reasonable projections of the future can be made. This observation does not explain WHY one might wish to fix a wage or price; only that some circumstances make the attempt more difficult and potentially more costly.

V. Pressures for New Theories of Wage Rigidity.

One of the key elements in Keynesian thinking was a diminished emphasis on wage rigidity as a cause of unemployment and the business cycle. Keynes himself devoted a chapter of the GENERAL THEORY to a

discussion of nominal wage rigidity. (Chap. 19). He noted that nominal wage cuts might well be followed by price cuts of similar proportions, thus leaving real wages -- and, hence, the demand for labor -- unchanged. And he cited various destabilizing dynamic adjustments which might be set in motion by general wage cutting as well as others which might restore full employment. Generally, however, the Keynesian message was that it was unwise to await restoration of full employment through wage flexibility which probably was not present in sufficient degree to do the job, anyway.

By the early 1960s, this viewpoint had made its way into textbook economic orthodoxy. (See Ackley, pp. 377-393). It was recognized that in theory a freely falling nominal wage in the face of a constant money supply would stabilize the economy through the "Pigou" or real balance effect. (Pigou, pp. 96-130). Falling nominal wages with a constant money supply would have the same real stimulatory effect as a rising money supply with constant nominal wages. But this theoretical observation was not considered an interesting result.

Nominal wages were not viewed as sufficiently flexible actually to perform the stabilizing function in reasonably short period. Early econometric work on the "Phillips curve" and its variants (Phillips) -- while providing a climate of optimism for macroeconomic management -- indicated that wage change did not resemble the auction model, although it was somewhat responsive to real demand conditions and price inflation. There was more interest in showing the empirical truth of this assertion than in developing a theory explaining it.

Various forces converged by the 1970s to stimulate theoretical work on wage rigidity to complement the outpouring of empirically based wage equations. First, the 1960s produced a literature on "internal labor markets" within firms. A pioneering work by Doeringer and Piore noted that large firms with formal personnel practices (or unions) offered high wages, good benefits, and internal promotional opportunities to their workforces in contrast to smaller firms operating in the secondary sector of the labor market.

Reasons for the dualism in the labor market were not precisely specified, although costs of turnover were included as an explanation._6_/ Firms in the primary sector obtained quality workforces with good work habits; those in the secondary sector could tolerate unreliable workers with high absenteeism and quit rates. The internal labor market model was used initially to address problems of structural unemployment, especially among minority workers who were being given increasing emphasis in federal public policy. But the significance for wage determination was not immediately emphasized.

A second influence contributing to theoretical work on wage rigidity was the observation -- inspired partly by the internal labor markets literature -- that many workers had substantial job tenures, sometimes of twenty years or more, with a single employer. (Hall; Akerlof and Main). Not only were the employment spells long, but when related to an earlier literature on employee turnover (see Ross), they suggested that there were differences between the contemporary economy and those of the pre-war period with regard to worker attachments to

employers. Specifically, workers were less attached to their employers in the earlier period. High employee turnover was the norm.

The observation of contemporary long-term attachments in the labor market suggested to analysts in the 1970s and 1980s that short-term fluctuations in demand might not be major wage determinants. Perhaps strongly attached employers and employees would simply agree on a fixed stream of payments regardless of external conditions in the employer's product market. After all, when a firm signs a long-term lease to rent a warehouse, the rental payment typically is not contingent on the renter's short-run business conditions.

A third motivator of research in models of wage rigidity had its roots in the seeming collapse of the Phillips curve in the 1970s. The notion that wage inflation and unemployment were locked in a fixed trade-off, while it raised analytical questions, enjoyed reasonable empirical confirmation until the late 1960s. Thereafter, the Phillips curve seemed to "shift" to a less favorable position and the coefficient on the unemployment rate began to fade in magnitude and significance. The empirical observation of wage insensitivity to business fluctuations now demanded theoretical analysis.

Along with the empirical puzzle came the growing public policy preoccupation with inflation and its causes. This public policy concern became a fourth factor stimulating theoretical analysis of wage rigidity. Theories began to be developed suggesting that inflation had a certain momentum -- that it was difficult to stop once it had

continued for an extended period -- because "inflation expectations" were engendered by the observation of past inflation.

The resistance of inflation in the 1970s to demand restraint, and even formal wage and price controls and guidelines, contributed to this view. Yet expectations as an explanation for inflation momentum made sense only in a world of long-term contract-type arrangements. An auction labor market would not be much influenced by inflation expectations in setting today's spot wage rate.

A fifth observation which contributed to theoretical work on wage rigidity was the observation in the U.S. that long-term union-management contracts seemed to be largely immune to demand fluctuations. (Mitchell, 1978). Indeed, during the 1970s union wages in the U.S. seemed to be generally adrift from the majority nonunion sector of wage determination. The union/nonunion wage differential rose throughout the decade and into the early 1980s.

Some analysts noted that such behavior of wages under collective bargaining could be explained by "median voter" models in which senior workers dictated union wage policy. (Freeman and Medoff, chap. 8). But the possibility that it was the union contract itself which caused the problem lent credence to the developing literature on contracting in the labor market as an explanation of wage rigidity and even led to public calls for bans on multiyear union agreements._7_/

VI. Implicit Contract Theories.

There are two strands of implicit contract theory; one is based on differential employer-employee risk preferences while the other is based on costs of employee turnover._8_/ In reality, both are closely related. The central idea is that a cost is attached to breaking the employer-employee relationship. In such circumstances, an incentive is created to establish a long duration relationship through an "implicit" contract defining pay and other conditions of employment. The task of the theorist is then to explain why such contracts should feature rigid wages and quantity adjustments in labor utilization in response to demand fluctuations.

i. Risk Aversion Models.

The risk preference models tend to be the most elegantly presented. Employers in essence "insure" workers against income fluctuations by offering steady employment. But there is a certain circularity involved. Risk in the labor market is primarily a matter of uncertainty about layoffs. But layoffs will be costly to workers only if the labor market is not characterized by auction processes. Otherwise a "laid off" employee would merely amble to the nearest auctioneer and obtain another job at the market wage. Risk preference models cannot really be used to explain the lack of auction markets; they already assume it!

Because they are elegantly presented, risk preference models are most likely to be grounded in strict economic rationality and therefore to purport to explain REAL wage rigidity rather than nominal.

Moreover, as a result of their abstract nature such models are not well adapted to consideration of cross country variations or differences in wage behavior in alternative periods. To the extent that authors of such models consider such matters, the treatment is often in the "verbal" part of their papers.

A final difficulty with the risk aversion approach to implicit contracting is its failure to address two key fundamental issues squarely. First, it is unclear why -- at the abstract level at which the analysis usually proceeds -- workers cannot deal with risk and uncertainty through saving and dissaving behavior. (Welch and Topel). Second, even if the worker finds it necessarily to form an attachment to an insurance agent, it is unclear why the insurance agent and the employer must be one and the same entity. (Haltiwanger).

ii. Turnover Cost Models.

The alternative strand in the implicit contract literature emphasizes costs of voluntary employee turnover to the employer. Arthur M. Okun's presentation is probably the best example of this approach. (Chaps. 2,3). Turnover is postulated as imposing a "toll" on the employer. This toll might be viewed as the sum of employer search costs, screening expenses, and investment in specific training._9_/ To reduce such costs, the employer offers the worker a long-term association.

Under the Okun model, the employer must make the long-term

arrangement attractive to the worker. Since there are costs of turnover, potentials will arise for either party to "exploit" the other, depending on the tightness of the external labor market. To avoid such problems, the employer offers the employee "fair" treatment -- the "invisible handshake" instead of the invisible hand._10_/

The difficulty with (and strength of!) the Okun model is its imprecision. How is "fair" to be defined? Is it obviously fair to have a rigid nominal wage and to adjust to declines in demand through layoffs in reverse order of seniority? These methods of adjustment may seem fair, but only because they are common contemporary practices. And the reason for an implicit contract rather than an explicit one is obscure. Until recently in the U.S., implicit promises created no legal obligation on the part of the employer._11_/ Why shouldn't employers compete for labor by offering legally binding explicit contracts spelling out the fair treatment to be provided?

At one extreme, a permanent attachment between an employer and employee could give rise to a wage payment stream totally unrelated to demand. Under this model, the worker effectively sells himself/herself into slavery for a lump sum which he/she takes as some kind of annuity. But the insights provided by such models are limited by their unreality. Firms are unlikely to staff at peak levels so that there would have to be a class of workers who were subject to demand fluctuations. The wages of these marginal workers should be flexible, even if the wages of the "slaves" are not.

iii. Historical Insights.

Recent historical analysis raises important questions about the implicit contracting approach. The essential element of implicit contracting analysis is its attempt to make wage rigidity (and other anomolies of the labor market) the natural result of rational profit and welfare maximization. Yet, as already noted in Section IV, labor market practices have changed over time.

In a pathbreaking new study, Sanford Jacoby traces the development of personnel practices in U.S. manufacturing firms. At the turn of the century, these firms were content to leave personnel decisions to foremen. They had no personnel departments or professionals and saw little reason to have them. However, external social reformers perceived a need for uplifting the working class through career ladders and other such devices. Since these reformers were not especially interested in the profitability of their suggestions, their proposals for centralized, professionally managed personnel policies initially made little headway. The reformers' lack of success might be compared with that of the initial advocates of quality of worklife programs in the early 1970s, who also were socially minded rather than profit oriented.

But during World War I, employers were faced with a massive labor shortage. Unions -- fostered by government policies aimed at maintaining military production without strikes -- became a substantial threat. Employers suddenly looked to professional personnel managers

to cultivate worker loyalty through "fair" treatment. Personnel department were established and the authority of foremen was downgraded. Prominent employers found virtue in what was termed "welfare work" among their employees, a term with obvious parallels to the external activity of social workers of the period.

During the 1920s, when the labor shortage abruptly ended and a large scale antiunion campaign ended the union threat, employers reversed these policies. Personnel departments were downgraded and in some cases abolished; authority was returned to foremen. But personnel management experienced a renaissance in the 1930s, when the union threat re-emerged (with the backing of pro-union government policies). Subsequently, World War II provided further impetus for centralized, bureaucratic personnel management by reviving the pressures of the First World War. Additionally, wartime wage controls required firms to have staff experts who could deal with the complex regulatory system.

Although employers had legislative success in their efforts to diminish the union threat, the union movement had become far more institutionalized than after the First World War. Thus, the union element as an incentive to retain strong personnel departments remained. In addition, other public policies came along during the postwar period to reinforce the union effect. These include tax incentives for employer-paid fringe benefits which require expertise to administer, programs of equal employment opportunity for women and minorities in the 1960s, and other regulatory policies in the 1970s.

In short, external pressures -- rather than risk aversion and turnover costs -- seem to account for the personnel practices of modern employers, and certainly for the changes over time in those practices. It may be that the presence of risk aversion and turnover costs reinforced the external factors. (Holding down turnover costs is a common justification of personnel managers for their activities). But it is doubtful that in the absence of the external factors, U.S. employers -- on their own -- would have established the internal labor market practices which are now commonplace.

VII. Explicit Union-Management Contracts.

As already noted, multiyear union contracts in the U.S. were pinpointed in the empirical literature as being particularly insensitive to demand fluctuations in the 1970s. However, the degree to which explicit contracts offer insights into implicit, i.e., nonunion, contracts is limited. To some extent, features found in union contracts are helpful in spotlighting otherwise unobservable worker preferences. For example, "unionesque" seniority considerations have been shown to play a role in nonunion personnel practices in the U.S. (Abraham and Medoff). But as Jacoby and Mitchell (1983) have pointed out, much of what is observed in union contracting is explainable by strategic considerations rather than preferences.

i. Multiyear Contracts and Wage Rigidity.

There are substantial questions raised by the proposition that

American wage setting peculiarities are explained by overlapping multiyear contracts. First, only a minority of American employees are organized. In the private sector -- where wage data are typically drawn -- unions represented less than a fourth of wage and salary workers by the late 1970s. The vast majority of private workers were covered by annual nonunion wage decision making or simply decision making at the convenience of nonunion employers. Second, even within the union sector, Taylor has shown that the stickiness in wages which might be associated with multiyear contracts is not substantial, precisely because of their overlapping nature.

It should be clear that contracting per se does not theoretically prevent wages from being flexible and responsive to demand. American union contracts have often included escalator clauses, requiring wage adjustments in response to price inflation. A few contracts have provided for wage adjustments in response to community wage surveys or other specified collective bargaining settlements._12_/ Thus, a long duration contract can specify a contingent wage adjustment FORMULA rather than a fixed wage. Nothing prevents such a formula from being geared to a demand-sensitive measure, as occurs, for example, under a profit sharing plan.

The preference in the collective bargaining sector for 2-3 year contracts is explainable by strike avoidance motivations. Pressure for such contracts in the U.S. appears to have come largely from the management side. Long term contracts were expected to reduce strikes by reducing the frequency of negotiations. It is not clear that

American management in fact obtained a reduction in time lost to strikes, but it did gain greater control over the SCHEDULING of strikes. A three week strike every three years is preferred by management to an annual one week strike. (Jacoby and Mitchell, 1983, 1984).

If the duration of the contract reflects management preferences, then it appears that the wage schedules and formulas reflect the preferences of senior unionized employees. Except in cases where the entire plant or firm is in danger of being closed, senior workers are insulated by seniority systems from displacement. Flexible wages might be helpful in providing job security to those junior employees on the margin of layoff. But such flexibility would imply "subsidies" from senior workers (in terms of unwanted income fluctuations) for the benefit of their juniors. Median voter models of union decision making preclude such behavior. (Medoff).

ii. Bargaining Models and Wage Rigidity.

Other models of bargaining can also rationalize union wage rigidity. McDonald and Solow generalize earlier work by Cartter on bargaining outcomes and show that demand fluctuations need not lead to procyclical union wage changes. Essentially, they begin with a contract curve -- a schedule of possible wage-employment outcomes -- which has the standard indeterminacy characteristic. The precise outcome depends on bargaining power. If there is indeterminacy in the static case, the problem compounds when demand fluctuations are added

to the model._13_/

The McDonald and Solow model is in no way dependent on long term contracts. Their outcomes and conclusions would apply if unions and firms bargained on a daily basis. Moreover, their model is exclusively concerned with bargaining; it does not extend to nonunion wage policy in a competitive environment.

iii. Wage Rigidity and Strike Costs.

McDonald and Solow did not take explicit account of the long term linkage between union and employer in designating preferred wage outcomes. Consideration of the nature of this attachment can provide insights into wage rigidity in the union sector. Both parties to the negotiation know that they will be bargaining again, a fact which should have strategic implications.

Bargaining over a union contract is critically different from bargaining over the price of a used car. In the former case, not only will the parties meet again in a future negotiation, but they must in the current negotiation be aware of the potentially high costs of impasse, i.e., a strike. In the latter case, failure to make a deal imposes no significant costs and the parties are unlikely to meet again.

Given strike costs, both parties have an incentive to avoid a dispute. Hence, strikes should be random events, generated by

"mistakes" by unions and managements about their opponents' true positions. Both parties would be better off arriving at the settlement that would result from a strike, but without having the strike, and somehow splitting the resulting cost savings.

In a variant of rational expectations, it should not be the case that strike frequency could be predicted by the business cycle. If business cycle fluctuations had a systematic effect on the bargaining strength of one or both parties, both parties ought to simply adjust their demands accordingly so that the systematic influence disappears.

Unfortunately for this theory, the empirical evidence from U.S. data is that strikes are procyclical. (Rees; Ashenfelter and Johnson; Kaufman). A common theme in much of the empirical strike literature is that such cyclical strike activity can be traced to an information imperfection problem. Perhaps the union leadership "understands" management resistance but cannot fully convey its understanding to the rank and file. Or perhaps both parties have trouble determining the other sides' "true" (as opposed to expressed) bargaining position. In any case, it appears that the bargaining demands of both parties are characterized by a rigidity which raises the union's lowest offer relative to management's highest offer during boom periods. There is supportive empirical evidence that during strikes, union concession schedules are not much influenced by the unemployment rate. (Farber).

Rigidity of bargaining demands probably reflects the union-management attachment. In a bargaining context, both parties

must be concerned about credibility. An assertion that a particular demand is critical and a strike will ensue if it is not met must be followed by consistent behavior. If a union, after making such an assertion, backs off, management will be less likely to take its position seriously in the next negotiation. The same logic applies to management assertions that a strike will be taken rather than concede to a particular union demand. (It is the function of mediators to help the parties find a plausible excuse for reversing such stances, without damaging future credibility).

Given the long term nature of their relationship, both parties should move to a policy of reducing the indefinite STREAM of strike costs. This means behaving consistently in any particular negotiation -- even if a strike results -- so that loss of credibility in the current negotiation will not lead to "mistakes" by the opposing party concerning demands made in future negotiations. Both parties might seek to adopt demand "formulas" which would allow the other party to predict their behavior in a variety of circumstances.

For example, a union might seek to establish a position that it wanted to achieve a given nominal wage increase at least partially protected from inflation by an escalator clause. Management might seek to establish a role for prospective profitability as a guide for wage adjustments. These positions would systematically clash at the peak of the business cycle when inflation might be high but the future downturn was beginning to loom.

Thus, the bargaining process itself in the union sector could engender wage rigidity because of the long term nature of the union-management relationship. However, this relationship must be carefully differentiated from the long term employee-employer attachment on which implicit contract theory is based. Unions and managements can have long term relationships even in industries -- such as construction -- where high employee turnover is endemic. And employees can have long term relationships with employers without union representation. Insights from union bargaining theory are thus not likely to provide guidance on wage rigidity in the nonunion sector.

iv. Unions and Wage Rigidity: Summary.

Flexible wage formulas are absent from union contracts mainly because unions don't want them, not because they can't be written. The existence of long term contracts undoubtedly makes SOME contribution to union wage rigidity. For example, there might be difficulties in obtaining union and management agreement on an appropriate contingency formula, even if both parties wanted to include such a clause. But the rigidifying effects of a written contract should not be overstated. In any case, wage rigidity under union contracts does not carry an obvious theoretical implication for nonunion wage rigidity. There are some important historical and institutional connections, however, which will be explored below.

VIII. Efficiency Wages.

Some recent work proposes that wage rates influence worker effort. The marginal productivity of a given worker is not taken to be a function of personal characteristics and skill (combined with other factors of production and technology), but is seen as a variable. Under such circumstances, employer pay policy must be concerned about incentive effects and must seek to avert employee "shirking" of responsibility.

Various implications of efficiency wages can be drawn. The approach can be combined with implicit contracting models to determine an optimal wage/tenure profile, i.e., the degree to which earnings rise with seniority over a working life. (Lazear). An upward sloping profile can be viewed as an incentive system; the worker is effectively promised a reward in the future for good behavior today.

But efficiency wages can also be viewed as an alternative to implicit contracting theory. One possibility is to view loss of employment as a disciplinary device. In a classical auction labor market, a single employer who wished to avoid shirking might pay a wage premium so that loss of employment would be costly to a worker. Workers at this firm would be afraid that if they were caught shirking, they would lose the premium via termination. But if all employers try to use wage premia to forestall shirking, they will raise the market wage above its clearing level. Unemployment will result and the penalty for shirking will become a spell without wage income as terminated workers seek new jobs. (Shapiro and Stiglitz).

It is not clear that either of these approaches necessarily results in wage rigidity. Even if wages are too high (above the market clearing level) or if firms find it advantageous to offer working life wage schedules, the wages or schedules could move up and down in response to labor market conditions. To produce nominal wage rigidity, it is necessary to suggest reasons why productivity would fall if nominal wages are cut. It might be suggested, for example, that workers' morale depends on relative wage standing and that with asynchronous wage setting nominal wage cuts are inherently relative wage cuts. (Stiglitz). Each individual employer would be reluctant to cut wages despite falling demand because of the adverse productivity effect. Layoffs, rather than wage cuts, might be preferred by employers.

IX. Wage Flexibility via Gain Sharing?

If there are rational reasons for rigidity of the wage, perhaps employers and employees (or unions) might be induced to provide for another element of compensation which would be flexible. There are examples of gain sharing plans in which the economic circumstance of the firm is reflected in a component of pay. The best known type of gain sharing is profit sharing.

Historically, profit sharing has been viewed by employers as a variant of an incentive plan. The argument is that when workers understand that they will share in firm profits, they will work harder to add to those profits. It is difficult to know precisely how many

workers and firms are covered by profit sharing, since the studies taken tend to be confined to medium-to-large sized employers. A recent study in the U.S. found that 20 percent of firms surveyed reported having a profit sharing plan. Another 1-2 percent had other forms of gain sharing._14_/ But because of perverse incentives in the U.S. tax code and in pension regulatory programs, some so-called "profit sharing" plans may be largely unrelated to profits and may be substitutes for formal pension schemes.

Union concessions during the post-1979 economic slump in the U.S. sometimes involved establishment of a profit sharing plan in exchange for a wage freeze or cut. This development marked a change in union attitudes toward profit sharing; less than 2 percent of private sector union workers were reported as covered by profit sharing in the late 1970s._15_/ Among the most prominent examples were the plans created by General Motors and Ford with the United Automobile Workers. A survey taken in 1983 indicated that many top company executives expected "greater emphasis" to be placed on profit sharing._16_/

Since profit sharing represents a form of substitute for wage flexibility, the renewed interest by practitioners in profit sharing would itself justify further exploration of the topic. But in addition, there has been an expansion of interest in profit sharing by academics and policy makers concerned about macroeconomic performance. Two streams of macroeconomic thought have developed.

i. The Macroeconomics of Gain Sharing.

Martin L. Weitzman (1983, 1984) has put forward a micro-model of firm behavior in the labor market with important macro implications. He begins with the standard wage = marginal revenue product condition from the theory of the firm which determines the amount of labor utilized. If the firm operates with a conventional time-based wage, e.g., $10 per hour, and if that wage is -- for some reason -- relatively rigid, the firm will reduce its labor utilization (lay off workers) during business downturns. Weitzman argues that the same firm would behave quite differently if it were constrained to offer workers a SHARE of revenues or profits rather than a fixed wage.

Suppose, says Weitzman, the firm initially offered a revenue share equivalent in hourly value to the previous wage. Workers and the employer would be no worse off. But employer incentives would be different. As long as the worker share of revenue is less than 100%, the firm would want to hire more workers. In fact, it would go on hiring -- if it could -- until marginal revenue product = zero. The firm would not be able to find workers, however, if its effective hourly payment was too low relative to what other firms were paying. But it would stand ready to hire any qualified worker willing to accept its offer; there would be no "No Vacancy" signs.

An economy made up of such gain sharing firms would be composed of labor-seeking vacuum cleaners (an analogy employed by Weitzman) [1983, p. 777] which would suck up any unemployed workers. During business downturns, such firms would tend to remain at full employment (or be willing to do so). The aggregate level of output would thus be much

more stable than under the current rigid wage system.

Much of the Weitzman model would remain even if the compensation system at the archetypal employer was a mix of fixed wage and gain sharing (as is the case at most firms with profit sharing plans). The profit maximizing condition for the firm would be to set wage equal to marginal revenue product. But the firm would "ignore" the gain sharing element of pay and consider only the fixed wage in the calculation. (The non-effect of gain sharing on the employment decision is analogous to the non-effect of income taxes on monopolies under the textbook theory of the firm).

With a wage-plus-gain-sharing system, the effective wage for employment decisions would be lower than the actual payment received by employees. Firms would hire more workers, thus relieving structural unemployment. During business downturns, firms would tend to hang on to their workers, as under pure gain sharing. However, as the fixed wage share parameter rises toward 100% of long run compensation, the beneficial macroeconomic effects are attenuated.

A second strand of macroeconomic argument for increased gain sharing highlights the interaction between monetary policy and inflation. (Mitchell, 1982). Weitzman considers this view to be less important than his micro-based approach, but the former has captured the interest of policy makers, perhaps because it is easier to understand._17_/ Essentially, the argument is that restrictive monetary policy is used primarily to halt "excessive" inflation and

that a rigid wage economy causes such restrictive episodes to be costly in lost real output and unemployment. But if gain sharing were widespread, the demand restriction would lead to reduced bonus payments. And if these cost reductions were translated into pricing, the monetary authorities would reduce inflation more quickly. They would permit the economy to resume expanding sooner and the cost in lost output during the restriction would be less.

The two approaches lead to the same policy conclusion, i.e., gain sharing should be encouraged, although they are not entirely compatible. Under the pure theory of the firm employed by Weitzman, gain sharing bonuses would not affect firm pricing policy. Just as the firm considers the marginal cost of hiring to be the fixed wage (which may be zero) under the Weitzman model, so, too, would it calculate the marginal cost of production without reference to the gain sharing bonus. Thus, its price decision might not reflect the demand-based variability of the bonus. Essentially, the argument involving interaction with monetary policy depends on an (average cost) markup model of pricing._18_/

ii. The Low Incidence of Gain Sharing.

Both of the macro approaches have in common the prediction that gain sharing will be underutilized in practice because its benefits are external to the firm. All firms would benefit if the economy were more stable, closer to full employment, and less inflationary. But no single firm, by adopting gain sharing, can make a noticeable contribution to

these desirable objectives. Thus, employers who adopt such plans do so largely on the basis of their effects on motivation and morale.

At the micro level, then, the explanation of the low incidence of gain sharing must include reasons why employers do not expect the motivation/morale effects to be large. It must also include reasons why unions have not pushed for gain sharing until recently, and why policy makers neglected the subject until the 1980s. There are historical and institutional reasons for this lack of interest. They turn out to be much the same reasons that explain the historical loss of wage flexibility.

X. The Great Depression and Its Aftermath.

As already noted, modern personnel management practices -- including those involving wage setting -- became firmly ensconsed in American enterprises during the 1930s and in later years. The Great Depression of the 1930s brought together various forces of public policy, economic theory, and social expectations. These forces influenced employee attitudes regarding treatment to be expected from employers. (Mitchell, 1985a).

One important element was a theory of underconsumption which already existed in the 1920s, but was given credence by the Depression. According to this theory, business depressions resulted from depressed wages. If wages were too low, labor's share of national income would be too low to sustain a full employment level of consumption.

As might be expected, the underconsumption theory was an important element of labor union ideology (and remains so). But it also was supported by such prominent economists of the day as Paul H. Douglas (pp. 67-77) and by political leaders such as President Hoover. Indeed, Hoover urged businesses not to cut wages as the Depression began, an exhortation which seemed to have some effect. Wage cuts did not begin on a wholesale basis until 1931. At least one prominent firm (Ford) RAISED wages in response to the President's statement._19_/

The underconsumption theory seems not to have been carefully analyzed by its contemporary proponents. Since the theory is really one of share rather than wage rates, exhortations and policies aimed at propping up wage rates alone seem inappropriate. Labor's share is the product of wage rate times hours per employee times employees. Employers who maintained wage rates but cut hours per employee or who laid off workers were not necessarily maintaining labor's share. Nevertheless, progressive employers tended to be seen as those who held up wage rates, avoided layoffs, but cut hours (worksharing). (Jacoby).

Despite these inconsistencies, the underconsumption theory made its way into legislation. Even before the New Deal, laws such as the Davis-Bacon Act of 1931 were adopted to limit downward wage adjustments._20_/ But with the coming of the New Deal itself, the underconsumption theory became a basic element of government economic policy.

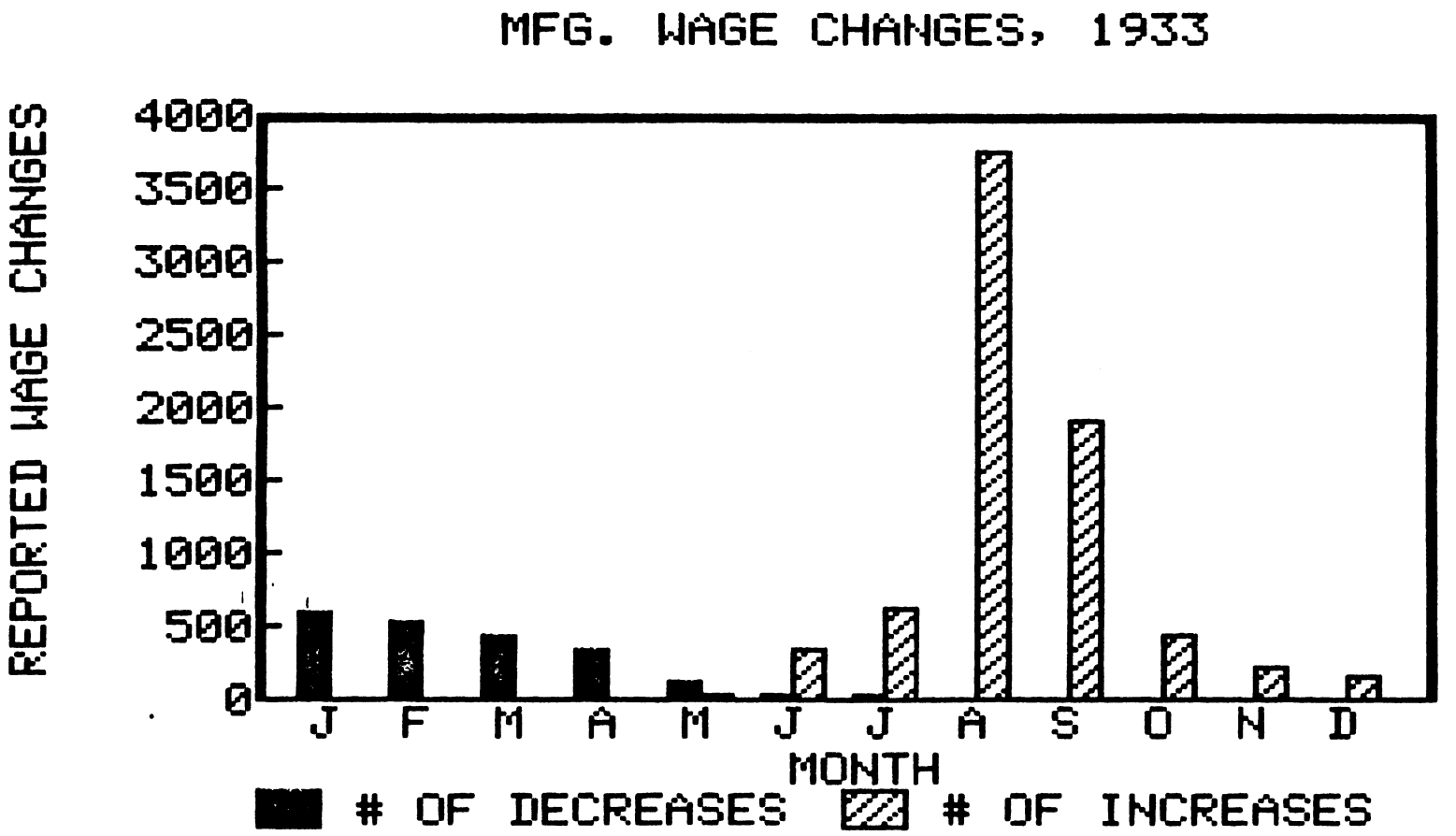
The centerpiece of the early New Deal was the National Industrial

Recovery Act of June 1933, legislation premised on the belief that a boost in wage earners' purchasing power could end the Depression. (Dearing, p. 9). Until it was declared unconstitutional in 1935 by the Supreme Court, the NIRA organized industries into cartel-like arrangements through the establishment of industry codes. These government approved codes included labor provisions which boosted wage rates and provided guidance for other workplace practices. (Marshall). The codes also provided encouragement to unions and collective bargaining. Dramatic evidence of the impact of the codes is shown on Figure 3; despite the depth of the depression, a spate of wage increases developed as the codes came into force.

Even after the NIRA was abruptly terminated, its spirit lived on in other legislation and in economic thought. (Dickinson, pp. 173-174). The Wagner Act of 1935 formalized the NIRA's collective bargaining provisions and actually contained the underconsumption theory in its preamble._21_/ The Fair Labor Standards Act of 1938 provided for a federal minimum wage. The Social Security Act of 1935 created the state unemployment insurance systems which provide a net subsidy to layoffs rather than wage cuts as a response to falling demand._22_/ And, of course, the basic Social Security benefits (and many subsequently established private pension plans) are geared to past earnings. For senior workers unlikely to be laid off, wage cuts during working years could adversely affect retirement income.

The Depression years changed social expectations. "Good" employers did not cut wages. Wage cutters were seen as harmful to the national

FIGURE 3



SOURCE OF DATA: U.S. Bureau of Labor Statistics, Employment in Selected Industries, various issues. (also known as Trend in Employment).

economy as well as to their own employees. And, wage cutters were also discouraged by the knowledge that their disgruntled workers might unionize.

Once it became clear that the post World War II period would not feature a return to the Great Depression, the business community lost its interest in ability to pay as a criterion for wage setting. Such a criterion could only encourage demands to share in rising profit levels by unions. (Slichter, pp. 25-27; Fairchild, pp. 40-46). The idea that ability to pay should not be a matter of special significance in wage setting was also apparently held by neutrals engaged in interest arbitration. (Bernstein, pp. 80-90). Pattern bargaining and wage comparisons were seen as much more important.

Profit sharing was not widely adopted by employers as a substitute for lost wage flexibility. The technique of profit sharing was well known by the 1930s; a number of prominent employers had experimented with it and studies had been done of the results. (Mitchell, 1985a). During World War I, the federal government encouraged works councils in private enterprises to enlist worker cooperation in production. Some of these arrangements also provided for "collective economy dividend" plans, a form of profit sharing, and persisted into the 1920s as company unions.

Most employers, however, found profit sharing difficult to explain to workers and believed that other arrangements were preferable for retaining loyal, nonunion workforces. In some cases, stock ownership

plans were established. These plans were often associated with profit sharing in the public mind. Thus, the dramatic decline in stock prices from 1929 to 1932 undoubtedly harmed the cause of profit sharing.

Unions had an aversion to profit sharing which was entrenched by the 1930s. (National Industrial Conference Board, pp. 15-16). Sometimes paternalistic employers used the name "profit sharing" to describe bonuses which were actually unrelated to profits. At Ford, for example, during the World War I period, employees who met company standards of morality -- as determined from home visits by Ford investigators -- were eligible for bonuses. Employers were also likely to use profit sharing as part of their union avoidance tactics, a practice which continued into the post World War II period. (Foulkes, p. 253; Czarnecki).

But perhaps the greatest handicap for profit sharing was its variable payments. The essence of the New Deal was stability and security. Firms were to be guaranteed their markets and, in turn, were to provide stable employment and wages to their workers. Unions and collective bargaining were to reinforce their incentives to do so. Even if there were layoffs, stable incomes were to be maintained through employer-financed unemployment insurance. And income in old wage was to be guaranteed through Social Security. Although these notions were not fully put into practice, profit sharing -- with its inherent uncertainty and instability -- was at odds with the spirit of the times.

The drive for income security continued after the New Deal. In the post World War II period, unions began to press for a "Guaranteed Annual Wage." Although the precise meaning of this phrase varied, it represented a demand that blue collar workers should have the same stability of wages and employment that white collar employees enjoyed.

Employers were unwilling to make such guarantees in the 1950s, but they did negotiate agreements for private supplemental unemployment benefit (SUB) funds. SUB funds paid benefits to laid off workers above and beyond what they received from state unemployment insurance. They represented, therefore, union acceptance and recognition of the layoff system for adjusting to fluctuations in demand._23_/

XI. The Past and Future of Wage Rigidity.

Recent theorizing about wage rigidity has been healthy for the economics profession. It focused attention on a topic which had been neglected and provided new insights. However, there is little reason to expect a unified theory of wage rigidity to emerge from this effort.

Even in a labor market which approached classical theory, there would be SOME costs of mobility to employees -- and possibly to employers -- due to imperfect information and search costs. Thus, there would be some degree of attachment between employee and employer. Wage cuts would not be popular with workers in such a world; if they stayed with their employer, their incomes would be reduced. And if they left, the workers might not immediately find other employment. Even the much

maligned foreman might be reluctant to cut wages, faced with worker resentment. Wage setting would therefore be less flexible than an auction market. A layoff system would result, thus increasing the costs of labor mobility.

It is not difficult to understand why the focus would be on the nominal wage. First, the availability of reliable, current price statistics did not develop until well after the wage/layoff system was established. Second, the concept of using price indexes to adjust wages -- while second nature to economists -- is complex for the average person to comprehend. Money is the standard of value, after all. And standards are important for making judgments. Economists do not accuse themselves of irrational "clock illusion" because they follow official rather than solar time or because they change their waking habits when someone announces a shift from daylight to standard time. The same courtesy should be extended to actors in the labor market.

Finally, a nominal wage cut is ALWAYS a real wage cut, regardless of what prices are doing, in a decentralized wage and price setting system. If prices fall by 10% and your wage falls by 5%, you are still 5% worse off than you would have been if your wage had not been cut at all!

Some of the theories described above, such as Okun's career labor markets, open the door to a strong influence of social concepts of fairness and equity. Thus, there is nothing in the institutional and

historical analysis of wage rigidity that need fly in the face of economic theory. If the Great Depression had never occurred, if certain government policies had not been adopted, notions of fairness might be different. Wages might be more flexible. Since history and institutional development vary across countries, there will be differences in national wage setting practices and outcomes.

But what of the future? The significance of the dramatic union wage concession movement in the U.S. which occurred in the early 1980s has been much debated. Does concession bargaining mark a turning point in American wage setting, heralding a new age of wage flexibility? Or is it a temporary phenomenon associated with a deep recession, dollar appreciation and international competition, and de-regulation of certain sectors?

So far, the evidence is mixed. The union sector of the workforce shrank in the early 1980s, a factor which might lead to a marginal increase in wage flexibility. Within the union sector, profit sharing was adopted in some key contracts, notably in autos. Bonuses began to be substituted for guaranteed wage increases. Union leaders showed more concern about the economic conditions of the employers with which they dealt, and even demanded a greater voice in management.

On the other hand, the long duration union contract remained intact. Nonunion workers, who account for roughly 8 out of 10 private wage and salary earners in the U.S., seemed to be much less affected by wage freezes and cuts than their unionized counterparts. There is

little evidence (one way or the other) that nonunion wage setting practices have been altered by the experience of the early 1980s. And even though wage freezes and cuts covered an unprecedented proportion of union workers, many union members did not experience concession bargaining.

If increased wage flexibility, either directly or through gain sharing, is deemed desirable for macroeconomic reasons, the historical evidence indicates that reforms can be made. In the 1930s, wage flexibility (at least in a downward direction) was deemed undesirable. Public policies were adopted which shifted wage setting practices. The concession bargaining movement in the early 1980s suggests that a window of opportunity is open for encouraging a reverse shift, through such devices as tax incentives for gain sharing.

FOOTNOTES

1. This statement does not imply that falling wages would NECESSARILY relieve the excess supply. But as long as the excess supply remained, wages would continue to fall.

2. The years excluded as "abnormal" are those of particularly high inflation. In addition, 1974 may have been influenced by the lapsing of wage-price controls.

3. The episode of U.S. union wage concessions to management in the early 1980s, in which wage freezes and cuts occurred on a dramatic scale, will be discussed in the final section.

4. A survey of such studies may be found in Mitchell, 1985.

5. Mitchell, 1985.

6. Other economists have interpreted the Doeringer and Piore findings as a reflection of turnover costs and have been critical of the sharp dualism of their model. (Wachter). Piore, however, rejects this interpretation as simplistic. (See his comments on the Wachter paper, pp. 684-688).

7. For examples, see Jacoby and Mitchell (1984), pp. 216-217, footnote 6.

8. The literature has become so vast that complete references are not possible. For reviews (with references), see Riordan and Wachter, Stiglitz.

9. Actually, the distinction between specific and general training erodes with long term worker/employer attachments. For example, if the worker received general training from the employer, the employer could expect that the increased productivity would be captured by the firm due to the strength of the attachment.

10. A review of the Okun approach can be found in Solow.

11. Under American common law (and often in state labor codes), absent a written agreement or union contract, the "at will" doctrine applies to employer/employee relationships. The worker is free to quit and the employer is free to discharge for any reason or no reason. No "just cause" for discipline applies. In recent years, this doctrine has been eroded by court decisions and "wrongful discharge" litigation has proliferated. However, it is unlikely that any court would infer norms of wage setting in the absence of a written agreement.

12. Some contracts contain "most favored nation" clauses (a phrase borrowed from international trade terminology) in which the terms of the contract can be overridden if one of the parties gives a more favorable agreement to another employer or union.

13. For a critique of McDonald and Solow, see Chapman and Fisher.

14. Little difference was found between the practices of large firms (1,000 or more workers) and small firms. The figure in the text omits worker stock ownership arrangements since -- except in the case of complete worker ownership -- these plans do not have the desirable properties discussed below. Results of the survey can be found in Bureau of National Affairs, pp. 7-8.

15. The survey covered only workers under contracts involving 1,000 or more employees. However, there is little reason to suppose that a substantial difference would arise were data for the entire private union sector available. See U.S. Bureau of Labor Statistics, p. 49.

16. See William M. Mercer, p. 7.

17. See, for example, the statements made by Paul Volcker and Henry C. Wallich, chairman and member, respectively, of the Federal Reserve Board in "Alternatives to Direct Pay Hikes Urged to Help Moderate Inflation," DAILY LABOR REPORT, December 29, 1983, p. A8; Henry C. Wallich, "Why Bonuses Make Sense for Unions," NEW YORK TIMES, January 22, 1984, Section 3, p. 3.

18. Under the Weitzman model, a gain sharing plan geared to industry (or national) economic conditions would not have the desirable employment stabilizing properties he seeks. Under the model featuring interactions with monetary policy, such plans would be useful.

19. Ford later cut wages as the Depression worsened. See Dickinson, p. 178.

20. The Davis-Bacon Act requires that construction contractors who receive funding from the federal government pay "prevailing" wages as determined by the U.S. Department of Labor. Many states passed similar laws covering state construction contractors.

21. Section 1 of the Wagner Act (49 Stat. 449) declares that "the inequality of bargaining power between employees who do not possess full freedom of association ... and employers ... tends to aggravate business depressions, by depressing wage rates and the purchasing power of wage earners ..."

22. State unemployment insurance laws typically feature less than full "experience rating" of employers. Thus, employers with high levels of involuntary turnover (and their employees) receive a net subsidy from other sectors.

23. Prior to his death, President Roosevelt commissioned a government study of the guaranteed annual wage concept. The resulting study (the "Lattimer Report") was generally positive about the proposal, although it did not favor government compulsion. Rather it recommended that such plans be considered by the parties to collective bargaining. Included in the report was a study by Paul Samuelson and Alvin Hansen. While indicating that Keynesian fiscal policy was the best way to stabilize the economy, Samuelson and Hansen found that certain types of guaranteed wage plans had desirable, anticyclical macroeconomic policies. These were programs in which funds were set aside in good times to pay supplemental unemployment benefits in bad times. As noted below in the text, such plans were the eventual outcome of the guaranteed annual wage debate. (U.S. Office of Temporary Controls, especially pp. 10-18, 412-473).

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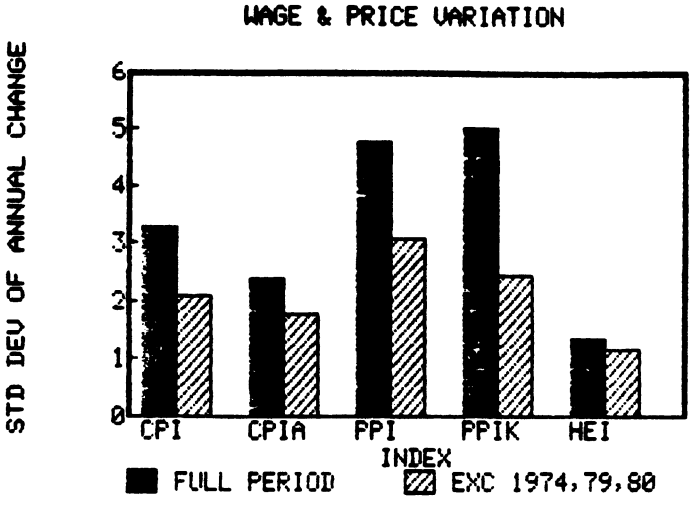
Data Appendix

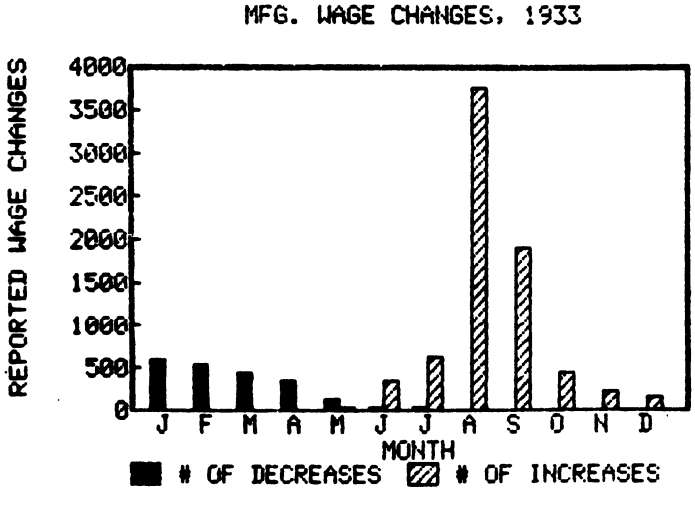
Data for Figure 1

	FULL PERIOD	EXC 1974,79,80
CPI	3.32	2.10
CPIA	2.42	1.79
PPI	4.78	3.07
PPIK	5.03	2.47
HEI	1.37	1.18



Data for Figure 3

	# OF DECREASES	# OF INCREASES
1	595	3
2	552	3
3	467	1
4	370	6
5	129	48
6	58	350
7	38	630
8	2	3776
9	5	1937
10	5	468
11	15	247
12	21	174



Data for Figure 2

Proportion of Wage Decisions
in each Bracket

	1924	1925
-20% or less	2.4%	1.1%
-19.9 to -18%	.1	.1
-17.9 to -16%	.3	.1
-15.9 to -14%	1.4	.5
-13.9 to -12%	2.9	1.0
-11.9 to -10%	20.8	10.7
-9.9 to -8%	16.2	7.2
-7.9 to -6%	5.4	3.5
-5.9 to -4%	2.7	2.1
-3.9 to -2%	3.0	3.1
-1.9 to -.1%	1.4	.3
.1 to 2%	1.5	4.7
2.1 to 4%	2.1	5.9
4.1 to 6%	8.9	13.2
6.1 to 8%	12.1	13.2
8.1 to 10%	12.3	21.9
10.1 to 12%	1.3	2.9
12.1 to 14%	1.5	2.1
14.1 to 16%	.9	2.2
16.1 to 18%	.9	.5
18.1 to 20%	1.3	1.7
Over 20%	.5	1.8

Source: U.S. Bureau of Labor Statistics, Employment in Selected Industries, monthly issues of 1924-25.