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Wage Flexibility: Then and Now,

by

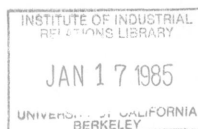
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## **Wage Flexibility: Then and Now**

**A Neglected BLS Survey of Wage Decisions  
in the 1920s and Early 1930s Suggests a  
Loss of Wage Flexibility Since that  
Period.**

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### Abstract

During the 1920s and early 1930s, the BLS collected data on wage-change decisions at the establishment level in manufacturing. These data shed light on the degree of wage flexibility prevalent during that period. Current discussions of gain sharing and the effects of long-term union contracts and implicit contracting in the nonunion sector can benefit from an analysis of past wage flexibility.

Wage-change decisions in the 1920s and early 1930s exhibited two major characteristics. First, the dispersion of wage-change decisions was wider than in the postwar period under "comparable" circumstances. Second, decisions to reduce wages were more common. But wage-change decisions may well have been taken less frequently than is the postwar practice, although data problems make comparisons difficult.

The BLS survey of wage decisions provides some support for modern-day advocates of greater wage flexibility by demonstrating that such flexibility is compatible with an industrial economy. However, it is clear from the historical record--especially the occurrence of the Great Depression--that greater wage flexibility was not sufficient to stabilize the economy. And even in the 1920s and early 1930s, the degree of wage flexibility did not approach that of the textbook auction market.

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Economists have been discussing the issue of wage "rigidity" for at least half a century. At the micro level, rigidities are seen as barriers to labor-market adaptations to demand and supply shifts which exacerbate structural unemployment. At the macro level, wage rigidity is seen as a cause of cyclical unemployment and inflation momentum. After a period of high inflation, demand restrictions--brought about through monetary and/or fiscal policy--reduce the inflation rate gradually, but have a dramatic adverse effect on real output and employment.

Recent economic literature has attempted to rationalize the obvious discrepancy between a textbook auction market and the inertia of wage determination. In the unionized sector of the U.S. labor market, multi-year labor-management agreements became the norm following the Korean War. One interpretation of this development is that long-duration agreements cut the exposure to strike risk, since strikes are often triggered by re-negotiations of existing agreements.<sup>1</sup> But long-term labor contracts have an obvious potential for making wage setting relatively insensitive to short-run demand fluctuations since wage adjustments must be set out in advance, before economic conditions can be known.

While contracts may be a partial explanation for union-sector wage rigidities, they are of little use in explaining conditions in the much larger nonunion sector, where explicit employer-employee contracts are rare. Not surprisingly, theories of "implicit" contracts between nonunion employers and employees have developed. Various explanations for implicit contracting have been offered. Some theorists view implicit contracts as a means of shifting the uncertainty of economic fluctuations from risk-averse workers to employers. Others see implicit contracts as a means by which employee turnover costs (recruitment, screening, training, etc.) can

be reduced.\_2\_/ In either case, it is argued that implicit contracts make wages relatively insensitive to demand conditions.

Even if employers, employees, and unions have a need for long-term explicit and implicit agreements, flexibility could be built into their contracts. There have been a number of calls in recent years for the widespread use of "gain-sharing" compensation plans which make a component of pay a function of employer or industry economic conditions. Some moves in this direction have occurred, especially under the union concession contracts negotiated since 1979. Wage concession negotiations sometimes included profit-sharing plans as a quid pro quo for other employee sacrifices.\_3/

#### I. How Flexible Were Wages in the Past?

The literature on contracting suggests that flexible wages--wages sensitive to demand conditions--may not be in the interests of wage setters. Thus, it is important to gain insight into the compatibility of wage flexibility with a modern economy. Over the years, there have been many studies of U.S. wage behavior and some of these have looked at the historical evidence to see if wages were more sensitive to demand in the past than has been the case since World War II. Most researchers do not find that postwar wage setting was MORE sensitive to demand than in earlier years. And often evidence is developed suggesting a loss of wage flexibility after the 1930s and 1940s.\_4/ But almost all of the work that has been done has been at the highly aggregative level, typically involving time-series analysis of wage change, unemployment, and price adjustment.

#### II. An Alternative Data Source.

Given the relative paucity of data for the pre-1930s period, and

the questionable reliability of many early statistical series, it is important to make use of all available data. In particular, disaggregated information on wage decisions can be expected to provide insights into wage setting not readily observed from indexes such as average hourly earnings. Of particular interest is wage setting in the 1920s and early 1930s, a period before the widespread growth of unionization (backed by legislative enactments such as the Wagner Act), before the substantial involvement of the federal government in social insurance programs, and before government was viewed as having a major role in stabilizing the economy. Was wage setting in the U.S. economy substantially more sensitive to demand prior to these institutional changes? If the answer is "yes", it might be feasible to reintroduce such flexibility into the present-day labor market.

In fact, the same surveys which produced the manufacturing average hourly earnings series for the U.S. Bureau of Labor Statistics at one time included detailed information on wage decisions. The establishment sample size of the monthly survey was substantially enlarged during 1922. Apart from payroll, employment, and other related information, establishments were asked whether they had changed wage rates.<sup>5</sup> For each month a table of wage-change decisions was published along with other survey information. This practice continued until mid-1931. Even after the decisions themselves were no longer published, the BLS continued to report the number of establishments increasing or decreasing wages on a monthly basis until mid-1935.

Apart from the regular establishment survey, the BLS also conducted many industry wage surveys. Often the published industry surveys included tables summarizing wage-change decisions since the previous survey. These tables differed from those in the monthly reports since they covered an extended period rather than a single month.

Information on wage decisions by establishment permits analysis of the dispersion of wage adjustments which cannot be obtained from an aggregate wage index. Moreover, movements in aggregative average hourly earnings and related series reflect factors other than actual decisions to change wages. Changes in the ratio of overtime to standard working hours, for example, will cause variations in average hourly earnings if a premium is attached to overtime. While there was no federal law requiring such premiums and defining overtime before 1938, extra pay for overtime hours was a common practice in the 1920s. Changes in the proportion of workers in high-paying and low-paying industries and occupations will also affect average hourly earnings. But they do not reflect changes in the actual wage schedule.

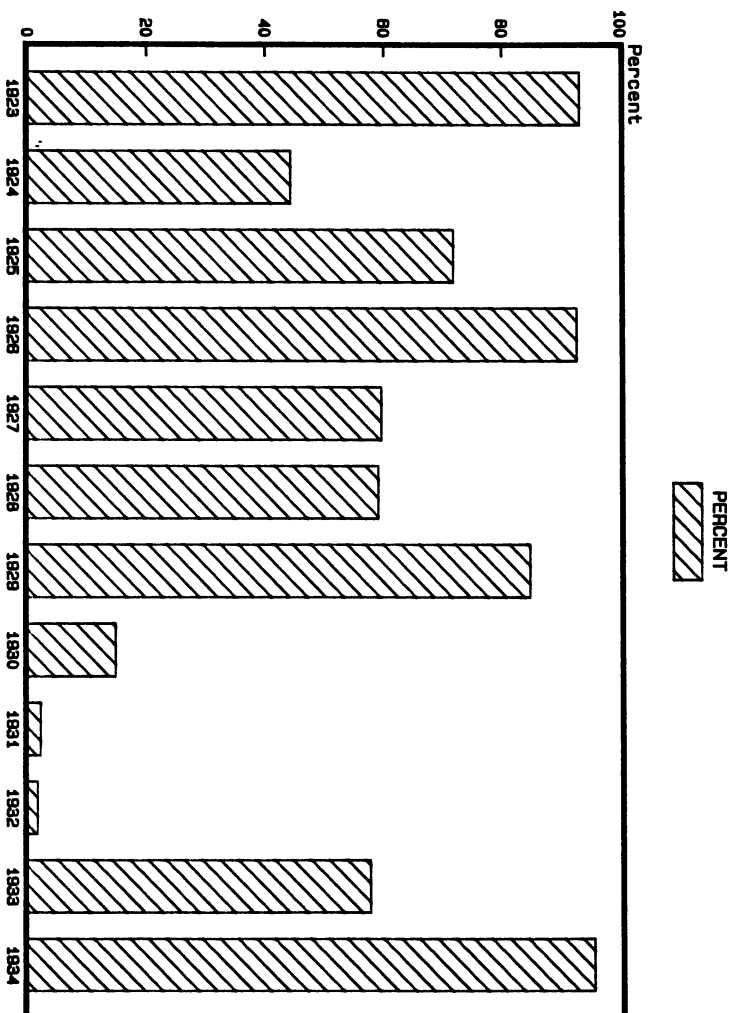
Figures 1 and 2 provide graphic illustrations of two key aspects of wage determination in the 1920s and early 1930s. Figure 1 shows the proportion of wage-change decisions which were increases over the full period for which data are available. The impact of recovery from the depression of the early 1920s is clearly visible on the figure, especially in the surge of wage increase decisions in 1923. Similarly, wage decisions in 1926 and 1929 were heavily positive, following periods of manufacturing employment growth. By 1930, however, wage cuts had become the standard wage adjustment, a pattern which continued until the New Deal.

The shift to wage increases in 1933 and 1934 is dramatic evidence of the impact of New Deal policies, especially the wage-boosting codes of the National Industrial Recovery Act, and the upswing of unionization. It is not surprising--given the results shown on Figure 1--that analysts of aggregate wage data have found the mid-1930s to be an unusual period characterized by both extremely high unemployment and wage inflation. Although the NIRA and its codes were abruptly terminated by the Supreme



Figure 1

# Percentage of Establishments Covered by Wage Decisions Receiving Wage Increases, 1923-34

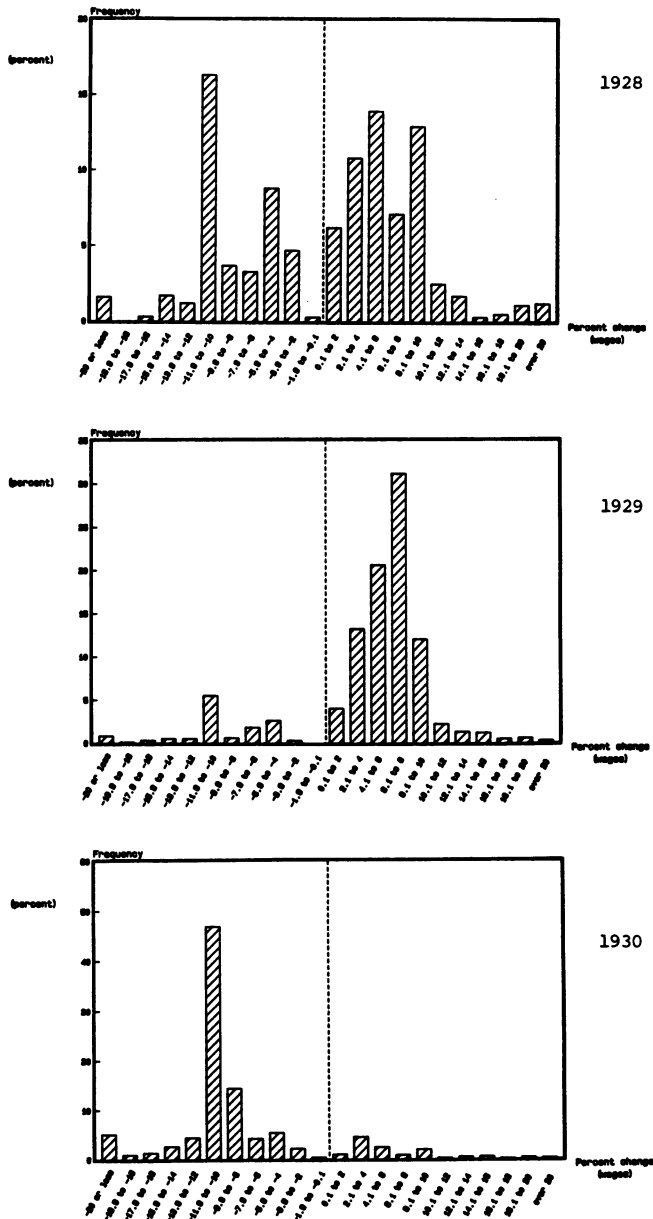


Percentages shown are means of monthly figures.

-4b-

Figure 2

Distribution of Wage Increase or Decrease  
Decisions, 1928-30



Court in 1935, the legacy of that legislation and the many other forces that had been set in motion may well have permanently shifted American wage-setting practices.

Figure 2 shows the distribution of wage-change decisions for three selected years: 1928 (a year in which there was a mix of wage increases and decreases), 1929 (a year in which wage increases predominated), and 1930 (a year in which wage cuts became the dominant adjustment). It is clear that the spread of wage decisions in the 1920s and early 1930s was quite wide and that negative adjustments in wages were not taboo. Although more evidence will be presented on this point below, analysts of post World War II wage-change determination will find these early distributions to be surprising and unusual.

Table 1 provides summary information on wage-change decisions over the period 1923-1930. These are the only years for which wage-change distributions are available over the entire calendar year. Because the wage surveys were taken monthly, difficulties arise in simply adding up the twelve monthly figures for each year. A given establishment could have made more than one wage decision in a year, but there is no way of summing multiple decisions.\_6\_/ In addition, decisions in a particular industry were often reported as a range, e.g., 7 establishments made wage increases of 5-10 percent, so that approximation techniques had to be used to estimate the actual distributions.\_7\_/

Despite these limitations, the swings between wage increases and decreases and the wide variation in decisions are apparent from the table. In years when there was a balanced mix of wage increases and decreases, the approximate standard deviations of the distributions were 9-10 percentage points. While there may well have been industry patterns in wage decisions, over the entire manufacturing sector a broad range of adjustments could occur in any given month.

Table 1

Summary of Reported Wage Changes in Manufacturing, 1923-30

Year	Proportion of Reported Wage Changes Which Were Positive <sup>a</sup> / (1)	Employment- Weighted Mean Wage Change <sup>b</sup> / (2)	Approximate Standard Deviation of Wage Changes <sup>c</sup> / (3)	Approximate Standard Deviation of Wage Increases <sup>c</sup> / (4)
1923	93.1%	n.a. <sup>d</sup> /	5%	4%
1924	44.3	-5.1%	10	4
1925	71.8	-1.7	9	5
1926	92.6	+4.1	7	5
1927	59.6	-3.9	9	4
1928	59.1	-2.4	9	5
1929	84.7	+4.4	6	3
1930	14.8	-7.2	7	5

<sup>a</sup>/ Mean of monthly figures.

<sup>b</sup>/ Mean of monthly figures. Figures exclude decisions not to change wages and are weighted by numbers of employees affected.

<sup>c</sup>/ In percentage points.

<sup>d</sup>/ Employment-weighted means are not published until the second half of 1923. On an unweighted basis, the figure was about +9 percent.

Source: Data drawn from Trend of Employment, various issues.

Judging from the BLS' data on wage changes, wage decisions were often made in round figures. Table 2 shows the relative frequency of wage adjustments of +10 percent and -10 percent. Ten percent adjustments appear to have been the most common single wage change. For the years for which data are available, these ten-percent adjustments accounted for 10-28 percent of all reported wage decisions. Since the BLS reported wage decisions to the nearest tenth of a percent, the frequency of decisions of exactly ten percent does not appear to have been the result of simple rounding in the published reports.

### III. Postwar Comparisons.

The wage-change data from the 1920s and 1930s are striking because of two characteristics: the broad spread of wage-adjustment magnitudes and the frequency of decisions to cut wage rates. An obvious question is whether similar wage-change distributions can be found in the post World War II period in years when economic conditions were comparable to the 1920s and early 1930s. This question is inherently difficult to answer since in most of the postwar period economic circumstances--especially the rate of price increases--were not comparable to the earlier period.

Immediately after the Korean War, prices were virtually stable.<sup>8/</sup> Unfortunately, the only wage-change distribution available in that period are for larger union settlements. Wage cuts within that limited sample constituted less than one percent of all wage-change decisions.<sup>9/</sup> This finding suggests a change in the pattern of wage adjustments. But the omission of smaller union situations and nonunion units is an unfortunate deficiency.

Luckily, there does exist a broader sample, but for a somewhat later period. From 1959 to 1978, the BLS collected data on wage decisions of union and nonunion establishments in manufacturing which had a policy of

Table 2

Proportion of Reported Increases of Exactly  
+10 Percent or -10 Percent, 1923-30

Year	Proportion of Increases of $\pm 10\%$	Year	Proportion of Increases of $\pm 10\%$
1923	17%	1927	22%
1924	17	1928	21
1925	15	1929	11
1926	10	1930	28

Source: Data drawn from Trend of Employment, various  
issues.

general (as opposed to purely individual) wage adjustments.\_10\_/

The methodology of this survey differed in some respects from the early survey. In the later case, the BLS omitted establishments which did not make general wage changes because they had a policy of not setting wages in an across-the-board fashion. A report of a zero wage-change decision meant, therefore, that the establishment made a conscious judgment not to alter wage rates. In contrast, in the earlier survey, there is no way of separating establishments which reported zero wage changes because they never made across-the-board wage decisions from those which deliberately made a decision to leave wage rates unchanged. Also, the later survey recorded wage decisions by numbers of workers affected rather than by numbers of establishments involved.

The years 1959-1964 constitute the most promising period for comparison with the earlier study. Table 3 provides a comparison of selected data over the two periods. Price levels during 1923-29 were variable but trendless, while in the later period there was a mild but steady upward creep in prices. Nominally, unemployment rates were lower in the 1920s than during 1959-64. However, reported rates of unemployment for the 1920s are retroactive estimates; there was no systematic survey of unemployment at the time. It has been suggested that the methodology used to estimate these unemployment rates tended to bias the figures downward.\_11\_/

Lack of social insurance and greater reliance on male breadwinners might also produce a downward bias.\_12\_/

Buttressing the view of the 1920s--even before the stock market crash--as a slack period are the employment figures. Manufacturing employment was stagnant in the 1920s, but showed a gradual upward trend during 1959-1964. Quit rates are reported to be higher in the 1920s than in the later period, suggesting relative labor-market tightness. But, again,

Table 3

Selected Economic Indexes, 1923-30 and 1959-64

Period	Annual Change in Consumer Prices (1)	Unemployment Rate <sup>b/</sup> (2)	Annual Change in Manufacturing Production Worker Employment <sup>a/</sup> (3)	Annual Average: Monthly Quit Rate in Manufacturing <sup>c/</sup> (4)	Annual Change in Average Hourly Earnings <sup>d/</sup> (5)
1923	+2.6%	(2.4%)	+2.0%	6.2%	+7.1%
1924	-.2	(5.0)	-5.0	2.7	+4.8
1925	+4.0	(3.2)	+6.0	3.1	0
1926	-1.7	(1.8)	-1.5	2.9	+2
1927	-1.8	(3.3)	-3.7	2.1	+4
1928	-1.0	(4.2)	+5.7	2.2	2.2
1929	+2	(3.2)	-1.4	2.7	+7
1930	-5.8	(8.7)	-17.6	1.1	-2.5
1923-29	+3	(3.3)	+2	3.1	+2.2
1923-30	-.5	(4.0)	-2.2	2.9	+1.6
1959	+1.5%	5.5%	+4.2%	1.5%	+4.3%
1960	+1.5	5.5	-6.2	1.3	+3.2
1961	+7	6.7	+2.7	1.2	+2.7
1962	+1.2	5.5	+7	1.4	+3.0
1963	+1.6	5.7	+1.3	1.4	+2.5
1964	+1.2	5.2	+3.6	1.5	+3.3
1959-64	+1.3	5.7	+1.0	1.4	+3.2

<sup>a/</sup> December to December basis.<sup>b/</sup> For 1923-30, no Current Population Survey was taken. Rates shown are estimates. See sourcenotes in Historical Statistics of the United States for details. Figures for multiyear periods are averages of annual rates.<sup>c/</sup> For 1923-30, figures are based on a survey by Metropolitan Life Insurance Company taken over by Bureau of Labor Statistics in 1929. Figures are annual averages divided by 12 and refer to production workers. Figures for 1959-64 refer to all employees. For both multiyear periods, figures are averages of annual rates.<sup>d/</sup> Year to year basis.

Source: 1923-30 Data. For consumer prices, U.S. Bureau of Labor Statistics, Handbook of Labor Statistics, 1936 Edition, bulletin 616 (Washington: GPO, 1936), p.81. For unemployment, U.S. Bureau of the Census, Historical Statistics of the United States: Colonial Times to 1970 (Washington: GPO, 1975), Part 1, p.135. For manufacturing employment and earnings, see reference for 1959-60. For quit rate, Trend of Employment (December 1930), p.45, Historical Statistics of the United States, Part 1, p.182.

1959-60 Data. Consumer prices and unemployment, U.S. President, Economic Report of the President, February 1983 (Washington: GPO, 1983), pp.199, 225. For manufacturing earnings, employment and quit rates, U.S. Bureau of Labor Statistics, Employment and Earnings, United States, 1909-78, bulletin 1312-11 (Washington: GPO, 1979), pp.51-52, 55.



the official data can be questioned. Quit-rate data in the 1920s were gathered from an atypical sample of firms. In addition, non-production workers were excluded from the surveys of that time. Finally, the lower skill levels then prevailing may have contributed to higher turnover rates at any level of labor-market tightness.\_13\_/

While the two periods--1923-30 and 1959-64--are by no means identical, comparisons of wage decisions between them are revealing. Table 4 adjusts the later surveys to include only wage-change decisions, thus making them loosely comparable to the earlier reports summarized on Table 1. In the later period, decisions to cut wages are extremely rare, even in the non-union sector. The dispersion of wage changes are narrower in the later period, ranging from 1 to 4 percentage points as measured by the standard deviation. In contrast, the standard deviation of wage changes in the earlier period varied from 5 to 10 percentage points.\_14\_/

#### IV. Resistance to Wage Cuts.

It might be argued that employees in the 1920s were more accepting of wage cuts than their later counterparts and that, therefore, employers were more willing to reduce wages. Comparisons of worker attitudes toward wage cutting across the two periods cannot be made with any precision. However, wage cuts do not appear to have been accepted without resistance. Table 5 reports the proportion of work stoppages caused by wage cuts during 1920-1933. As might be expected, the proportion rises during years when wage cuts were most common, such as 1921-22 and 1930-32. Reports from the period suggest that where unions were involved, wage cuts were resisted even in the face of declining employment.\_15\_/

The BLS data on wage-change decisions for the earlier period permit calculation of the mean size of work groups affected by wage increases and decreases during the years 1924-1930, as shown on Table 6. In all but the last two years, decisions to cut wages tended to affect larger work

Table 4

Summary of Reported Wage Changes in  
Manufacturing, 1959-64

Year	Nonunion			Union		
	Proportion of Workers with Wage Changes which were Positive (1)	Median Wage Increase (2)	Approximate Standard Deviation <sup>a</sup> / (3)	Proportion of Workers with Wage Changes which were Positive (4)	Median Wage Increase (5)	Approximate Standard Deviation <sup>a</sup> / (6)
1959	99.9%	4.3%	2%	100.0%	3.6%	2%
1960	100.0	3.8	2	99.9	3.6	2
1961	99.3	3.3	4	99.9	3.0	2
1962	100.0	3.2	2	99.9	3.0	1
1963	99.7	3.7	3	99.7	3.0	2
1964	100.0	3.2	2	99.9	2.6	2

<sup>a</sup>/ In percentage points. In making the calculation, it was assumed that workers who received decreases experienced wage cuts of -5% and those who received increases of 10% or more received +15%. All other workers were assumed to have received increases at the midpoint of reported wage intervals of 1 percentage point, i.e., 0.5%, 1.5%, 2.5%, etc.

Source: Monthly Labor Review, vol. 85 (September 1962), p.1006, vol. 88 (October 1965), p.1185.

Table 5

Strikes Caused by Wage Decreases, 1920-33

Year	Number of strikes over wage decreases (1)	All strikes (2)	(1)/(2) (3)
1920	147	3411	4.3%
1921	973	2385	40.8
1922	301	1112	27.1
1923	49	1553	3.2
1924	132	1249	10.6
1925	121	1301	9.3
1926	53	1035	5.1
1927	58	734	7.9
1928	54	629	8.6
1929	74	903	8.2
1930	126	653	19.3
1931	271	894	30.3
1932	309	808	38.2
1933	138	1562	8.8

Source: U.S. Bureau of Labor Statistics, Handbook of Labor Statistics 1924-1926, bulletin 439 (Washington: GPO, 1927), p.572; U.S. Bureau of Labor Statistics, Handbook of Labor Statistics, 1936 Edition, bulletin 616 (Washington: GPO, 1936), p.319.

Table 6

Mean Size of Work Groups Affected by  
Wage Increases or Decreases, 1924-30

Year	Mean Size Affected by Increases <sup>a</sup> / (1)	Mean Size Affected by Decreases <sup>a</sup> / (2)	Year	Mean Size Affected by Increases <sup>b</sup> / (1)	Mean Size Affected by Decreases <sup>a</sup> / (2)
1924	104	326	1928	91	229
1925	63	306	1929	138	83
1926	111	149	1930	173 <sup>b</sup> / <sub></sub>	140
1927	64	301			

<sup>a</sup>/ Mean of monthly figures.

<sup>b</sup>/ Excludes one month when no increases were reported.

Source: Data drawn from Trend of Employment, various issues.

groups than decisions to raise wages. The two exceptional years--1929 and 1930--were characterized by lopsided wage-change distributions. In 1929, 6 out of 7 wage-change decisions led to wage increases while in 1930, 6 out of 7 decisions led to decreases. Thus, the samples of decreases in 1929 and increases in 1930 are small and noisy.

A tendency for wage cuts to cover relatively large groups of workers suggests that employers were prone--once they had decided to cut wages--to do so through impersonal across-the-board methods. The use of impersonal methods suggests, in turn, that employers realized that wage cuts would be resented and that carefully crafting differential wage reductions for small groups of employees would serve to exacerbate the inevitable tension.

#### V. Unchanged Wages.

The data from the 1920s and early 1930s suggest that a large proportion of the establishments surveyed did not change wages in any given month. Of course, even if all employers changed wages annually, on average only one twelfth (8.3 percent) would make a wage change in a particular month. Yet, the survey suggests that substantially less than one twelfth per month made wage changes over much of the period for which data are available.

Table 7 shows the proportion of establishments (and the workers affected) which reported wage-change decisions during 1923-1934. The figures shown are means of the monthly figures. Also shown are data from the later survey on the proportion of workers covered by wage-change decisions. The earlier survey approaches the level of the later one only in 1923 and 1933, both years of widespread wage increases. In other years, the earlier survey--if taken

Table 7

Monthly Proportion of Establishments or Workers Affected  
by Wage-change Decisions, 1923-34, 1959-64

Year	Proportion of Establishments Reporting Wage Changes <sup>a</sup> /	Mean Monthly Proportion of Workers Covered by Wage Change <sup>a</sup> /	Year	Monthly Proportion of Workers Covered by Wage Changes <sup>b</sup> /	
				Union	Nonunion
1923	6.3%	n.a.	1959	7.3%	5.7%
1924	1.1	.7%	1960	7.3	4.9
1925	.9	.4	1961	7.0	4.5
1926	.9	.3	1962	6.1	4.4
1927	.5	.2	1963	6.5	5.8
1928	.6	.3	1964	6.3	4.7
1929	.8	.3			
1930	.6	.4			
1931	2.0	1.9			
1932	3.2	3.3			
1933	4.6	6.4			
1934	1.4	2.1			

<sup>a</sup>/ Simple average of 12 monthly figures.

<sup>b</sup>/ Annual figure divided by 12.

Source: Trend of Employment, Monthly Labor Review, various issues.

at face value--suggests that most establishments left wages unchanged for very long periods, a form of wage rigidity.

The puzzle of the low proportion of establishments reporting wage changes was posed by John T. Dunlop in his classic study of wage determination.<sup>16/</sup> Dunlop suspected that there was underreporting of actual wage adjustments. Otherwise one would be led to believe that a significant number of establishments simply rode out the massive deflation of the early 1930s without cutting wages.

There is a certain symmetry in the assertion that in the modern period wage changes occur frequently, but in relatively small magnitudes, while in the earlier period large changes occurred but with relative infrequency. In many of the BLS industry wage surveys of the 1920s and early 1930s, tables were published which recorded whether the sampled establishments had changed wage rates over a prolonged period--often two years--rather than over a single month. Results of these surveys--shown on Table 8--indicate that wage changes were common in the period immediately prior to mid-1923 and again in the early 1930s. In particular, only a small minority of establishments reported that they had not cut wages in the period up to and including 1932. But many reported no wage changes in the mid-1920s.

Consistency between the monthly establishment survey and the industry wage surveys is not surprising; both appear to have been based on common reporting forms. And, of course, since the mid-1920s was a period of price stability, infrequent wage changes might be expected. Nevertheless, there is reason to suspect some underreporting of de facto wage adjustments.

In the 1920s, roughly half of all factory workers were paid on piece rates and/or other forms of incentive arrangements, according to surveys of the National Industrial Conference Board.<sup>17/</sup> Other

Table 8

Percentage of Establishments Reporting No Wage Change  
in Industry Wage Surveys, Periods Ending 1923-32

Period Ending in:	One-year Intervals (1)	Two-year Intervals (2)	Three-year Intervals (3)	Industries Covered <sup>a</sup> /
1923		<u>b</u> /	18, 21, 26, 1	Tires, Foundries, Machine Shops, Paper and Pulp
1924		81, 33		Boot and Shoe, Men's Clothing
1925		80, 85, 67, <sup>c</sup> /	85	Foundries, Machine Shops, Lumber, Motor Vehicles
1926		83, <sup>d</sup> /	76	Paper Box-Board, Lumber
1927				(No studies ended in 1927).
1928		86, 98, 78, 81	88	Boot and Shoe, Men's Clothing, Cotton Goods, Hosiery and Underwear, Motor Vehicles
1929	98, 97	96, 97, 94, 43, 94		Airplanes and aircraft engines, Portland Cement, Foundries, Machine Shops, Meatpacking, Bituminous Coal, Furniture
1930	92, 96, 100	93, 64, 56, 94, 83		Cigarettes, textile dyeing and fishing, rayon and other synthetic yarn, boot and shoe, men's clothing, lumber, woolen and worsted goods, cotton goods
1931	85, 75	58, 63, 20, 44, 39, 72		Gasoline filling stations and garages, air transportation, foundries, machine shops, furniture, silk and rayon goods, metal mines, bakeries
1932	10	18, 8, 3, 7, 5, 13, 4	<sup>e</sup> /	Rayon and other synthetic yarns, boot and shoe, men's clothing, lumber, woolen and worsted goods, hosiery and underwear, textile dyeing and finishing, leather

<sup>a</sup>/ Industries are listed in the same order (left to right) as the corresponding figures in columns (1), (2), and (3).

<sup>b</sup>/ Bulletin 373 indicates that most plants cut wages in meatpacking during 1921-23, i.e., few experienced no wage change.

<sup>c</sup>/ Bulletin 421 indicates that most plants in meatpacking did not change wages during 1923-25.

<sup>d</sup>/ Bulletin 450 indicates that meat plants in the boot and shoe industry did not change wages during 1924-26. Bulletin 435 indicates that most plants in the men's clothing industry did not change wages during 1924-26.

<sup>e</sup>/ Bulletin 601 covering January 1929-February 1933 reports that most bituminous coal mines reduced wages.

Source: U.S. Bureau of Labor Statistics, bulletins 358, 362, 422, 522, 570, 365, 373, 421, 535, 374, 450, 498, 551, 579, 387, 435, 503, 557, 594, 407, 413, 497, 560, 586, 438, 502, 583, 584, 492, 539, 504, 591, 516, 601, 523, 525, 526, 571, 532, 537, 588, 546, 587, 578, 575, 589, 568, 573, 580.



studies reported even higher proportions.\_18\_/ By the end of World War II, however, the proportion had dropped to under one third. By the late 1950s and early 1960s, the BLS put the figure at 26-27 percent. And the decline apparently continued thereafter.\_19\_/ Incentive systems often require the setting of norms of expected productivity, norms which are changed from time to time. Thus, many establishments may have changed their effective pay levels through periodic revisions of their incentive systems. It is dubious that all such adjustments were captured by the establishment survey reporting forms, or, indeed, that the company officials responding to the survey would have been fully aware of these changes.

#### VI. Conclusions.

In the 1930s and 1940s, substantial changes occurred in the institutions and environment of the U.S. labor market. These include the rise of widespread unionization, the enactment of various social welfare programs, and the greater role of the government in economic life. Long-term union agreements, although known before the 1930s, became standard practice in the collective-bargaining sector. Centralized, bureaucratic personnel management policies became the norm for larger, nonunion firms. All of these changes might have been expected to have some impact on wage determination.

There are notable differences between wage determination of the 1920s and early 1930s and wage-setting after World War II. In the earlier period, those establishments which did change wages produced a larger dispersion of wage-change decisions than in the later period. Moreover, wage cuts were not as unusual in the earlier period as they were in the later. Wage changes may have been made less frequently in the mid-1920s than after World War II. The low inflation rate of the

earlier period may account for this difference. However, limitations of the available information and the potential for employers to adjust incentive systems make comparisons across periods difficult.

For advocates of greater flexibility of wage determination, the experience of the 1920s provides some support. Plainly, a high degree of wage flexibility--once a decision was made to adjust wages--was compatible with an economy which resembled modern circumstances in many respects. By the 1920s, there were large corporations, mass-production methods, centralized management systems, etc. But a diversity of wage-change outcomes, presumably dependent on local economic conditions, was possible.\_20\_

By the same token, the wage flexibility that did exist did not in itself automatically stabilize the economy; the Great Depression is proof enough of that point. Nor did the flexibility of wage setting prior to the mid-1930s come close to resembling the auction-style wage setting of the elementary textbooks. Wage cuts were possible, but not popular. Then as now, workers preferred to be paid "more" than "less".

Footnotes

1. On the development of long-term contracts, 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, Wisconsin: IRRR, 1983), pp. 319-328.
2. The turnover cost approach is developed in Arthur M. Okun, Prices and Quantities: A Macroeconomic Analysis (Washington: Brookings Institution, 1981), pp. 23-133. Various authors have analyzed the risk-shifting approach. For example, Robert E. Hall and David M. Lillian, "Efficient Wage Bargains Under Uncertain Supply and Demand," American Economic Review, vol. 69 (December 1979), pp. 868-879. A review of this literature can be found in Daniel J.B. Mitchell and Larry J. Kimbell, "Labor Market Contracts and Inflation" in Martin Neil Bailey, Workers, Jobs, and Inflation (Washington: Brookings Institution, 1982), pp. 199-238.
3. For example, profit sharing was included in automobile industry contracts in the late 1970s and early 1980s during the cycle of wage concession negotiations in that sector. Examples of proposals for gain sharing can be found in Daniel J.B. Mitchell, "Gain-Sharing: An Anti-Inflation Reform," Challenge, vol. 25 (July/August 1982), pp. 18-25; Martin L. Weitzman, "Some Macroeconomic Implications of Alternative Compensation Systems," unpublished working paper, Department of Economics, Massachusetts Institute of Technology, March 1983; and Herbert L. Grubel and Z.A. Spindler, unpublished working paper, Department of Economics, Simon Fraser University, June 1983. The chairman of the Federal Reserve System, Paul A. Volcker, suggested a need for profit-sharing plans and related devices to improve economic performance. See "Discipline Needed, Volcker Asserts," Los Angeles Times, November 1983, Part 4, page 1.
4. For examples, see Robert J. Gordon, "A Century of Evidence on Wage and Price Stickiness in the United States, the United Kingdom, and Japan" in James Tobin, ed., Macroeconomics, Prices, and Quantities (Washington: Brookings Institution, 1983), pp. 85-133; R.A. Gordon, "Wages, Prices, and Unemployment, 1900-1970," Industrial Relations, vol. 14 (October 1975), pp. 273-301; Clarence D. Long, "The Illusion of Wage Rigidity: Long and Short Cycles in Wages and Labor," Review of Economics and Statistics, vol. XLII (May 1960), pp. 140-151; George L. Perry, "The Determinants of Wage Rate Changes and the Inflation-Unemployment Trade-Off for the United States," Review of Economic Studies, vol. XXXI (April 1964), pp. 287-308; O.C. Ashenfelter, G.E. Johnson, and J.H. Pencavel, "Trade Unions and the Rate of Change of Money Wages in United States Manufacturing Industry," Review of Economic Studies, vol. XXIX (January 1972),

pp. 27-54; Robert R. France, "Wages, Unemployment, and Prices in the United States, 1890-1932, 1947-57," Industrial and Labor Relations Review, vol. 15 (January 1962), pp. 171-190; Jeffrey Sachs, "The Changing Cyclical Behavior of Wages and Prices: 1890-1976," American Economic Review, vol. 70 (March 1980), pp. 78-90; Charles L. Shultze, "Some Macro Foundations for Micro Theory," Brookings Papers on Economic Activity (2:1981), pp. 521-576.

5. For information on the survey, see U.S. Bureau of Labor Statistics, Methods of Procuring and Computing Statistical Information of the Bureau of Labor Statistics, Bulletin 326 (Washington: GPO, 1923), pp. 3-5. The survey data appeared in Trend of Employment, a journal which eventually became the current Employment and Earnings, and in the Monthly Labor Review.
6. For example, if an establishment gave a 5 percent wage increase in January and another in July of the same year, the BLS tables would not permit identification of that establishment. Rather, in two separate months, two 5% increases would have been recorded. To the extent that such multiple increases occurred, the annual wage change distributions calculated for this study would be somewhat biased toward zero and the standard deviations would probably be somewhat too small. The fact that standard deviations fall in years when wage changing became more frequent (such as 1923) suggests that this phenomenon did bias the estimates of Table 1. Discussion of the frequency issue can be found below in the text.
7. In the example in the text, the following approximation routine would have been used to estimate the wage-change distribution. It would have been assumed that one establishment received a 5 percent adjustment, one received a 10 percent adjustment, and the others received the average adjustment (generally reported on the BLS' tables). The reported averages were weighted by number of workers affected. Where the average was not given (only in the first half of 1923) the midpoint of the range (7.5 percent) would have been used instead.
8. On a December-to-December basis, the Consumer Price Index fell by -.5 percent in 1954 and rose by .4 percent in 1955.
9. See Lily Mary David and Donald L. Helms, "Labor-Management Settlements in 1955," Monthly Labor Review, vol. 79 (May 1956), p.532. The survey covered contracts involving 1,000 or more workers for manufacturing and selected nonmanufacturing industries.
10. For a description of the survey, see U.S. Bureau of Labor Statistics, BLS Measures of Compensation, bulletin 1941 (Washington: GPO, 1977), pp. 63-65. Since unionized firms make general wage adjustments,

the exclusion affected coverage in the nonunion sector. It is apparent that establishments did not stick to their announced policies of making or not making general wage adjustments. Jacoby and Mitchell, op. cit., p.323, report that the proportion of workers in establishments indicating that they did not make general wage adjustments varied erratically but averaged 32 percent during the 1959-1978 period. Higher inflation seemed to be positively associated with more widespread use of general wage adjustments in the non-union sector.

11. See R.A. Gordon, op. cit., p. 300.
12. Without a social safety net and incomes of spouses, unemployed workers were likely to be under great pressure to search for available jobs. However, it does not appear to be the case that demographic changes between the two periods would have caused the 1920s unemployment rate to be lower. Males constituted a larger fraction of the workforce in the earlier period and males tend to have lower unemployment rates than females. But there were also more young people in the labor market in the 1920s (who tend to have higher-than-average unemployment rates) and fewer older females (who tend to have below-average rates). Moreover, mechanical adjustments for demographics are misleading over long periods of time. For example, the labor-force attachment of a teenager in the 1920s, when school leaving age was typically younger than in the 1960s, was probably greater than in the later period.
13. The quit rates were drawn from a survey by Metropolitan Life Insurance Company which was taken over the by Bureau of Labor Statistics in 1929. Sanford M. Jacoby notes that the firms in the Metropolitan Life sample did not have typical employment experience in the 1920s and believes the reported quit rates from that period to be downward biased. See his "Industrial Labor Mobility in Historical Perspective," Industrial Relations, vol. 22 (Spring 1983), p. 274.
14. For the approximation used in calculating the standard deviations of the earlier period, see footnote 7. The published tables for the later period leave open-ended intervals for wage adjustments below zero and for 10 percent and above. It was assumed that the latter adjustments averaged +15 percent and the former averaged -5 percent. These assumptions probably overstate the actual absolute adjustments in these intervals, thus biasing the estimated standard deviations upward.

15. For examples from BLS studies of the unionized shoe industry in New England, see Robert S. Billups and Philip L. Jones, Labor Conditions in the Shoe Industry in Massachusetts, 1920-24, BLS bulletin 384 (Washington: GPO, 1925); and U.S. Bureau of Labor Statistics, Conditions in the Shoe Industry in Haverill, Mass., 1928, bulletin 483 (Washington: GPO, 1929). The reluctance of firms to cut wages as the Great Depression started suggests that employers were concerned about worker resentment. In addition, President Hoover urged that wage cuts be avoided. See Sanford M. Jacoby, "Employers Respond to the Great Depression, 1930-1935," unpublished working paper number 62, UCLA Institute of Industrial Relations, 1983.
16. John T. Dunlop, Wage Determination Under Trade Unions (New York: Augustus M. Kelley, 1950), p. 139, footnote 24.
17. National Industrial Conference Board, Systems of Wage Payment (New York: NICB, 1930), p. 9.
18. Michael J. Jucius, "The Use of Wage Incentives in Industry with Particular Reference to the Chicago Area," Journal of Business, vol. 5 (January 1932), pp. 76-85, especially p. 82.
19. See L. Earl Lewis, "Extent of Incentive Pay in Manufacturing, May 1958," Monthly Labor Review, vol. 83 (May 1960), pp. 460-463; John Howell Cox, "Wage Payment Plans in Metropolitan Areas," Monthly Labor Review, vol. 87 (July 1964), pp. 794-796; John Howell Cox, "Time and Incentive Pay Practices in Urban Areas," Monthly Labor Review, vol. 94 (December 1972), pp. 53-56.
20. Unfortunately, the survey did not report on the reasons why particular establishments changed wages, only that they did so. There is an obvious correlation between such measures shown on Table 1 as quit rates--which indicate general demand pressures--and wage-change outcomes.