

FEDERAL RESERVE BANK OF BOSTON

NEW ENGLAND ECONOMIC REVIEW

The Changing Composition of the Unemployed

An analysis of the structure of current unemployment shows sharp changes in recent years. Compared with previous recessions, a much smaller proportion of the unemployed are married men; most are women and teenagers. This change in composition has important implications for economic policy and suggests the need for a new measure of unemployment.

Wage Dynamics and National Economic Policy

Despite the current slack in the economy and fairly high unemployment rates, average wage rates are continuing to rise. Union wages are rising more rapidly than wages in the more competitive labor sectors. A study of past history suggests that such a pattern is typical of recession and early recovery periods of business cycles.

The Changing Composition of the Unemployed*

By

CAROL S. GREENWALD

To most of us, an unemployment rate of 6 percent suggests economic disaster. An analysis of the structure of current unemployment, however, shows that it has changed sharply during the past decade. As a result, the total civilian unemployment rate has increasingly become a misleading measure of economic distress.

The classic stereotype of the unemployed individual is the father of a family, with a wife and children who are destitute because he does not have a job. This picture is not at all representative of the situation in the United States today. To begin with, only 28 percent of those currently unemployed are married men. Most of the unemployed are women and teenagers.

This change in the age-sex composition of the unemployed has altered the economic welfare implications of unemployment. Because a far larger proportion of those unemployed during the current recession are women and teenagers

*This article is based on a talk given in October 1970 to the Federal Reserve System's Committee on Business Analysis at the Federal Reserve Bank of Richmond. This paper was also discussed in November 1970 at the Federal Reserve System's Committee on Banking and Credit Policy in Washington, D. C. At the latter meeting, the author was informed that George Perry was also analyzing demographic shifts among the unemployed. Perry's work was published in the *Brookings Papers on Economic Activity 3: 1970* (1971). Both Perry and Greenwald note that the change in structure of unemployment during the past decade has made the Bureau of Labor Statistics published total unemployment rate a less meaningful measure of slack in the labor market. They draw quite different conclusions from these changes, however.

than was true in past recessions, the currently high unemployment rate means less income loss to families than the same rate indicated in the past. The recession has raised unemployment rates for all population groups, but even at full employment, women and teenagers normally experience higher unemployment rates than married men and this largely reflects their frequent entry and re-entry into the job market rather than an inability to find work.

While the changed composition of the unemployed decreases the economic hardship implied by any given unemployment rate, it has quite adverse implications for inflation. Since higher unemployment during a mild recession is now more concentrated among women and teenagers, less pressure is exerted on moderating wage demands and on decreasing the rate of price rises. Thus, a higher overall unemployment rate than in past recessions is needed to obtain the same dampening effect on prices. In addition, monetary and fiscal policies aimed at gradually slowing the economy will take considerably longer to affect inflation than was previously true.

Changes in the Composition of the Unemployed

The total unemployment rate is lower during the current recession than during the past two recessions. The unemployment rate for married

men in 1970, moreover, averaged only 2.6 percent, much lower than the overall unemployment rate of 4.9 percent.¹ More significantly, as Table 1 shows, the unemployment rate for married men is a much lower proportion of the total unemployment rate than it was previously. During our past two recessions, in 1957-1958 and 1960-1961, the unemployment rate for married men was on average 70 percent as high as the total unemployment rate. As shown in Table 1, in the present downturn, it has averaged only half as high as the overall rate.

There has been a striking shift in the burden of unemployment from men to women and teenagers. As Table 2 indicates, in 1970 women and teenagers accounted for 60 percent of the unemployed, while in the 1957-1958 recession they

had comprised only 43 percent. The most dramatic change has occurred among teenagers. During the 1957-1958 recession they accounted for 15 percent of the unemployed, and in the 1960-1961 recession for 17½ percent. During the present recession they have accounted for 28 percent of the unemployed, although they comprise only 9 percent of the labor force. There are as many teenagers among the unemployed as married men.

¹The category "married men" is used in this article in lieu of the even more desirable welfare measure, "heads of households," because unemployment rates for heads of households are available only since 1963 and do not, therefore, cover any past recession periods. Even using the rate for married men limits comparisons to the 1958 and 1961 recessions because unemployment data for married men are not available for earlier recessions.

Table 1
UNEMPLOYMENT RATES FOR
MARRIED MEN IN RECESSION YEARS
(Quarterly Average; Seasonally Adjusted Percent)

<i>Recession Period</i>	<i>Total Unemployment Rate</i>	<i>Unemployment Rate for Married Men</i>	<i>Rate for Married Men as a Percent of Total Rate</i>
1957-1958			
III (P)	4.2	2.8	67
IV	4.9	3.4	69
I	6.3	4.6	73
II (T)	7.4	5.6	76
1960-1961			
II (P)	5.2	3.5	67
III	5.5	3.8	69
IV	6.3	4.5	71
I (T)	6.8	4.8	71
1969-1970			
IV (P)	3.6	1.6	44
I	4.2	2.0	48
II	4.8	2.4	50
III	5.2	2.8	54
IV (T)	5.9	3.2	54

NOTE: P and T indicate the peaks and troughs in the business cycle.

Table 2
THE CHANGING STRUCTURE OF THE
UNEMPLOYED IN RECESSION YEARS
 (Percent of Total Unemployment)

<i>Recession Period</i>	<i>Men — 20 Years and Over</i>	<i>Women — 20 Years and Over</i>	<i>Teenagers 16-19 Years</i>
1957-1958			
III (P)	54	29	17
IV	57	27	16
I	58	28	14
II (T)	59	27	14
1960-1961			
II (P)	53	28	19
III	54	28	18
IV	55	28	17
I (T)	53	29	18
1969-1970			
IV (P)	36	35	30
I	37	34	29
II	40	33	27
III	42	33	26
IV (T)	42	32	26

NOTE: P and T indicate the peaks and troughs in the business cycle.

As Table 3 shows, unemployment rates for women and teenagers are no higher now than in past recessions. These groups are, however, a larger proportion of the labor force, and so their characteristically higher unemployment rates push up their proportion of the unemployed without actually indicating a deterioration in their position relative to past recessions. This also has the effect of pushing up the total unemployment rate without indicating substantially greater slack in the labor market for primary wage earners. In fact, as shown in Table 1, the market for married men is still tighter than in past recessions.

The Effect of Turnover

Higher turnover rates largely explain why the unemployment rates for women and teenagers

are higher than for adult men. But some period of unemployment while looking for a new job is a common experience of a large portion of the labor force in any given year. The unemployed are not a fixed body of the same unfortunate workers. The labor force is in a continuing state of flux, with the volume of unemployment like a pool into which workers are constantly moving in and out. Although net additions to employment totaled only 746,000 persons in 1970, in an average month at least 2 million workers were taken off the unemployment rolls and a slightly larger number of persons newly searching for jobs were added.

For most persons, looking for work in 1970 entailed a much shorter period of unemployment than in previous recessions. In 1970, 52 percent

Table 3
UNEMPLOYMENT RATES
FOR WOMEN AND TEENAGERS
 (Percent Unemployed; Seasonally Adjusted)

<i>Recession Period</i>	<i>Unemployment Rate — Women</i>	<i>Unemployment Rate — Teenagers</i>
1957-1958		
III (P)	4.2	11.4
IV	4.4	12.5
I	5.8	14.6
II (T)	6.6	16.3
1960-1961		
II (P)	4.8	14.2
III	5.0	14.6
IV	5.8	15.7
I (T)	6.3	17.2
1969-1970		
IV (P)	3.7	12.2
I	4.1	13.6
II	4.6	14.8
III	4.9	15.5
IV (T)	5.5	17.5

NOTE: P and T indicate the peaks and troughs in the business cycle.

of those unemployed were out of work for less than 5 weeks, whereas in the recession years of 1958 and 1961, only 38 percent of the unemployed experienced unemployment of less than 5 weeks. Long-term unemployment, usually defined as unemployment for 15 weeks or more, was experienced by only 16 percent of the unemployed in 1970, less than half the proportion in the previous two recessions.

Frequent entry and re-entry into the labor force, accompanied by periods of job hunting, largely explain why the unemployment rate for teenagers is normally higher than that of adults. Robert Hall, in a study recently published by the Brookings Institute, has estimated the amount of unemployment that arises from normal turnover.² He assumed that an individual

looking for his first job needs, on average, 2 months to find it, but only 1 month to find subsequent jobs. In addition, he assumed that teenagers change jobs every year, that young adults do so every 2 years and that older workers change jobs every 4 years. Unemployment rates calculated under these assumptions were almost identical with the actual rates experienced by these age groups in April 1969. The total unemployment rate was 3.5 percent. The calculated rate for teenagers 16-17 years old was 15 percent compared to their actual unemployment rate of 15.9 percent. The calculated unemployment rate for those 25 years old and older was 2 percent

²Robert E. Hall, "Why is the Unemployment Rate so High at Full Employment?," *Brookings Papers on Economic Activity* 3: 1970 (Washington, D.C., 1971) pp. 369-402.

while their actual unemployment rate was 3 percent. This rather effectively demonstrates that the high teenage unemployment rate is largely a function of the frequency of job turnover among teenagers and primarily reflects continued school attendance. Today's teenage unemployment rate of 17 percent has to be compared with a normal rate — an economically healthy rate — of about 12 percent, not as we implicitly do of 4 percent. As long as many teenagers only seek work in the summer and then return to school, the unemployment rate for teenagers can never be in the 4 to 5 percent range.³

The normally higher unemployment rate experienced by adult women than by adult men also primarily reflects their more frequent re-entry into the job market. In 1970, the unemployment rate for adult men averaged 3.5 percent, while for adult women it was 4.7 percent. This overall rate can be broken down into two components: unemployment resulting from losing or leaving a job, and unemployment from entering or re-entering the labor force. In 1970, the first component — job loss — resulted in an unemployment rate of 2.6 percent for adult men and a virtually identical 2.7 percent for adult women. Unemployment resulting from entry or re-entry into the labor force accounted for 0.8 percent additional unemployment among adult men, but 2.1 percent among adult women. Thus, it is the greater volatility of women's participation in the labor force which largely accounts for their higher unemployment rates.

Part-Time Work

Because women and teenagers are a larger proportion of the unemployed, more of the unemployed are seeking only part-time work. Currently, one-fourth of the unemployed are looking for only part-time employment. In 1963, the earliest year for which these data are available, only 15 percent of the unemployed wanted part-

time jobs. While only 10 percent of the unemployed adult men in 1970 wanted part-time work, 22 percent of the adult women and 54 percent of the teenagers did.

The desire for part-time rather than full-time employment underlines the supplementary nature of the income earned by women and teenagers. Families are not depending on them for essentials. While unemployment among secondary workers cannot be ignored, their unemployment has different economic welfare implications from that of married men. The unemployment of a supplementary wage-earner may be only a discomfort; the loss of a job by the head of a household is a disaster.

Measuring Economic Distress

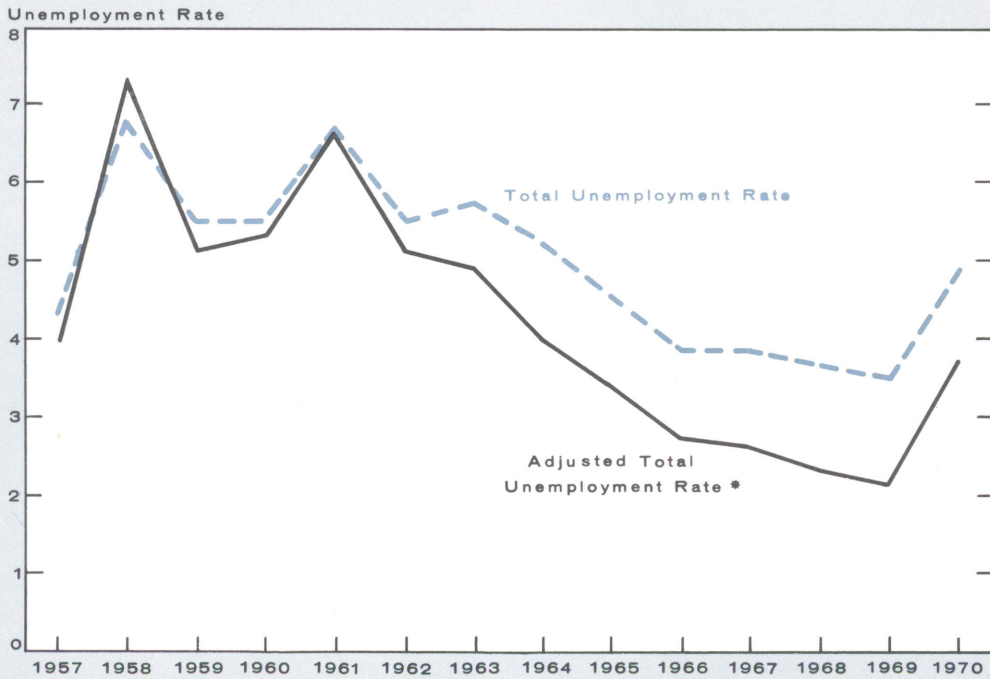
The overwhelming interest in the unemployment rate centers on its being the most general measure of economic distress. The economic welfare implications of the overall unemployment rate have been diluted by the increasing importance of secondary workers among the unemployed. This is particularly true since the high unemployment rates of these secondary workers largely reflect voluntary movements into and out of the labor force.

From an economic welfare point of view, the more relevant unemployment rate is that for married men.⁴ By this standard, the present total unemployment rate of 6 percent is deceptively high. The solid line on Chart I shows what the unemployment rate would be if the structure of unemployment had not changed during the 1960's; i.e., if the unemployment rate for mar-

³If teenage unemployment occurred only during June each year while teenagers were looking for summer jobs, seasonally adjusting the data and converting to annual rates would make the teenage unemployment rate for the year 8½ percent; i.e., teenagers were unemployed for 1/12 of the year.

⁴As noted previously, the rate for heads of households is better yet. The unemployment rate for heads of households has averaged not quite half a percentage point higher than that for married men.

THE UNEMPLOYMENT RATE AS A MEASURE OF ECONOMIC WELFARE



*The adjusted total unemployment rate assumes that the rate for married men was 70 percent of the total rate.

ried men still equalled 70 percent of the total unemployment rate. If this were still true, then the total unemployment rate in 1970 would have averaged 3.7 percent, not 4.9 percent, and in May 1971, the unemployment rate would have been 4.7 percent instead of 6.2 percent. Despite all the unemployment headlines, despite the very real hardships ensuing from job losses in the past year, the fact remains that only 3.2 percent of the married men in the country who were actively searching for work were without it in the first half of 1971.⁵

Price Implications

The new unemployment structure also changes the spending and price implications of any given unemployment rate. Since a large proportion of current unemployment is among teenagers, whose spending might not be greatly affected by the loss of a job, and among women, who earn much less than men, an increase in unemployment affects total spending less than if male heads of households lose their jobs. If any given rise in unemployment does not cut income growth as much as previously, then it cannot decrease the demand for goods and services as much and thus exerts less downward pressure on prices.

The economic basis for restrictive monetary and fiscal policies during an inflation is that an excess supply of labor will drive down the rate of wage increase. If the excess supply of labor is largely made up of women and teenagers who are not members of the powerful industrial unions, their unemployment will have much less effect on lowering wage demands. Rising unemployment rates for women can be expected to affect wages for office workers and in retail trade where women are heavily concentrated, but these are not the pace-setting areas for wage demands. In fact, while wages have continued to climb at an accelerating pace in the unionized sector, hourly earnings in retail trade rose by

only 6.1 percent in 1970, down from 7.5 percent in 1968.

Both of these factors imply a more adverse unemployment-price trade-off.⁶ For any given level of total unemployment, the rate of price increase consistent with it is now higher. These factors partly explain why we are currently having both inflation and what appears to be high unemployment. The unemployment rate that affects spending decisions and union bargaining is still low. During the present downturn, the unemployment rate for married men has averaged only 2.3 percent, while during our previous two recessions it averaged 4.2 percent. The unemployment rate for married men in the first half of 1971 at 3.2 percent was still very low by historical standards. At the peaks of the last two business cycles, the unemployment rate for married men was 2.8 percent and 3.5 percent. If it is the unemployment of married men that really affects spending, wages, and prices, then the current unemployment rate is not high enough to have the necessary restrictive influences. Because of the change in the structure of the unemployed, in previous recessions a 4 percent unemployment rate for married men was consistent with an overall unemployment rate of about 6 percent; today an unemployment rate for married men of 4 percent would imply a total unemployment rate of 7½ percent, without any one group of workers being worse off than it was in previous recession periods.

New Measures of Unemployment

This article suggests that we need a different way of looking at unemployment. Our present measure — the total unemployment rate — does not really tell us what we want to know: How slack is the labor market? How much economic

⁵While the overall rate is low, a 3 percent rate still amounts to 1.2 million married men without jobs.

⁶In technical terms, this is a shift to the right in the Phillips Curve, as explained in the Wachter article on page 12.

distress is there? How much pressure on prices and wages? What is full employment?

The unemployment rate for married men has been shown to be a more relevant measure of pressure on wages and prices and a more appropriate measure of economic distress than the total unemployment rate. Instead of discussing unemployment in terms of a composite rate, it should be discussed in terms of primary and secondary wage earners. We might want to differentiate further and emphasize three unemployment rates: for primary workers, for other workers, and for students. By doing this we can increase our understanding of the state of the labor market and also make government policies more explicit. This idea has been suggested previously. In 1962, the President's Committee to Appraise Employment and Unemployment Statistics similarly concluded that "The rate for married men (or even better, the rate for heads of households) would also be a better measure of the hardship imposed on families by unemployment than the overall rate that includes wives and youths."⁷

When 4 percent unemployment is described as full employment, we really mean something like an unemployment rate for married men of about 2 percent, a 4 percent rate for adult women, and a 12 percent rate for teenagers. For each of these groups, these are the full employment levels which are really our goals, not simply an average that comes out to 4 percent. If we were to get a total unemployment rate of 4 percent with a lower rate for married men offset either by a higher rate for other workers or by a rise in the proportion of other workers, we would actually have over-full employment in an important part of the labor market, with resulting pressures on wages and prices. By focusing on the total unemployment rate we may be unaware of where the problem lies. This is our present situation. By focusing on the total unemployment rate with its large teenage component we are getting a

distorted impression of the real amount of slack in the labor market and of economic distress. As a result, pressures are built up for large stimulative measures to be undertaken by the monetary and fiscal authorities. Policymakers announce their objectives as a return to a 4 percent unemployment rate without realizing that the magic number does not always mean the same thing for the economy at all times. By focusing on who is unemployed, rather than simply on the number of unemployed, we have a better chance of designing appropriate economic policies.

George Perry, in a study recently published by the Brookings Institute,⁸ has also suggested the use of a different measure of the labor market from the total unemployment rate. He has devised three new composite rates. The first weights an unemployed person by his lost output valued at market prices. For example, since adult men on average work more hours and earn more per hour than women and teenagers, an unemployed adult male receives a higher weight in Perry's index of unemployed than would an adult woman or teenager. The second suggested composite rate measures the dispersion of unemployment rates among age-sex groups in the labor force. Dispersion is measured as the sum over all age-sex groups of the absolute difference between each group's share of total weighted unemployment and its share of the total weighted labor force. The third measure is a combination of these two rates, weighted by their coefficients in a regression equation explaining wage changes. The variable thus formed would be expressed as an index. Perry's indexes indicate, as does the simpler unemployment rate for married men, that the total unemployment rate has

⁷President's Committee to Appraise Employment and Unemployment Statistics, *Measuring Employment and Unemployment*, (Washington, D.C.: U.S. Government Printing Office, 1962), pp. 61-62.

⁸George L. Perry, "Changing Labor Markets and Inflation," *Brookings Papers on Economic Activity 3: 1970* (Washington, D.C., 1971) pp. 411-441.

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been overstating the amount of slack in the labor market. The major problem with Perry's measure is that the meaning of his index will not be readily understood by the public. As a result, most people will probably continue to look at the total unemployment rate. All of the refinements in Perry's measure, which make it interesting to economists, make it too complicated for public consumption. Moreover, its use would be opposed by women's lib groups and the youth movement since it implicitly says that a woman's unemployment is only half as important in the index as a man's while a teenager's is given even

less weight. Perry's measure also has the disadvantage of hiding the fact that we do not expect unemployment rates in a healthy economy to be uniform.

We need a new measure of unemployment if we are to avoid making policy mistakes. Our present indicator — the total unemployment rate — is not accurately reflecting the state of the labor market. Focusing on the unemployment rate for married men may be the simplest way of getting a more accurate measure of economic distress.

Wage Dynamics and National Economic Policy

by

MICHAEL L. WACHTER*

A WIDELY ACCEPTED theory is that wages and prices increase rapidly when the unemployment rate is low and that they rise slowly when unemployment is high. Since 1969, however, the unemployment rate as well as the rate of wage change and inflation have increased, contradicting the normal pattern. The unexpected wage and price inflation of the post-1969 period is popularly explained as a result of unions demanding higher wages, despite rising unemployment. Wages in the unionized sector have in fact been increasing more rapidly than in other sectors of the economy.

This paper explains the recent rapid increase in union wages by a relative wage model. Workers in unionized industries usually earn significantly higher wages than other workers doing identical work in non-unionized industries.¹ Wage differentials between the high-wage unionized sector and the low-wage competitive sector, however, vary cyclically, narrowing during expansions and widening during contractions. That is, the high-wage unionized sector traditionally suffers a wage lag behind the low-wage nonunionized sector during economic expansions and then “catches-

up” during the following contraction. During the long economic expansion from 1962 to 1969, wages in the high-wage unionized sector increased more slowly than they did in the competitive sector, decreasing the wage differential between these sectors. In the current contraction, the unionized sector is attempting by high wage settlements to re-establish its traditional wage differential over the competitive sectors. Once the traditional wage differential is re-established, we can expect the rate of relative wage increase in the unionized sector to moderate.

The Trade-Off Between Unemployment and Inflation

The standard explanation of inflation is that there is a trade-off between the rate of wage and price increase and the unemployment rate. This is depicted by the Phillips Curve in Figure 1.² When labor markets are loose and the unemployment rate is high, then the rates of wage and price change are slower. Phillips Curve A indi-

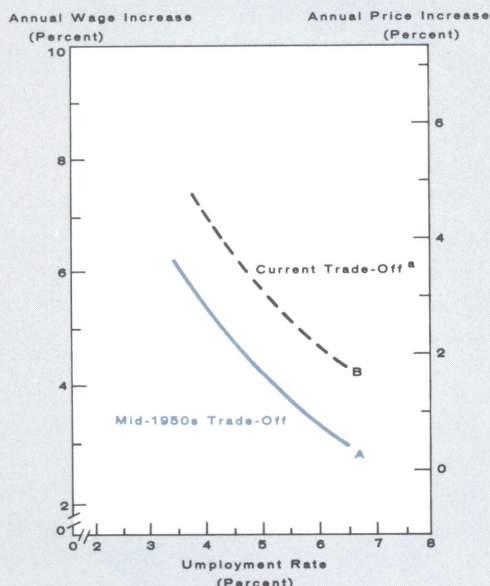
¹It is difficult, however, to attribute this wage premium solely to the existence of labor unions, since unionized industries are also often highly oligopolistic in structure. It is possible that oligopolistic firms would pay wage premiums regardless of the existence of labor unions.

²In 1958, A. W. Phillips of the University of London published a study showing that there had been a long-standing historical relationship between unemployment and the rate of change of money wages in Great Britain. Similar studies done for the United States also found evidence of the relationship as noted by Phillips.

*The author is an assistant professor at the University of Pennsylvania. This article is drawn from his Harvard doctoral dissertation, which was primarily financed by a grant from the U. S. Department of Labor. See also his paper “Cyclical Variation in the Interindustry Wage Structure,” *American Economic Review*, March 1970.

Figure 1

THE SHIFT IN THE TRADE-OFF BETWEEN INFLATION AND UNEMPLOYMENT



^aBased on 1967-70 experience.

SOURCE: George L. Perry, "Changing Labor Markets and Inflation," *Brookings Papers on Economic Activity* 3: 1970, (Washington, D.C., 1971) p. 432.

icates the trade-off which is supposed to have existed in the 1950's and early 1960's. It shows that an unemployment rate of 4 percent is associated with a rate of wage change of 5.5 percent. Curve B shows the trade-off of the late 1960's. Any given rate of unemployment is accompanied by a higher rate of wage change, clearly a less favorable relationship than in the earlier period.

The connecting link between wage and price changes is that price changes usually vary with those in unit labor costs. Changes in unit labor costs equal the rate of wage change minus the

rate of productivity change. Thus, if productivity tends to increase at 3 percent a year, a wage change of 3 percent will not raise prices. Phillips Curve A, however, indicates that a 3 percent rate of wage change is associated with an unemployment rate of 6.5 percent. If unemployment is 4 percent, then according to Phillips Curve A, wages can be expected to increase by 5.5 percent and prices by 2.5 percent. (Again, assuming that productivity is increasing at 3 percent a year.) Thus, for different rates of unemployment, we can find the rate at which prices will increase. Recognizing the trade-off between inflation and unemployment expressed by the Phillips Curve, monetary and fiscal policies have sought to attain the lowest level of unemployment consistent with an acceptable rate of wage and price rise.

Government policy may also seek to shift the Phillips Curve to the left (which reduces the amount of inflation for any given unemployment rate) or at least to prevent outside factors from shifting it to the right. (As Figure 1 indicates, an unfavorable rightward shift seems to have occurred in the late 1960's.) Favorable shifts in the Phillips Curve may be attainable by manpower training programs, which reduce the amount of structural unemployment in the economy, and by a guideposts policy which applies moral suasion against large wage and price settlements in the high-wage, unionized sector.

The Wage and Unemployment Record, 1968-1970

Actual unemployment rates and wage rate changes during 1969 and 1970 are shown in the table on Page 13. In 1969, the unemployment rate was 3.5 percent, while compensation per manhour rose by 7.3 percent. Phillips Curve A, on the other hand, indicates that the rate of wage change should have been only 6.2 percent. In 1970, the situation deteriorated considerably

CHANGES IN HOURLY COMPENSATION

Year	Change in Compensation Per Manhour Suggested by Phillips Curve A	Actual Percentage Rate Change in Average Hourly Compensation*	Unemployment Rate
		(Percent)	
1969 — I	—	7.3	3.3
II	6.2	7.2	3.5
III	6.1	7.2	3.6
IV	6.1	7.3	3.6
1970 — I	5.2	7.4	4.2
II	4.6	7.3	4.8
III	4.1	7.2	5.2
IV	3.5	6.7	5.9
1971 — I	3.5	7.4	5.9

* All persons, total private economy.

SOURCE: U.S. Bureau of Labor Statistics, *Employment and Earnings*.

further. The unemployment rate rose above 5 percent, but the rate of wage change did not slow.

The crucial question is what caused this behavior and what can be expected in the near future. The relative wage model suggests that no solutions are possible in the short run.

Cost-Push Inflation

The table above shows that the Phillips Curve shifted adversely after 1969. Popular explanations see this shift as being caused by a resurgence of cost-push pressures. The essence of a cost-push argument is that wages are pushing up prices without there being excess demand for goods or labor. The cause of the wage rise is the large settlements won by labor unions. Thus, one journalist wrote that the "public debate and discussion of the present inflation issue has been bedeviled by a fatal semantic error: the use of the term 'price and wage problem.' It is a wage problem."³

It is very difficult to isolate the causal element in a wage-price spiral. The nature of the problem can be seen in one newspaper's explanation of why the present problem is caused solely by rising

wages. "One important reason is simply the duration of the inflation — the greatest we have experienced. It has created . . . a new attitude of bitterness and aggressiveness on the part of working men seeing their past wage gains slip away."⁴ In other words, wages are rising today because workers have seen past money wage gains depreciated by inflation and because workers expect the inflation to continue. Thus, inflation in the past and the expectation of more in the future cause wages to rise. And, of course, it is the increase in wages which causes prices to rise.

Causality in the wage-price spiral cannot be assigned by determining whether wages or prices change first. The economic world does not start from a position of equilibrium, so that in an important sense, there is no initial move by either wages or prices. Secondly, even if one could prove that wages lead prices, a conclusion that the wage increases caused the inflation could not be justified. The demand for labor is derived

³Edwin L. Dale, "How to Stop Inflation: Stop Raising Wages," *New York Times Magazine*, January 3, 1971, pp. 10-18.

⁴*Ibid.*

from the demand for the firm's output. An increase in the demand for a good would raise the demand for workers. Both prices and wages are likely to rise in this case and it is possible that wages will rise first. One would clearly not want to label this an inflation caused by wage increases.

The notion of a cost-push spiral suffers from an additional theoretical problem. Without an expansionary monetary policy, unemployment will rise. This should eventually stop the cost-push spiral. If, however, this spiral is accommodated by an expansionary monetary policy, in order to prevent unemployment from rising, then monetary policy must share the blame for the rise in wages, costs, and prices.

The major dilemma of cost-push inflation is that the unemployment rate is a concern not only of labor unions but of the government as well. The monetary authority can "solve" any unemployment problem caused by cost-push inflation by increasing the money supply, thereby preventing both the rise in the rate of interest and the subsequent increase in unemployment. In a sense, increasing the money supply validates the wage rise. This process, however, is likely to repeat itself and result in a continuing inflation. As long as the unemployment rate is maintained at a low level, the unions may continue to bargain for high settlements. In fact, the situation may become worse. As wage increases of union workers are invariably "eaten into" by inflation, unions may begin to anticipate the inflation and may therefore ask for even larger settlements. If the government continues to validate the even larger wage settlements, the result is spiraling inflation rather than a constant rate of price increases.

Rather than using higher unemployment to moderate wage claims, the government could adopt an incomes policy and try to persuade firms and unions to increase prices and wages at

a slower rate. This was the goal of the guideposts policy during the mid-60's. Once wages and prices slow their rate of increase, the government can moderate the growth of the money supply without increasing unemployment. This policy has the clear advantage of not increasing unemployment, but the disadvantage of having little impact. Unions and firms usually do not heed the government's moral suasion.

The problem still remains, however, as to whether cost-push factors have caused an adverse shift of the Phillips Curve, leaving the country with both higher unemployment and inflation. The major evidence supporting this hypothesis is that wages in the unionized, high-wage sector have been increasing more rapidly than in the competitive sector. In the following section, a relative wage model is presented as an alternative explanation of the recent rapid rise in union wages.

The Relative Wage Model

Analysis of wage determination suggests that the low-wage industries increase their wages relative to high-wage industries during expansions and decrease them during contractions.⁵ This process of relative wage adjustment takes place with a lag. The recent tendency of wages to increase more rapidly in the high-wage unionized sector than elsewhere is explained by viewing the current large wage settlements as a "catching-up" process. High-wage industries are increasing their relative wages, with a lag, following the deterioration in their relative wage position during the 1960's.

Workers in unionized industries traditionally receive higher wages than those in non-unionized

⁵The statistical evidence for the relative wage theory has been tested primarily for manufacturing industries. Evidence has also been included for the retail, wholesale, and financial sectors, but not for construction or mining. The theory presented in this paper may or may not, therefore, help to explain the recent wage developments in construction.

industries. The size of the wage inequalities in the interindustry wage structure, however, varies over the business cycle. As labor markets tighten, it becomes increasingly difficult for low-wage industries to attract new workers and to retain workers already hired. To improve their competitive standing, low-wage industries attempt to raise their relative wages. Similarly, as unemployment rises, low-wage industries find it increasingly easy to maintain a given labor supply, so they attempt to reduce their relative wage. Whether or not the competitive industries are successful in this cyclical relative wage change pattern depends on the action of the high-wage industries.

High-wage industries also experience cyclical variability in their labor supply. Since they pay a wage premium, however, they have some discretion in the timing and amount of wage changes. While high-wage industries could attempt to maintain their relative wage position over the cycle, wage and price policies in this sector produce a contra-cyclical pattern.

Contract bargaining introduces a lag in the wage responsiveness of the high-wage industries. In agreeing to an extended contract, both management and labor must form expectations of the workings of the economy over the life of the contract. It is likely that these expectations are formed on the basis of a weighted average of the behavior of the economy over the recent past. To the extent that the economy has short-run cyclical fluctuations, the wage settlement averages out these fluctuations and produces a contra-cyclical wage change pattern. If economic conditions during the contract period differ from expected development, wages can be adjusted only with a lag because labor is locked into its wage contract.

Labor unions also base their wage claims on settlements obtained by other unions, rather than being influenced primarily by excess demand

pressures in the labor market. Depending upon their strength, they usually try either to approximate or surpass wage gains recently won by other unions. The political future of a union official is often based on his ability to at least "get what others are getting."

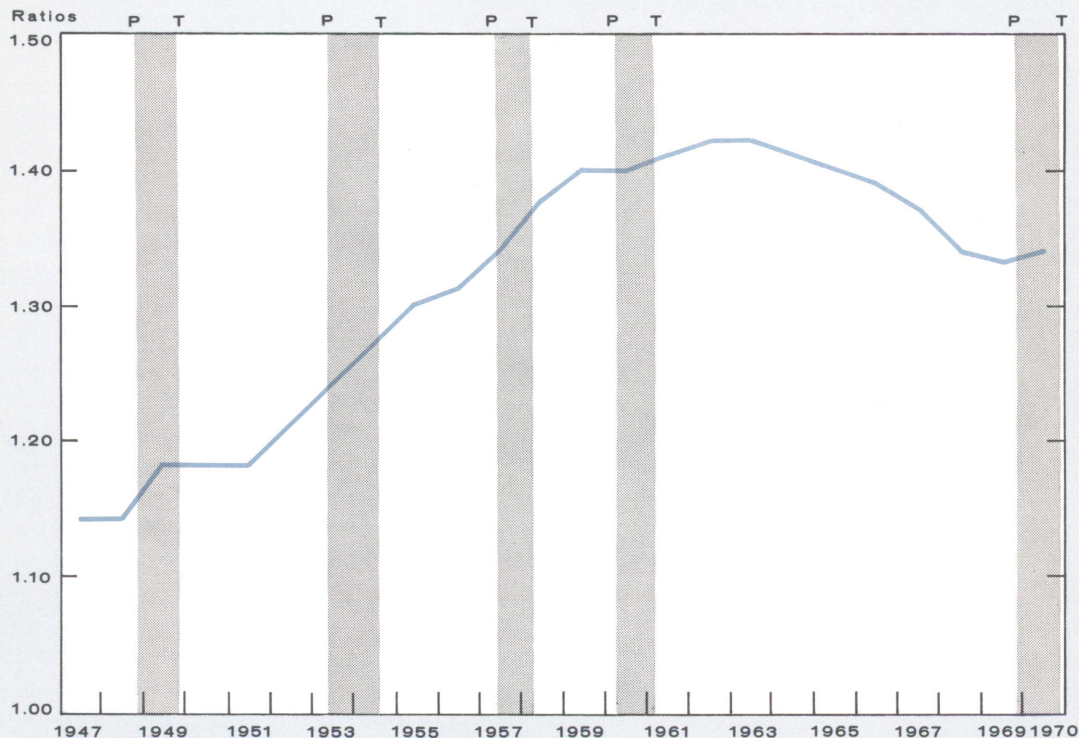
A contra-cyclical wage pattern is also a natural complement to the pricing practices used by many industries which have substantial market power. Product price is often a mark-up on standard labor costs (which are closely related to wage rates) and not to changes in product demand. It is advantageous for non-competitive industries to have infrequent changes in product prices so that they can maintain an orderly pricing scale. Clearly if all firms attempt to maintain a set price structure and collusions are not permitted, then prices must only change at infrequent and predictable intervals. It is, therefore, not desirable to have wage rates change frequently over the cycle in response to changes in excess demand pressure in the labor market. Oligopolistic firms are willing to pay a wage premium to maintain stable labor costs and to keep quality labor. A union contract is a great aid in pricing. During the contract period, all firms in the industry know by exactly how much and at exactly what point in time their standard labor costs are going to increase.

The desire for known and infrequent changes in wage rates on the part of firms and the process of union bargaining make wage changes in high-wage industries relatively stable over the cycle. The result is that low-wage industries successfully adjust their relative wage position in response to cyclical variation in the competitive labor supply.

Empirical Evidence

The relative wage theory is illustrated by Figure 2. Wage inequalities between high-wage and low-wage industries grow more slowly or decline during business cycle expansions and

Figure 2
RELATIVE WAGES OVER THE BUSINESS CYCLE 1947-1970



NOTE: Ratios of average hourly earnings, adjusted for overtime, of high-wage to low-wage industries, 1947-1970. The data have not been adjusted for skill differences. Thus, to some extent, wages in the high-wage industries are higher because workers in these industries are more skilled than those in low-wage industries. High-wage industries include primary metals, fabricated metals, machinery, electrical equipment, instruments, food and chemicals. Low-wage industries include lumber, furniture, textiles, apparel and leather. The high- and low-wage industry distinction is found in M. L. Wachter, "Relative Wage Equations for U. S. Manufacturing Industries 1947-1967," *Review of Economics and Statistics*, LII (November, 1970), pp. 405-410.

Ratios calculated using average hourly earnings from 1947-55 and average hourly earnings, excluding overtime, from 1956-67 are from *Employment and Earnings Statistics for the United States, 1909-1968*. The method of converting the 1947-55 data to straight time earnings is described in the *Monthly Labor Review*, May 1950. Data for 1968-1970 is from the March issue of *Employment and Earnings*, Table C-4.

the competitive sector, as the unemployment rate rose from 3.3 percent in the first quarter of 1969 to 6 percent in early 1971. The relative wage theory maintains that this is the lagged response of the high-wage sector to the demand inflation of the late 1960's. To blame the unions for "inflationary" wage settlements clearly ignores the catching-up phenomenon.

The Relative Wage Model and a Guideposts Policy

The relative wage model has important implications for the effectiveness of a guideposts policy. The success of the initial guideposts policy of the period 1962 to 1967 is still disputed. The available evidence, although mixed, suggests that the policy had little impact on the rate of wage and price inflation.⁸ Evidence cited for the success of the guideposts policy was that with its use, the rate of wage change in the high-wage industries slowed relative to the average rate of increase in all industries. The period 1962 through 1967, however, was also a period of relatively high but declining unemployment. According to the relative wage model, therefore, market forces on their own would explain a slowdown in the rate of wage change in the high-wage industries relative to the low-wage industries. That is, both the guideposts and the relative wage model predict a narrowing of the wage structure between 1962 and 1967.

To test whether the guideposts or market forces caused a narrowing of the wage structure between 1962 and 1967, one can inspect the behavior of the wage structure after 1967. Since labor markets tightened during 1967–1968, market forces would operate to further narrow wage differentials. On the other hand, widening of the wage structure would be expected if, in fact, the guideposts had artificially narrowed the structure by "jawboning" the high-wage industries between 1962 and 1967. As Figure 2 shows, however, the wage structure narrowed significantly during 1967–1968. It appears that the

guideposts policy in the earlier period was not successful in altering the behavior of the high-wage, unionized sector. The objective of slowing the rate of wage change in the high-wage industries was achieved, but by market forces rather than by the guideposts.

Labor market conditions are very different today. As Figure 2 shows, the wage differential between the high- and low-wage industries is relatively small, instead of very large as had been the case in 1962. The relative wage model suggests that union leaders will now do their best to ensure that their members obtain catch-up wage increases so that they will regain their favored position vis-à-vis non-unionized workers. The guideposts policy will thus be operating against labor market pressures instead of with market forces as had been the case in the 1962–1967 period. For the policy to be successful, union leaders and high-wage industries would have to accept as permanent the current low-wage premiums. This seems unlikely. If the wage premiums were large at present and, for some reason, were threatening to increase still further, then the policy might work. To succeed under present conditions, moral suasion would have to convince the unions to forego re-establishing, with the usual cyclical lag, much of the wage gain relative to nonunion workers that they had succeeded in winning over the years and convince the high-wage industries to forego the advantages of an assured labor supply that they have traditionally enjoyed.

The problems that would occur in enforcing a guideposts policy today stem from a misunderstanding of the present inflation. The guideposts are usually conceived as restraining a cost-push inflation. Moral suasion rarely works in stopping a demand-pull inflation. The relative wage

⁸See G. P. Schultz and R. Z. Aliber, eds. *Guidelines, Informal Controls and the Market Place* (Chicago, 1966) and the debate in *The American Economic Review* (June 1969), pp. 351-370.

theory argues that the present large wage increases in the high-wage industries are a lagged response to the recent demand-pull inflation.

The Rate of Wage Change

The relative wage theory suggests that the adverse shift in the unemployment-inflation trade-off does not reflect an increase in cost-push pressure. While the model directly explains why wages in the unionized sector are increasing more rapidly than in the low-wage sector, it only indirectly offers some explanation of why the rate of wage change has been greater, for a given unemployment rate, than in the past. The relative wage model suggests that the amount of wage dispersion is a significant variable in the determination of the rate of wage change. As the differentials narrow, the high-wage industries attempt to prevent a further narrowing in order to protect their preferential position in the labor market. This increases the rate of aggregate wage change. Moreover, in the relative wage model, lags due to institutional and other causes are important in explaining relative wages. Therefore, the impact of these lags is also likely to be important in determining the absolute rate of wage change. Thus, the present high rate of wage and price inflation is to be expected from the influence of the very tight labor markets of 1968 and 1969.

Due to institutional rigidities and contract lags in wage determination, firms and unions attempt to forecast conditions in the labor market and the rate of inflation over the period when their wages are unchanged or changing by a predetermined amount (as is the case in the second and third years of multi-year contracts). Although this factor is mostly relevant with

respect to the high-wage, unionized industries, to some extent it is also pertinent to all industries. The wage change of any firm can, therefore, be expressed as a sum of two parts. The first component is equal to the expected wage change elsewhere in the economy over the contract period when the firm's wages are constant. The second component reflects the desired change in relative wages of the firm.⁹ In a period where inflationary expectations are strong, as in the present, the expected rate of wage change is high. The result is that firms, in order to achieve their desired relative wage, take account in their own wage increases of the expected rapid rise in wages paid by their competitors. The Phillips Curve does not fully capture these influences.

Conclusion

It appears unlikely that recent wage settlements mark the re-emergence of cost-push pressure emanating from the unionized sector. Rather, the relative wages of the high-wage, unionized sector normally tend to increase during periods of rising unemployment and to decrease during periods of declining unemployment. Since this process operates with a lag, the pattern of large settlements in the high-wage industries relative to the low-wage industries should be expected to continue for some time. To the extent that unemployment remains at 6 percent, the non-competitive sector will re-establish its desired relative wage so that any semblance of cost-push pressure from the high-wage sector will end.

⁹For a detailed explanation of this point, see Edmond S. Phelps, "Money Wage Dynamics and Labor Market Equilibrium," *Microeconomic Foundations of Employment and Inflation Theory* (New York: W. W. Norton, 1970), pp. 124-166.

