

Federal Reserve Bank of Cleveland

Wage Inflation and Worker Uncertainty

by Mark E. Schweitzer

According to a recent article in the *New York Times*, the leading explanation of why inflation has been so limited these last three years—despite low unemployment rates—is that wage demands have been held down by an unusually high degree of “worker uncertainty.”¹ Substantial effort has gone into identifying (and disputing) the sources of this presumed insecurity in the face of a rather buoyant labor market. The most commonly mentioned reasons are the threat of middle-management layoffs, competition from foreign workers, and less unionization, all of which are believed to reduce wage inflation by making workers think twice before requesting higher pay—even if their firms’ balance sheets have improved.

As an alternative to that approach, I begin by reviewing the salary adjustment policies favored by human resource managers, the people who propose and justify pay increases in most large U.S. firms. Typically, these managers report that they use local cost-of-living increases and the wages paid by other employers to guide their wage-scale adjustments. Though potentially compatible with many economic theories (including the idea that firms pay workers the prevailing market price), these policies suggest that wage changes are driven by inflation instead of driving it. At a macroeconomic (economywide) level, this means that wage-setting policies should tend to tie pay increases to inflation and productivity growth on a

lagging or contemporaneous basis, reversing the order of events described by the worker uncertainty hypothesis.

To examine the relationship between nominal wage growth and inflation, I use an unusually long, detailed time series (including more than 40 years of data) which shows that wages have generally moved with the sum of prices and productivity. Furthermore, this relationship is contemporaneous, at least for annual data. These results are largely confirmed by data from the more commonly used, but far shorter, Employment Cost Index (ECI) time series.

The subtle distinctions between these explanations for the recent restraint in wage and price growth are critical, because evidence for the worker uncertainty hypothesis has diminished as the expansion has continued. The “human resource policy” view implies that future wage growth will remain modest because recent inflation has been quite subdued. In contrast, the worker uncertainty story suggests that there will be a run-up, first of wages and then of prices, when the cloud of insecurity finally lifts.

■ Firms’ Wage-Setting Decisions

Human resource directors (or compensation managers) typically use wage-setting procedures that seem alien to economists’ models. In adjusting their firms’ nominal wage structure, they look foremost at the wages paid by other firms, then at cost-of-living indexes, and last at their own firms’ financial results.²

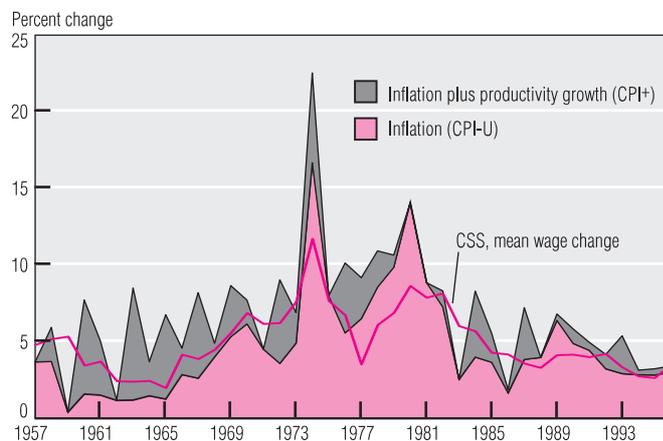
What keeps the lid on wages in today’s vigorous labor market? If workers’ uncertainty about their jobs prevents their asking for raises, we can expect wage demands—and then prices—to rise when the insecurity lifts. But the wage-setting behavior of human resource managers tells a different story. Pay changes are mostly based on compensation at other firms, cost-of-living indexes, and their own firms’ financial results (in that order). This suggests that wages will respond to price changes, with little danger that a burst of worker optimism will set off an inflationary spiral. This *Commentary* looks at how these stories match the evidence on the timing of inflation and wage changes.

Many managers survey local companies on their salary rates for comparable occupations. Unemployment rates, an obvious indicator of labor market tightness, rarely enter the calculation directly. In a recent survey, only 13 percent of the compensation managers questioned said they would alter their companies’ wages even if the jobless rate in their own industry rose five percentage points.³ The combined impact of diverse firms setting wages along these lines has not been fully explored, but the procedures they use suggest that wages are likely to adjust either contemporaneously or following inflation rate changes.

One interpretation of this behavior is that firms adjust their real wages to keep them even with their workers' alternatives at comparable firms, even though few employees may in fact contemplate switching. This is surprising on several counts. When managers look outward at the wages currently being *paid* by other employers and at cost-of-living indexes, they ignore other wage rates that might prove acceptable to unemployed workers with appropriate skills. Furthermore, the low priority given to firms' inside financial information suggests that the link between firms' own prices and their wages is weaker than simple microeconomic explanations indicate. Overall, compensation managers' procedures show that firms are operating with limited direct information about their workers' marginal products; otherwise, they would simply pay those rates period by period.

We know that individual firms primarily use outside information to determine wage adjustments, but what guides aggregate changes? While any number of factors might be relevant, I will focus on the simplest determinants. In a competitive market, economic theory says that wages will equal workers' marginal revenue product, which is calculated as their marginal physical product times the market price of the goods or services they produce.⁴ Expressing this relationship in aggregate rates of change produces an equilibrium condition in which wage growth should approximate the inflation rate plus productivity growth.⁵ My earlier description of how human resource managers adjust pay rates questioned firms' ability to pinpoint marginal physical product at the individual worker level. We know that aggregate movements in wages relative to prices and productivity would alter labor's share of production. However, the stability of labor's share of output confirms the relevance of the microeconomic relationship, even at the aggregate level. Therefore, including productivity growth is simply a statement that *real* wage growth can also change nominal wages.

FIGURE 1 COMMUNITY SALARY SURVEY DATA



NOTE: CPI-U is the Consumer Price Index for all urban consumers. All data were current as of October 6, 1997.
SOURCES: Community Salary Survey, Federal Reserve Bank of Cleveland; and U.S. Department of Labor, Bureau of Labor Statistics.

■ The Long-run Empirical Relationship

This description of processes does not answer two important empirical questions: Are wage changes closely associated with inflation and productivity growth? And, if they are, what is the relative timing of these comovements? To examine the relationship between inflation and wage changes, the data set must either specify occupations or adjust for the changing structure of employment. This is because even in a five- or 10-year period, the economy's occupational mix will shift substantially, creating an illusion of wage inflation or deflation. For example, an increase in the number of highly paid professionals, even if their wages are held constant, will cause an apparent increase in wage rates. The effect can be large in periods like 1983–94, when the share of the workforce employed as managers or professionals rose more than four percentage points (from 23 to 27 percent of total employment).

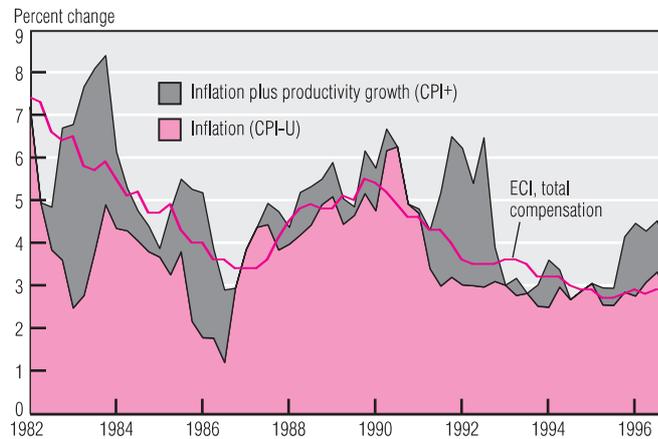
The source of the long-term data used here is unique in that it includes wage rates within defined occupations over the last 40 years. The data set is constructed from the Community Salary Survey (CSS), conducted by the Federal Reserve Bank of Cleveland (FRBC) since 1965 for use in its own salary administration in Cleveland, Pittsburgh, and Cincinnati.⁶ The survey asks

employers their wage and salary levels (including bonuses but not fringe benefits). The measured changes are averaged, accounting for both the firm and occupation, to provide the mean wage change line plotted in figure 1.

This figure confirms that CSS wage changes are generally synchronized with CPI+ (an abbreviation for the sum of productivity gains and inflation). The CSS mean wage adjustments' correlations with inflation and CPI+ are fairly high (0.815 and 0.642, respectively). Throughout the period shown, productivity growth varies substantially more than either the inflation rate or average wage growth, which obscures the relationship. However, productivity growth must be included, because over the whole period, wages grew 0.35 percentage point faster than prices on average. Over the last three years, average wage growth has been much closer to the inflation rate (wage growth led by only 0.05 percentage point), yet wage gains have been closer to CPI+ (0.3 percentage point lower) than in the full sample (1.5 percentage points lower). This suggests that wage growth in the last three years was fairly strong, considering the weakness of measured productivity gains.

As for the timing question, CSS data are gathered annually, so wages and prices are best described as changing contemporaneously (their correlation is 0.81). The correlations between inflation (or

FIGURE 2 EMPLOYMENT COST INDEX DATA



NOTE: All data were current as of October 6, 1997.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics.

CPI+) and wage growth are considerably lower for wage growth, leading inflation by one year (0.54) or two years (0.35). The alternative—that wage growth follows inflation or CPI+ by one or two years—is similarly not supported. It is also clear that wage growth exceeded inflation or CPI+ growth during particular periods, with or without subsequent increases in the inflation rate. Overall, this source of detailed wage data is not consistent with the implication that current wage growth is unusually weak (at least relative to inflation and productivity growth) or that wage growth leads inflation.

■ The Employment Cost Index

The ECI addresses some of the potential problems of CSS data (it covers all regions and most occupations and includes information on benefits), but it has only been compiled since 1982. Total compensation, which includes both wages and benefit costs, is the best measure of the firm's labor-cost structure. Benefits, which now amount to 28 percent of total compensation, have generally risen as a fraction of compensation.⁷ To keep the index reflecting actual compensation-rate increases for like work, the ECI holds the occupational composition of the workforce constant and isolates changes in hours (for example, increased use of overtime) from changes in the standard rate of pay.⁸ These careful statistical controls make the ECI similar to the CPI.

Repeating the comparison for the more limited sample, figure 2 shows quarterly year-over-year growth rates in the CPI+ and the ECI, both of which are more variable; however, like CSS mean wage changes, ECI total compensation has typically grown faster than inflation but more slowly than the sum of inflation and productivity growth. Over the whole period, total compensation growth lagged growth in CPI+ by 0.44 percentage point on average. More recently, this difference has been smaller—only 0.26 percentage point lower since 1993. Again, this is primarily due to weak productivity growth, since the inflation rate has remained remarkably stable during this period.

The timing of inflation and wage growth, as measured by the ECI, is less clear. The peak correlation (0.72) between CPI+ and wage growth occurs when wage growth leads by three quarters. Interestingly, inflation, on its own, is most correlated (0.66) when wage growth follows inflation by three quarters. When wage growth leads inflation, the correlations are far lower (for example, 0.34 for a three-quarter lead). The reason that increases in CPI+ follow wage growth is the relatively strong correlation between wage growth and productivity increases three or four quarters out (0.540). Ultimately, the timing of these correlations lends limited support to either story. One of the problems with this analysis may be the shorter period

for which ECI data are available. While CSS mean wage changes are not shown (to avoid overcomplicating figure 2), they are very comparable to yearly changes in the ECI, suggesting that the CSS data do match national wage trends.

■ Conclusion

This *Commentary* is not intended to refute the idea that worker uncertainty accounts for today's low inflation rates. Instead, it seeks to provide an alternative explanation for the "low" wage increases of the last three years that is at least as consistent with long-run and recent wage, price, and productivity data. Indeed, I do not attempt to analyze the unemployment rate's empirical importance in determining wage growth and inflation. Nonetheless, a preliminary look at two data sources yields evidence on the relationship between inflation and nominal wage growth that is consistent with the "human resource policy" explanation for our current low rates of wage growth. Further research will be required to determine how wage offerings at the firm level relate to firms' own price decisions and aggregate data on inflation and productivity.

Why worry about which story provides the more accurate explanation of recent wage gains? Because different answers suggest different paths for future inflation. It has become increasingly difficult to fathom why workers should feel insecure about their jobs, when surveys show they believe employment opportunities are abundant. If this is the case, inflation in wage demands and prices must be just around the corner. On the other hand, if human resource managers expect today's low inflation, low productivity gains, and low wage growth in other firms to continue, there is no reason to anticipate pay increases that could set off an inflationary spiral. Because the policy implications of these stories are so divergent, it is important to investigate alternatives to the worker uncertainty hypothesis.

■ Footnotes

1. See Peter Passell, "A Pulse that Lingers," *New York Times*, July 22, 1997, p. A1.

2. See Audrey Freedman, "The New Look in Wage Policy and Employee Relations," Report No. 865, The Conference Board, 1985.

3. See David I. Levine, "Fairness, Markets, and Ability to Pay: Evidence from Compensation Executives," *American Economic Review*, vol. 83, no. 5 (December 1993), p. 1248.

4. The marginal physical product is the addition to output made by the last worker hired.

5. Several simplifications are implicit in this move from microeconomic wage determination to the aggregate relationship. Notably, both the price and marginal products must be correctly aggregated for the simple relationship to hold, yet the aggregate data series are not even intended for this purpose. For example, productivity is measured on an average, rather than a marginal, basis. These are reasons to examine how well the relationship performs using actual data over an extended period.

6. The FRBC chooses participants in each city as representative of the area's employers. Although the survey has been conducted annually, the month for which data are collected has changed several times since 1955. All data, including the CPI and productivity figures, refer to the period between the preceding survey and the one conducted that year. In most cases, this is a 12-month span, but occasionally the interval is less or more than a year.

How well do the CSS wages reflect national trends? The year-to-year changes usually follow the national pattern closely (when U.S. wage-change data are available), but characteristics specific to this region have also caused its wage levels to change relative to the nation's. In general, Cleveland, Cincinnati, and Pittsburgh are more urban, have more cyclically sensitive employment, and have undergone more industrial restructuring than the United States as a whole. Before the 1980s, wages in these three cities were higher than the national average, but now they are on par with the rest of the country.

7. This has resulted from increases in both mandated benefits (such as the employer's contribution to the Social Security fund and unemployment insurance premiums) and voluntary benefits (such as health care insurance and paid vacation days).

8. Occupations in which overtime is a standard, continuing feature of the compensation structure are assigned a rate that exceeds the base wage, on the basis of typical overtime levels within the occupation.

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