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## Rising Wage Inequality in Urban Labor Markets

Much attention has been paid to the widening wage gap between skilled and unskilled workers during the 1980s; that gap is evidenced by the 35 percent increase in the earnings ratio of college educated workers relative to high school graduates. However, wage inequality among workers with the same skill or education level also increased markedly during the 1980s. The attempt to identify the causes of this complex rise in wage inequality has been the focus of much research.

The Area Wage Surveys (AWS) data allow us to calculate measures of inequality for the distribution of hourly wages paid to workers in about 40 different jobs clustered in four occupational groups: professional-technical, clerical, skilled maintenance and material movement, and security and janitorial. In Table 1, the first two columns report data on a standard measure of wage dispersion, the variance of the natural logarithm of real hourly wages, for all workers in the surveyed jobs for the first and last available observation in each of 20 metropolitan areas.

This inequality measure shows that wage dispersion increased substantially in all 20 areas from the mid 1970s to the late 1980s and early 1990s, although there is considerable variation in the magnitude of the increase. The real wage variance increased by 50 percent or more in 13 localities, and it doubled in Cleveland and Houston. The smallest increase was in Anaheim, where there was a 22 percent increase from 1975 to 1988. The increased wage variance in each of these labor markets reflects both an increase in the variance of average wages across the four occupational groups and an increase in the variance within each occupation. The relative importance of these two sources also varied considerably across the 20 labor markets.

In the third column of Table 1 are forecasts of the overall wage variance for the last year for each area. These forecasts are derived from statistical regression models that attempt to use different characteristics of these labor markets to predict the average real wage and the real wage variance over time.

The forecast wage variances are quite good. The models forecast an increase in variance in all areas, and the forecast increases are of the same order of magnitude of the actual changes. This is shown by the fact that the means and standard deviations of the actual and forecast variances are practically the same. The correlation coefficient between the forecast and actual variances is 0.69, and the mean absolute error in the forecast (0.02) is small relative to the mean value for the wage variance among the 20 areas. This forecasted performance gives us confidence that the regression models used to analyze the wage structure across and within occupations were indeed able to capture some of the important determinants of rising urban wage inequality during the 1980s.

What then do these regression models tell us about the causes of rising wage inequality?

**Table 1 Changes in Income Inequality During the 1980s in 20 Urban Areas**

Area and sample period	Wage Variance		
	First year	Final year	Forecast, final year
Anaheim, 1975-88	0.1289	0.1571	0.1458
Atlanta, 1975-91	0.1249	0.2003	0.1927
Baltimore, 1975-91	0.1584	0.2024	0.2418
Chicago, 1974-86	0.0975	0.1550	0.1598
Cincinnati, 1974-89	0.1205	0.1889	0.1875
Cleveland, 1974-90	0.1163	0.2379	0.1880
Detroit, 1976-89	0.1152	0.1993	0.1783
Houston, 1974-90	0.1562	0.3113	0.2361
Indianapolis, 1975-88	0.1535	0.2165	0.2040
Los Angeles, 1975-89	0.1238	0.1808	0.1981
Miami, 1975-90	0.1233	0.1821	0.2138
Milwaukee, 1975-91	0.1229	0.1907	0.2328
Minneapolis, 1975-91	0.1167	0.1607	0.1538
Nassau-Suffolk, 1975-87	0.1076	0.1411	0.1582
New York, 1975-88	0.0895	0.1649	0.1863
Philadelphia, 1976-88	0.1143	0.1787	0.1871
San Diego, 1974-89	0.1104	0.2001	0.2263
San Jose, 1975-88	0.0899	0.1520	0.1427
Seattle, 1974-88	0.0943	0.1718	0.1758
St. Louis, 1976-89	0.1356	0.2370	0.2253
Mean	0.1199	0.1914	0.1918
Standard Deviation	0.0200	0.0387	0.0306

SOURCE: Author's calculations from Area Wage Survey data. Wage variance is the variance of the natural logarithm of real hourly wages. The local CPI is used to adjust for inflation. Forecasts are derived from regression models of the determinants of the logarithm of real hourly wages and the wage variance for occupations in each area over time.

Four important factors can be identified from the regression results.

1) The differential impact of the recession of the early 1980s on occupational unemployment rates is an important determinant of inequality that may not have been given sufficient attention in previous inequality studies. That recession led to sharp increases in unemployment rates for blue-collar workers. For example, in Detroit the unemployment rate in 1982 was almost

27 percent for unskilled laborers and 16.5 percent for skilled maintenance workers. Unemployment rates for white-collar workers rose less dramatically in the recession and recovered more quickly. As a result, the unemployment rate differences among the four occupations widened considerably in the early 1980s and recovered much more slowly in the late 1980s. This contributed to a widening of wage differentials across occupations and an increase in wage variances within occupations.

2) Declining union contract coverage also contributed to rising wage inequality. The AWS reported the percentage of full-time plant and office workers in surveyed establishments where a majority of workers were covered by union contracts. On average, this percentage fell by 18 percentage points for plant workers and 2 percentage points for office workers during the sample period. This general decrease in union coverage was associated with rising inequality within occupations, and the differential rate of decline for office and plant workers added to wage inequality across occupations.

3) Decreases in the minimum wage, adjusted for changes in the local cost of living, were another important institutional determinant of rising wage inequality. For example, the real minimum wage in Atlanta fell from \$4.16 in 1978 to \$2.95 in 1987, before rising again to \$3.18 in 1991. The regression results show that the level of the real minimum wage had the greatest effect on the average real wage of unskilled workers, so this type of decline added to wage inequality across occupations. Also, as the real minimum wage fell, the gap between the median wage and minimum wage within occupations widened, contributing to increased wage inequality within occupations.

4) The regression models indicate considerable lags in how wages in local occupational labor markets respond to changes in labor market conditions and policies. Shocks to the occupational wage level or wage variance do dissipate over time—other things unchanged—as supply and demand adjust in the local market. However, there is also evidence that this adjustment would occur slowly over time. This is an important factor to consider when examining the impact of the early 1980s recession on wage inequality. The severity of that recession, especially in local blue-collar labor markets, had large effects on wage disparity across and within local occupations that persisted over much of that decade, even in the face of economic recovery and the self-adjusting dynamics revealed by the models.

The regression models also controlled for changes in the skill mix of jobs within each local occupational group and in the industry mix of employment in the metropolitan area. It is not easy, however, to summarize the effects of these variables on wage dispersion. For example, a shift in employment within an area away from high-compensation industries would lower average occupational wages but would also reduce dispersion within each occupation. A shift toward a higher skill mix of jobs within an occupation would raise the occupational average wage level but would lower dispersion within that occupation. The differential effect of these variables across and within occupations helps explain why previous studies have found so often that changes in industry and occupational structure have relatively minor impacts on wage inequality.

This study of the causes of rising wage inequality during the 1980s among workers in

urban labor markets suggests a couple of conclusions and, like many empirical studies in economics, raises a number of questions for further research. The key conclusion is that the rise in inequality can be traced to the interaction of high unemployment and changes in the institutional environment that reduced the influences of unions and government regulation on the wage structure. From this perspective, the 1980s can be usefully compared to previous periods of falling wage disparity, such as the 1940s, when very tight labor markets and rising union influence contributed to sharp decreases in wage disparity (see Goldin and Margo 1992). Further, the experience of the 1990s—with very low unemployment rates, increases in the minimum wage and signs of falling wage inequality (see the Economic Report of the President 1999)—appears to confirm our analysis of the 1980s experience in urban labor markets. This suggests that the most effective policy approach to achieving greater wage inequality is the maintenance of a low-unemployment environment.

This research does not, unfortunately, help clarify the roles of technological change or of changes in the relative importance of foreign trade in driving the ultimate changes in wage inequality. There is evidence that structural changes in labor demand played an important role in determining urban unemployment rates in the first half of the 1980s. (Hyclak 1996). These structural changes may well have been induced by some combination of trade competition and technological change. Similarly, the rapid decline in union influence during the 1980s may be traceable, in part, to such factors. Perhaps the analysis of the evolution of the wage structure over the very different decades of the 1980s and 1990s will be able to sort out the relative influence of the macroeconomic environment and structural change on wage inequality.

*Thomas Hyclak is Chair of the Economics Department at Lehigh University.*

### **Cited Works**

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