Inequality in Labor Market Outcomes: Contrasting the 1980s and Earlier Decades

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Wage inequality for males in the United States increased dramatically during the 1980s. Between 1979 and 1990, the weekly earnings of college graduates increased by 2 percent while the real weekly earnings of high school graduates decreased by more than 16 percent. As a result, the wage premium for college graduates increased from 42 percentage points in 1979 to 71 percentage points in 1990. Changes within schooling levels were equally dramatic. Consequently, overall wage inequality for men grew dramatically between 1979 and 1990. Wages for men at the top end of the wage distribution grew by 18 percent relative to wages for men at the bottom of the wage distribution over the 1980s.

These increases in inequality have been widely discussed and described (see, for example, Murphy and Welch 1989, 1992; Blackburn, Bloom, and Freeman 1989; and Levy and Murnane 1991). In this paper we put the recent rise in inequality in a longer term perspective by looking at changes in inequality and other labor market outcomes between 1939 and 1989 using data from the Decennial Census and the Current Population Survey. As others have found (see Goldin and Margo 1991), the rise in inequality witnessed during the 1970s and 1980s stands in sharp contrast to the dramatic fall in wage inequality during the 1940s and the relative stability of wage inequality during the 1950s and 1960s. In addition, we find that other factors such as the patterns of changes in employment rates for men and their spouses, which have tended to reinforce the impact of growing wage inequality on individual and family earnings during the 1980s, also behaved quite differently in earlier decades.

When we look at potential demand- and supply-side factors that might explain the recent rise in wage inequality, the contrasts are much less striking. This seems

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important, since most researchers associate the rise in inequality with a rise in the relative demand for skilled workers (see, for example, Bound and Johnson 1991, Murphy and Welch 1992, Juhn, Murphy, and Pierce 1993). When we look at supply-side factors, we find that differential supply growth across decades seems relatively unimportant, except for the 1970s when rapid growth in the college population depressed wages for college graduates relative to their less educated counterparts. We look at demand-side changes using changes in the industrial and occupational mix of the economy as a proxy for the underlying shifts in labor demand. One might expect from the wage evidence that employment in the skill-intensive industries and occupations grew much faster during the 1980s than in earlier decades. Contrary to such expectations, however, we find that overall, the relative demand for skill (as measured by our demand index) grew no faster during the 1980s than during the 1940s. At least as measured by employment shifts across different industries and occupations, the evidence suggests that the U.S. economy has been moving toward more skill-intensive jobs relatively steadily since 1940.

What does distinguish the 1940s and the 1980s is the *composition* of the change in relative demand for skill. In particular, the shift in the demand for skills has been increasingly concentrated among the highest skill levels during the recent decades. This change in the nature of skill demand is associated with an accelerated shift in demand toward more skilled workers within, rather than between, industries.

The next section contrasts the changes in wage inequality and employment for men and their spouses during the 1980s and prior decades. We then present evidence on supply and demand factors for the 1940-90 period.

Contrasts in Wages and Employment

Table 1 presents data on changes in real wages for men and employment rates for men and their spouses from 1940 to 1990. The data are from the 1940-80 Public Use Micro Samples (PUMS) and from the 1988-92 March Current Population Surveys. To examine wage changes, we selected a sample of white males with one to forty years of potential labor market experience who worked full-time in the nonagricultural sector, were not self-employed, worked a minimum of forty weeks, and earned at least one-half of the legal minimum weekly wage.

The top panel presents the decade changes in log weekly wages of men in different quintiles of the wage distribution. Changes in the average wage and in the relative wage (here defined as the differential between the top and the bottom quintile wages) are presented in the bottom rows of the three panels in the table. As the top panel shows, confirming what others have found before, wage inequality declined dramatically during the 1940s, with the wage differential between the top and the bottom quintiles of the distribution falling more than 20 percent over the decade. Since the 1940s, there have been progressively larger increases in wage inequality, with the differential between the top and bottom quintiles growing 9.5 and 11.5 percent, respectively, during the 1960s and the 1970s. The most significant increase in male wage inequality, however, occurred during the 1980s, with the top quintile gain-

Table 1
WAGE GROWTH AND EMPLOYMENT BY WAGE PERCENTILE
1940-90

	Real Wage Growth				
Percentile	1940-50	1950-60	1960-70	1970-80	1980-90
11-20	.315	.278	.192	-.015	-.169
21-40	.277	.292	.207	.015	-.116
41-60	.197	.301	.232	.073	-.072
61-80	.127	.302	.252	.096	-.024
81-90	.091	.300	.284	.089	.011
1-100	.194	.297	.241	.050	-.078

	Employment Rates					
Percentile	1940	1950	1960	1970	1980	1990
1-20	.689	.844	.818	.849	.771	.759
21-40	.727	.917	.915	.943	.890	.874
41-60	.858	.934	.953	.955	.926	.918
61-80	.922	.950	.951	.962	.943	.945
81-100	.947	.951	.960	.960	.949	.952
1-100	.829	.920	.921	.920	.881	.884

	Employment Rates for Wives				
Male Wage Decile	1940	1960	1970	1980	1990
1-20	.149	.326	.437	.511	.598
21-40	.153	.320	.440	.555	.678
41-60	.144	.293	.409	.550	.688
61-80	.138	.262	.376	.522	.666
81-100	.122	.194	.306	.471	.610

ing more than 23 percent relative to the bottom quintile.

The top panel also illustrates the sharp contrast across decades in the overall rate of wage growth. Real wages for men grew between 20 and 30 percent per decade between 1940 and 1970. During the 1970s, however, they grew only 5 percent, and they actually declined by more than 7 percent during the 1980s. As a result, the contrast in real wage performance for our lowest wage group of men between the earlier decades and the 1980s is even greater than the contrast in inequality growth. Real wages for these men increased at an average rate of about 2.6 percent per year (26.2 percent per decade) between 1940 and 1970 but declined at annual rates of 1.5 percent per year during the 1970s and 1.69 percent per year during the 1980s. Hence the contrast in overall wage growth between the 1980s and earlier decades accentuates the effect of the difference in inequality growth across these same time periods.

The middle panel of Table 1 looks at employment rates for these same men over the 1940-90 period. Once again, the contrasts across decades are striking. Overall, employment rose between 1940 and 1950, was steady from 1950 to 1970, and then fell sharply over the 1970s before stabilizing during the 1980s. However, once again we find the contrast across decades to be greatest for the least skilled men. Employment rates for the lowest wage group of men were 16 percentage points higher in 1970 than in 1940 and 3.1 percentage points higher in 1970 than in 1960, while employment rates of high-wage men were only 1.3 percentage points higher in 1970 than in 1940. Hence the large gains in employment for men over the 1940-70 period were greatest for men in the lowest wage categories. In contrast, low-wage men have fared the worst over the recent period. Between 1970 and 1990 the employment rate for the bottom quintile of men declined by 9 percentage points, while the employment rate of high-wage men declined by less than 1 percentage point. Hence the contrasts in employment growth, like the contrasts in overall wage growth, reinforce the effects of wage inequality on the labor market outcomes for low-skilled men.

The bottom panel of Table 1 examines data on the employment rates of wives of men in each of the same wage quintiles. (Data for 1950 are missing since the sampling structure of the 1950 census file prevents us from matching husbands and wives for these purposes.) Once again, the contrasts across decades for men in the various wage deciles are striking. Between 1940 and 1960, employment rates for the wives of men in the lowest wage decile increased by 17.8 percentage points, while employment rates for the wives of men in the highest wage decile increased by only 5.2 percentage points. The 1960s were characterized by a relatively neutral increase in female participation, with the employment rate of all groups of wives increasing between 10 and 13 percent. The data for the 1970s and 1980s are strikingly different. Between 1970 and 1990, employment rates for the wives of men in the lowest wage decile increased by only 13.4 percentage points, while the employment rate for wives of men in the highest wage decile increased by 31 percentage points. In fact, employment rates for wives of men in the lowest wage decile grew faster between 1940 and 1970 (9.4 percentage points per decade) than between 1970 and 1990 (6.7 percentage points per decade), while employment growth accelerated for wives of high-wage men. Hence, once again we see contrasts between the 1980s and earlier decades that go in the same direction (toward growing disparity) as the recent changes in wage inequality.

The net impact of these changes in real wages, own employment growth, and growth in spouse's participation on the growth in family earnings by male wage decile is illustrated by Chart 1. These figures contrast the story for the recent decades with that for the 1960s. The top panel of Chart 1 gives the combined earnings of the husband and wife for married men by male wage decile for 1970 (the leftmost bar) and 1990 (the rightmost bar), along with a hypothetical family earnings number that holds the wife's real earnings constant at their 1970 value. Hence, moving from the leftmost bar to the center bar gives the impact of changes in the husband's earnings, while moving from the center bar to the right bar gives the impact of changes in the wife's earnings. As the chart demonstrates, the decline in male employment and wages reduced earnings for men in the lowest wage deciles, while changes in their wives' earnings served to hold overall fam-

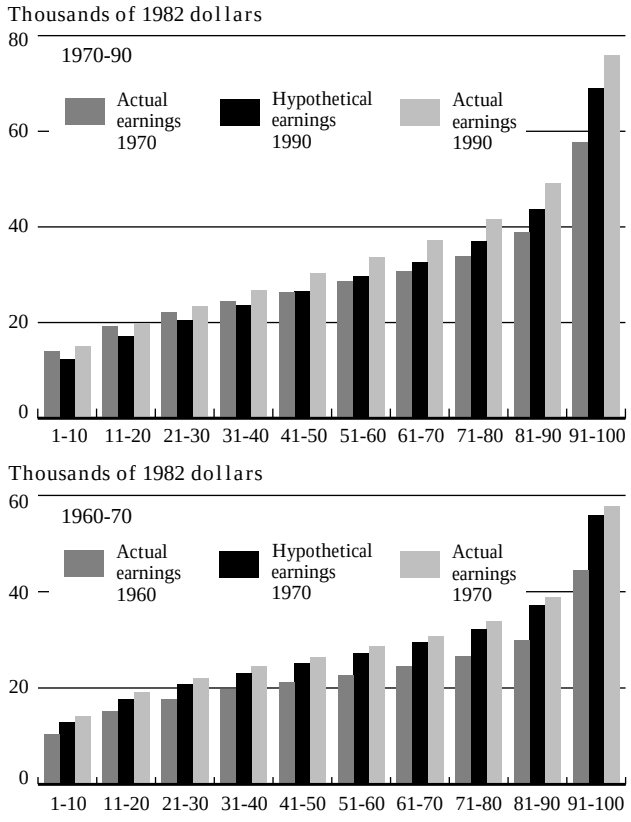
ily earnings constant. The changes for men in the middle wage deciles show that male earnings were roughly constant, with all the increase in family earnings coming from growth in the earnings of the wife. At the top end, wives of high-wage men have contributed roughly the same amount to the growth in family earnings as has the growth in their husbands' earnings.

The bottom panel of Chart 1 shows the corresponding changes for the 1960s. During the 1960s, male earnings grew substantially (and by about the same percentage amount) for men at all points of the wage distribution, while changes in the earnings of wives contributed a roughly equal absolute amount (and hence a substantially greater percentage amount) to the growth in family incomes at all percentiles of the male wage distribution.

As Table 1 and Chart 1 make clear, the growth in wage inequality during the 1980s as well as the 1970s has been accompanied by many factors that exacerbate its impact on the incomes of low-wage households. The overall growth in real wages has been much slower than during earlier decades, so that the decline in relative wages for less skilled workers has meant large absolute declines in real wages for these men. Male employment in these households has declined, in contrast to earlier decades when it rose, and employment levels for their wives have increased slowly during the 1970s and 1980s, measured relative to either the rates for this same group during prior decades or the rates for the wives of high-wage men during the 1970s and 1980s. In terms of labor market outcomes by skill level, the 1970s and 1980s contrast sharply with earlier decades.

Chart 1

Components of Family Earnings



Changes in the Supply and Demand for Skills

What accounts for the tremendous contrast in the growth of wage inequality and other labor market outcomes between the 1980s and earlier decades? One potential explanation for the more rapid growth in wage inequality during the 1980s is differences in the growth rate of the supply of skill. We address this question in Table 2, where we estimate the growth in the supply of workers in a particular skill category (again measured in wage quintiles) by multiplying that skill group's initial distribution over five educational categories (less than eight, eight to eleven, twelve, thirteen to fifteen, and sixteen or more years of schooling) by the aggregate changes in the educational distribution. The main finding to report from Table 2 is that explanations based on relative supplies will fall well short of accounting for the differences in wage inequality

Table 2
Change in Supply of Men by Wage Percentile

Percentile	1939-49	1949-59	1959-69	1969-79	1979-89
1-10	-.06	-.10	-.15	-.16	-.11
11-20	-.04	-.07	-.10	-.14	-.07
21-40	-.01	-.03	-.05	-.08	-.03
41-60	-.00	-.01	-.00	-.03	.00
61-80	.01	.02	.04	.05	.03
81-90	.04	.06	.09	.13	.07
91-100	.09	.12	.17	.26	.12

Note: The change in supply reported above is predicted by multiplying the change in educational distribution across the decennial Censuses by the percentile group's initial distribution across five educational categories: less than 8, 8 to 11, 12, 13 to 15, and 16 or more years of schooling.

growth between the 1980s and earlier decades. In fact, compared with the later decades, the 1940s (the decade with the slowest growth in overall inequality) appears to be the decade of the slowest growth in the relative supply of skill, with the relative supply of the top quintile group growing 11 percent faster than that of the bottom quintile group. During the 1970s, the relative supply of the top quintile grew as much as 35 percent faster than the relative supply of the bottom quintile. Even though the relative supply of skill did not grow as dramatically during the 1980s, the supply of the top group grew approximately 18 percent faster than that of the bottom group, a growth rate that is nevertheless significantly greater than the rate observed over the 1940s.

Table 3
DISTRIBUTION OF EMPLOYMENT ACROSS INDUSTRIES
Excluding Agricultural Sector

	Across Industries					
	1940	1950	1960	1970	1980	1990
INDUSTRY						
Mining	2.9	2.2	1.5	1.2	1.5	0.9
Construction	6.2	7.2	7.2	6.7	6.7	6.8
Manufacturing						
Low-tech	12.5	10.0	9.7	7.5	6.2	4.8
Basic	13.0	16.1	17.9	17.1	15.3	12.5
High-tech	2.8	3.3	4.7	4.7	4.1	3.8
Transportation and utilities	10.0	9.9	8.4	7.9	7.9	7.3
Wholesale	3.9	4.7	4.4	5.0	5.1	4.8
Retail	18.1	16.6	14.1	13.0	12.1	12.5
Professional services and FIRE	9.4	9.8	12.4	15.4	19.1	23.6
Education and welfare	5.3	5.1	7.0	9.4	10.4	11.1
Public administration	5.0	6.1	6.7	7.2	7.2	6.5
Other services	10.9	7.8	6.1	4.9	4.4	5.4
	Across Occupations					
	1940	1950	1960	1970	1980	1990
OCCUPATION						
Professionals	11.1	13.1	16.7	19.9	21.1	23.5
Managers	13.1	13.0	12.6	12.8	15.5	19.5
Sales	7.5	8.2	7.8	7.4	6.7	6.8
Clerical	13.5	12.8	13.6	14.6	14.9	13.6
Crafts	15.6	18.3	17.8	16.7	15.8	13.3
Operatives	15.2	15.7	14.2	12.5	10.1	7.4
Transport operatives	5.8	5.1	5.1	4.4	4.2	3.9
Laborers	7.8	6.0	4.4	3.5	3.1	3.1
Domestic	3.3	1.3	1.1	0.5	0.2	0.3
Services	7.3	6.6	6.7	7.6	8.3	8.9

Sources: Numbers for 1940-80 are based on the Public Use Microdata Samples (PUMS). Numbers for 1990 are based on a five-year average of the 1988-92 surveys from the March Current Population Surveys.

Notes: The sample includes men and women with one to forty years of experience who were in the nonagricultural sector and who were not enrolled in school or the military during the survey week. Employment shares are calculated as the fraction of total value-weighted weeks worked.

Differences in the rate of growth in the demand for skill represent another potential explanation. If such differential growth in the demand for skill is an important part of the explanation, then one would expect that demand for skill would have grown faster during the 1980s than in earlier decades. A starting point in testing this theory is to measure demand changes by assessing employment shifts across different sectors of the economy. A shift in overall aggregate employment toward more skill-intensive sectors would indicate a general increase in demand for skilled workers in the economy. Table 3 begins this analysis by examining employment distributions across different industries and occupations over the 1940-90 period. The table presents industry employment shares measured in labor efficiency units (see Katz and Murphy 1992). To measure demand changes, both men and women with one to forty years of labor market experience who have reported industry and occupation categories are included in the sample. For the sake of consistency, we concentrate on only the nonagricultural sector in our analysis.

The top panel of Table 3 indicates that the least skill-intensive industries, such as "low-tech" manufacturing, have been declining since at least 1940, with the share of employment falling from 12.5 percent in 1940 to 4.8 percent in 1990. Moreover, the declines in employment share are actually larger during the earlier decades (2.5 percentage points over the 1940s) than during the more recent decades (1.4 percentage points over the 1980s). In contrast, skill-intensive industries such as professional services have been rising rapidly every period, ending with an employment share of more than 23 percent by 1990.

The bottom panel of Table 3 presents employment shares across occupation categories. Again, the employment share of highly skilled occupations such as professionals increased every period, rising from 11.1 percent in 1940 to 23.5 percent in 1990. Low-skilled occupations such as laborers dropped in employment share from 7.8 percent in 1940 to 3.1 percent in 1990. Again, the larg-

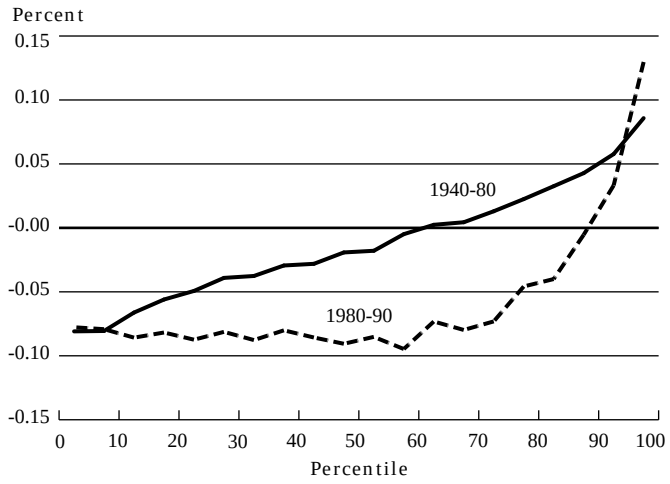
est declines in employment share among these low-skilled occupations appear to have occurred during the 1940s and the 1950s. In summary, the employment shares of the least and most skilled industries and occupations appear to have followed a long-run trend; however, on the basis of these tables it would be difficult to conclude that there is an observable difference in the pace of demand growth in favor of more skilled workers between the 1940s and the 1980s.

Table 3 gave preliminary indications that demand for skill has been increasing since at least 1940. Chart 2 translates these changes in industry and occupation distributions into demand indexes for men at different percentile points of the wage distribution. The indexes we calculate measure the percentage change in the demand for a particular skill group as the weighted average of percentage changes in employment shares of different industries and occupations, where the weights are the group's initial employment distribution across these industry and occupation categories. (See Katz and Murphy 1992 for a more detailed discussion of these demand indexes.) Intuitively, those groups predominantly located in sectors with overall employment growth will experience a rise in demand for their services, while those groups located in the shrinking sectors will experience a decline in demand.

These demand indexes are "biased" measures to the extent that they understate the demand shift favoring groups with rising relative wages. For example, the rise in the college/high school wage premium during the 1980s would have a dampening effect on the growth of sectors that intensively utilize college graduates. Unless this effect is taken into account, the measured demand shifts will understate the true demand shift in favor of college graduates under constant relative wages. To account for this bias, we make a simplifying assumption that the factor demand curves in each sector have unit own-price elasticities and zero cross-price elasticities. Computationally, this amounts to adjusting the demand indexes calculated as described above by adding the group's percentage price change to its percentage change in share. Chart 2 contrasts the resulting demand change index for the 1980s with the average demand change over the previous four decades. If we compare the highest wage and lowest wage deciles, the results in Chart 2 suggest that the demand growth for skill during the 1980s has proceeded at about the same pace as during prior decades. However, demand for the most skilled workers compared with workers in the middle of the skill distribution was much greater during the 1980s than during prior decades. It appears that the recent rapid growth in inequality is associated with the concentration of labor demand growth among the most highly skilled male workers.

Chart 2

Changes in Relative Demand by Skill Level



CONCLUSION

In this paper we contrasted changes in wage inequality, employment, and growth in the supply and demand for skills during the 1980s with the changes from earlier decades. We find sharp contrasts in labor market outcomes between the 1980s (and sometimes the 1970s) and earlier decades. In addition, these contrasts all go in the same direction, with relative wages and employment falling for low-wage workers more rapidly during the 1980s than during prior decades. The contrasts in the underlying supply and demand forces are not nearly as sharp, however. The supply-side contrasts seem relatively minor, and the demand-side changes are similar (comparing high- and low-skilled) for the 1980s and earlier decades. The increasing concentration of demand growth among the most skilled workers appears to hold some promise for explaining this contrast.

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