

# Meritocracy without Rising Inequality?

## Wage Rate Differences Are Widening by Education and Narrowing by Gender and Race

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The rising demand for skill in the U.S. labor market is now well documented. New jobs are increasingly requiring both general and occupation-specific skills, are more demanding, involve more teamwork and worker participation, and are in occupations that allow people to think and be creative on the job. Jobs in professional, technical, and managerial occupations, for example, rose from 1 in 6 workers in 1950 to about 1 in 3 in 1995.<sup>1</sup> Over the most recent U.S. business cycle (1989–1995), an amazing 75 percent of the 7 million new jobs were in professional specialties or managerial occupations (Ilg, 1996). Not only are jobs moving toward high-skill occupations, but skill demands are apparently increasing in other occupations as well.<sup>2</sup>

Perhaps the most convincing evidence of the rising demand for skill is the willingness of employers to pay increasing wage premiums for well-educated workers even as the supply of well-educated workers grows. For example, the differential in average earnings between workers with a college degree and workers with only a high school degree expanded from 33 percent to 50 percent over the 1979–1995 period,<sup>3</sup> as the supply of workers with college degrees grew from 18 to 25 percent of the workforce (U.S. Bureau of the Census, 1997).

This increasing emphasis on merit expands opportunities for workers to use their skills and encourages investment in education. But, are these positive developments generating the downside of growing wage inequality? Certainly, in one sense, rising wage differences across education categories represent more inequality between groups. However, the increased employer emphasis on skill ultimately could lessen wage differentials across all workers. As employers attach greater weight to skills, they may downplay other characteristics of workers (such as age, race, gender, family background, or where they live).

The impact of higher returns to education also depends on changes in the distribution of educational attainment.

Since 1979, educational upgrading has gone together with an equalizing pattern of schooling. High school dropouts made up about 21 percent of hours worked in 1979, but only 11 percent of hours worked in 1995. Offsetting this 10-percentage-point decline was an increase in the share of hours worked by those with some postsecondary education but no four-year degree. The shift was equalizing since dropouts earning nearly 40 percent below overall mean wages were replaced by those with some college whose average wage rates are within 5 percent of the overall mean wage.

*Since the mid-1980s, the wage advantage of well-educated workers has continued to rise. Yet, wage inequality has not increased because wage differences have narrowed by race and gender and the workforce has become more educated.*

This brief uses data on wage rates and hours worked from the Survey of Income and Program Participation (SIPP) to look at two questions about wage inequality since the mid-1980s: Are wage differentials becoming more related to education and less related to gender and race? How have changes in average wage differences among education, gender, and race groups contributed to changes in overall wage inequality?

## A Meritocracy in the Making

The changes in real wage rates and in relative wage rates by education, as shown in the top panels of table 1, tell a familiar story.

Wage rates generally grew more or fell less among those with more years of schooling except for the “some college” group. For example, college graduates experienced wage growth about 7 percentage points faster than high school graduates (7 percent vs. -0.3 percent among men and 18.4 percent vs. 11.0 percent among women).

But rising wage differentials by education do not necessarily mean increases in overall wage inequality. First, the distribution of education can change in an equalizing or disequalizing direction, depending on where the population falls along the education distribution. Second, wage differentials within groups or between other groups can narrow. The data in the bottom left panel of table 1 show the changes in the education distribution. Note that the share of high school dropouts, whose wages are concentrated at the bottom of the wage distribution, declined from 17.9 percent of hours worked in 1984 to 13.1 percent in 1995, a drop of 4.8 percentage points. At the high end of the wage and education distributions, the proportion of college graduates increased

by about 3.2 percentage points and those with some graduate education by 1.9 percentage points. This shift was not equalizing since the reduced share of the bottom education group was offset by increased shares of the top two groups. However, a 3.5 percent decline in the share of hours worked by those with only a high school degree combined with a 3.2 percent increase among those with

reductions took place among all education groups other than high school dropouts. Overall, the wage rate differences between all male and female hours of work declined by about 44 percent, or 13 percentage points. This large decline in gender wage rate differentials may well have offset much of the rising wage gap by education, thereby limiting or even stopping the increase in overall wage inequality.

Trends in black-white and female-male wage differentials within education groups amplify the story of an emerging meritocracy. The top panel in table 2 confirms the increasing premium for education in three of the four race-gender groupings. Only in the case of black males did wage growth among high school graduates outpace wage gains among college graduates. The narrowing of black-white differentials, shown in the middle and bottom panels of table 2, was another factor offsetting the rising wage premium for education. It is striking that the declines in race differences were largest among males in the two lowest education groups. The wage rate ratio between white and black male high school graduates fell by about 16 percentage points because black male high school graduates experienced moderate wage growth between 1984 and 1995 in contrast to wage stagnation among white male high school graduates.

The racial wage gap narrowed among women as well, but from a much lower base and by a much smaller amount. By 1995, wage differences between white and black women at the same education levels were between zero or less and 4 percent. In percentage terms, the declines in overall racial wage differentials were similar for men as well as for women, a 39 percent versus a 37 percent reduction.<sup>4</sup>

Two notable elements are added to the standard story of wage trends

**Table 1**  
**Trends in Real and Relative Wages by Education and Gender: 1984–1995**

	Percent Change in Real Wages <sup>a</sup>			Percent Change in Wage Ratio of Group Relative to High School Graduates <sup>b</sup>		
	All	Males	Females	All	Males	Females
HS Dropout	-1.5%	-3.2%	2.0%	-5.7%	-2.9%	-9.0%
HS Graduate	4.2	-0.3	11.0	0.0	0.0	0.0
Some College	2.1	-0.6	10.7	-2.1	-0.4	-0.3
College Level	8.5	7.0	18.4	4.3	7.3	7.4
Post-College Education	11.7	10.6	20.0	7.5	10.9	9.0
Total <sup>c</sup>	8.7	4.9	18.1	—	—	—

	Percent Distribution of Hours Worked			Male-Female Wage Gap (percent)		
	1984	1995	Change in Proportion	1984	1995	Percent Change
HS Dropout	17.9%	13.1%	-4.8%	37.1%	31.9%	-15.1%
HS Graduate	39.7	36.2	-3.5	37.4	26.1	-36.0
Some College	20.9	24.1	3.2	33.3	22.0	-41.5
College Level	11.7	14.8	3.2	37.5	26.1	-36.2
Post-College Education	9.8	11.7	1.9	33.2	23.8	-33.3
Total	100.0	100.0	0.0	37.1	24.0	-43.6

Source: Urban Institute tabulations from the Survey of Income and Program Participation core samples in wave 2 of the 1984 panel and wave 8 of the 1993 panel.

a. The percentage changes in real wages are equal to the percentage changes in money wages less the percentage increase in prices, as measured by the Consumer Price Index (CPI) minus 0.65 percentage points per year (half the adjustment suggested by the Boskin Commission). Using the standard CPI would reduce all growth rates by a total of 6.9 percentage points. I calculate percentage differences by subtracting the natural logarithm of wages in 1984 from the natural logarithm of wages in 1995.

b. These are percentage changes in the ratios of each education group's wage rate to the wage rate of high school graduates. Thus, the -9.0 percent among female dropouts is the natural logarithm of the 1995 female dropout to female high school graduate wage ratio minus the natural logarithm of the 1984 ratio.

c. The total row is not the weighted average of cells in the columns because the proportions in each education category changed as workers attained higher education levels.

some college was clearly equalizing, since high school graduates averaged wages 13 percent below average while the group with some college earned wages within 2 percent of the mean.

The gender wage gap also narrowed between 1984 and 1995 (shown in the bottom right panel of table 1), further offsetting the rising educational gaps. Note that for those with only a high school degree, the male-female differential in wage rates declined from 37 percent to 26 percent. Similar

by table 2. First, the deterioration of wages among the less educated was concentrated primarily on less educated white males. Their initial advantage eroded most with respect to women but to a lesser extent with respect to black men also.<sup>5</sup> Second, the percentage reductions in wage differentials by gender and race were as high as or higher than the percentage increase in education differentials. Note (in the upper right panel of table 1) that the percentage changes in education differentials are at most about 7 to 10 percent. The decline in gender differentials is higher, averaging about 40 percent (bottom right panel of table 1), as is the decline in race differences among men (middle panel of table 2). To determine the net impact of each of these factors, I next show how changes in wage differentials within and between subgroups affected overall inequality.

## Wage Rate Inequality within and between Groups

Researchers sometimes label changes in education or other wage differentials as constituting a rise in earnings inequality.<sup>6</sup> In fact, changing differentials between groups (whether by education or work experience) capture only part of the trend in overall inequality. Changes in inequality within groups, in the size and composition of each group, and in the overlap among groups can all affect overall inequality. One way to judge the role of group wage differentials in generating inequality is to decompose the components on an inequality index. I use a recent method developed for the Gini coefficient, a common indicator of inequality which ranges from 0 (all wages divided equally) to 1 (one person has all wages). The method yields three terms. The first represents changes in

*inequality within all groups*, calculated as the weighted sum of each group's Gini coefficient. The second is *between-group inequality*, which captures only differences in the mean wages and mean rankings between groups. It tells us what inequality would be if wages within groups were equal. The third is a residual interaction term that is the sum of each group's own inequality times its share of wages times an index of stratification, times 1 minus its population

share.<sup>7</sup> However, when we take account of both education and gender, we see an increase in the between-group term of only 6.8 percent. Finally, when distinguishing hours worked by race, gender, and education, we observe virtually no change (+1.4 percent) in the between-group component of the Gini coefficient.<sup>8</sup> Thus, taken as a whole, the shifts in average wage differences by race, gender, and education did not contribute to an increase in wage rate inequality.

It is important to recognize that most wage inequality occurs within and not between groups. The unweighted average Gini coefficient across all race, gender, and education groups was 0.256 in 1995, over 80 percent of the total Gini. Put another way, if all groups had identical mean wage rates (for example, black male dropouts had the same average wages as white male college graduates) but wages differed within groups as they do today, nearly all the inequality in wage rates would remain. While at the margin, increases in group wage differentials can raise between-group inequality enough to exert a significant impact on overall inequality, the actual experience in the United States over the 1984–1995 period was one of offsetting changes in wage differentials and thus no change in between-group inequality.

## Taking Account of Employment

So far so good. This is not quite the end of the story, however, because the trends discussed so far include only those adults who have some job (specifically, those who earn at least one dollar in a given year). But some adults do not work at all. To the extent that the decision to work is voluntary, and it often is, excluding nonworkers does not bias the analysis. But to the

**Table 2**  
**Trends in Real and Relative Wage Rates by Education, Race, and Sex: 1984–1995**

	Percent Change in Real Wages <sup>a</sup>				
	High School Dropout	High School Graduate	Some College	College Grad or Post-Graduate	Total
White Male	-4.9%	-1.5%	-1.8%	8.6%	4.0%
Black Male	6.9	14.8	6.1	8.5	12.7
White Female	0.0	11.2	10.7	18.4	17.5
Black Female	10.5	11.0	12.9	19.3	20.2
Percent Wage Differential between White and Black Males					
	High School Dropout	High School Graduate	Some College	College Grad or Post-Graduate	Total
1984	16.9%	24.6%	20.9%	17.6%	26.7%
1995	5.1	8.3	12.9	17.7	18.0
% Point Change	-11.8	-16.3	-8.0	0.1	-8.7
Percent Wage Differential between White and Black Females					
	High School Dropout	High School Graduate	Some College	College Grad or Post-Graduate	Total
1984	9.6%	3.8%	4.5%	1.1%	8.7%
1995	-1.0	4.0	2.2	0.2	6.0
% Point Change	-10.6	0.2	-2.3	-0.9	-2.7

Source: Urban Institute tabulations from the Survey of Income and Program Participation core samples in wave 2 of the 1984 panel and wave 8 of the 1993 panel.

a. The percentage changes in real wages are equal to the percentage changes in money wages less the percentage increase in prices, as measured by the Consumer Price Index (CPI) minus 0.65 percentage points per year (half the adjustment suggested by the Boskin Commission). Using the standard CPI would reduce all growth rates by a total of 6.9 percentage points. I calculate percentage differences by subtracting the natural logarithm of wages in 1984 from the natural logarithm of wages in 1995.

share.<sup>7</sup> Since our emphasis is on group changes, we focus on the between-group terms.

Several findings emerge from the decomposition results reported in table 3. First, the overall Gini coefficient barely increased from 1984 to 1995. Second, rising wage differentials by education were fully offset by declining wage differentials by gender and race. If we divide all hours into those worked by people at different education levels and we make no other distinctions, we find that the between-group component of the Gini coefficient rose by 36.6 percent.

extent that individuals want to work and cannot find a job at the prevailing wage, they should be included in any analysis of wage trends. This is particularly important for assessing race comparisons, because the share of black men in the group with the least education who have any earnings in a year has been declining substantially (from 68 percent to 60 percent between 1984 and 1995). To assess how this trend affects our comparisons, the bottom panel of table 4 shows the ratio of black-to-white earnings for the whole adult population whether or not they work.

Even including those with no work during the year, black men in the lowest education category still made some progress in comparison to their white counterparts. Including those with no work wipes out the progress for black male high school graduates and college graduates, however. Including those with no work in the female race comparison makes very little difference except for the least educated, who lost the advantage that those with work enjoyed in 1995. This is not because more black women left the workforce but because more white women joined it, so that by 1995 there was as high a proportion of working white as working black women.

## Implications of Recent Wage Developments

The findings in this brief suggest amending the conventional view that rising education differentials are leading to growing wage inequality.<sup>9</sup> The shift in employer demand toward workers with high skill levels did lead to widening wage gaps between more highly educated and less educated workers. By itself, this trend influenced the wage distribution toward more inequality. However, as employers have come to attach a higher priority to education, criteria such as race and

gender, which should be irrelevant in the labor market, have become less important. As a result, wage rate gaps by race and gender have narrowed. Overall, the declines in race and gender differences offset the rising educational premium, leaving wage rate inequality unchanged between 1984 and 1995. In the sense that rewards are becoming

prisons. Because overall wage rates for this group of black men were increasing over the 1984–1995 period (making it *more* attractive to work), this finding may be an indication that, even within the lowest education group, there is wide variation in job-related competencies.

America's foremost challenge is to expand opportunities to develop general and specific skills for all individuals. To succeed, I believe, we must not only widen access and improve the quality of schooling, but also develop other approaches, including expanded work-based training programs and instituting academic and industry standards.<sup>12</sup> Wage differentials are already an important stimulus for workers and employers to spend more time on education and training. With new approaches to motivate a broader range of students and incumbent workers, and with standards and internships to guide potential workers in career decisions, a sharply expanded pool of well-skilled workers is likely not only to raise productivity but also to move us toward an era of declining wage inequality.

**Table 3**  
**Components of Gini Index of Inequality: 1984–1995**

	1984	1995	Change in Percentage Points	Percent Change
Overall Gini Coefficient	0.308	0.311	0.003	1.0%
<i>Education Groups Only</i>				
Within-Group Inequality	0.287	0.279	-0.008	-2.9
Between-Group Inequality	0.043	0.062	0.019	36.6
Stratification Term	-0.022	-0.030	-0.008	-40.0
<i>Education and Gender</i>				
Within-Group Inequality	0.270	0.270	0.000	0.0
Between-Group Inequality	0.071	0.076	0.005	6.8
Stratification Term	-0.033	-0.035	-0.002	-5.9
<i>Education, Gender, and Race</i>				
Overall Gini Coefficient	0.307	0.310	0.002	1.0
Within-Group Inequality	0.268	0.270	0.002	0.7
Between-Group Inequality	0.073	0.074	0.001	1.4
Stratification Term	-0.033	-0.034	-0.001	-3.0

Source: Urban Institute tabulations from the Survey of Income and Program Participation core samples in wave 2 of the 1984 panel and wave 8 of the 1993 panel.

Note: The derivation of the decomposition approach used in this table appears in Yitzhaki and Lerman (1991). The percent changes are the differences in natural logarithms between 1995 and 1984.

based less on race and gender and more on education and skill, the United States is moving toward more meritocracy in the job market.<sup>10</sup>

Thus, market forces, perhaps partly stimulated by changes in laws and social customs, are playing a positive rather than a negative role in wage trends. As employers pay less for characteristics that are unrelated to a worker's worth and more for competence, workers have an increased incentive to learn and achieve high skill levels. More workers are choosing to increase their formal education, as the return to education increases.<sup>11</sup>

Unfortunately, some workers in the lowest education category are apparently leaving the workforce completely. Especially disturbing is the decline in the proportion of less educated black men who worked at all during a year, which would look even bleaker if we took account of people not counted in the survey, including those in institutions such as jails and

## Notes

1. Author's tabulations from *Statistical Abstract of the United States*, U.S. Bureau of the Census, 1953; and *Employment and Earnings*, U.S. Bureau of Labor Statistics, January 1996.

2. Though rising skill demands within occupations are hard to document, the evidence from the experience of individual companies, from increasing levels of company training, and from business complaints about inadequate schooling is compelling. For a systemic finding about rising skills, see the study by Peter Capelli (1993), which found significant upgrading of skill requirements in an analysis of production workers.

3. Author's tabulations from the March 1980 and March 1996 Current Population Surveys.

4. The calculation for men is the 8.7-percentage-point decline in the white-black wage differential divided by the average of the white-black wage differentials (26.7 percent and 18.0 percent). For women, it is -2.7 divided by the average of 8.7 and 6.0. See middle and bottom panels of table 2.

5. Less educated white males may have gained most from unionization and regulation, and thus lost most from deregulation and the decline in union coverage.

6. See, for example, Johnson (1997) and Topel (1997).

7. The stratification index captures the extent to which groups, such as education groups, form distinct strata and do not overlap. If, for example, the wages of more highly educated workers did not overlap with the wage distribution of drop-

outs, the stratification index would equal 1 for dropouts. See the paper by Shlomo Yitzhaki and Robert Lerman (1991) for the derivation of the stratification index and the decomposition of the Gini coefficient. Also, see Lerman (1996a) for a second application of the decomposition.

8. For this exercise I used the five-way education grouping shown in table 1 for the education-only and the education and gender comparisons. For the education-race-gender comparisons I restricted the education breakdown to the four groups shown in table 2.

9. See, for example, Freeman (1997) and Tyson (1997).

10. Remaining differences in educational opportunity limit our ability to interpret these shifts as heralding meritocracy in society as a whole.

11. Topel (1997) points out that the rising demand for educated workers is bringing forth an increase in supplies. For example, a rising college wage premium has induced increases in college enrollment.

12. For more details on this position, see Lerman (1996b).

**Table 4**  
**Trends in Annual Earnings of 25- to 64-Year-Olds by Education, Race, and Sex: 1984–1995**

	Changes in Adjusted Real Earnings for 25- to 64-Year-Olds <sup>a</sup>				
	High School Dropout	High School Graduate	Some College	College Graduate	Total
White Male	-6.1%	2.4%	9.4%	16.5%	12.3%
Black Male	13.2	7.9	22.3	21.4	20.1
White Female	9.4	18.5	18.7	29.6	29.3
Black Female	19.7	7.1	14.3	11.4	19.2
	Ratio of Black-to-White Earnings				
	High School Dropout	High School Graduate	Some College	College Graduate	Total
<i>All with Earnings</i>					
Males, 1984	0.75	0.67	0.72	0.71	0.63
Males, 1995	0.91	0.71	0.80	0.74	0.68
Females, 1984	1.00	1.03	1.06	1.09	0.98
Females, 1995	1.11	0.92	0.98	0.91	0.89
<i>All in Population</i>					
Males, 1984	0.64	0.63	0.69	0.73	0.56
Males, 1995	0.70	0.62	0.74	0.74	0.59
Females, 1984	1.02	1.08	1.14	0.94	0.98
Females, 1995	0.98	0.89	1.00	0.91	0.85

Source: Urban Institute tabulations based on the March 1985 and March 1996 Current Population Surveys.

Note: Tabulations of percentage changes use the same methods described in table 2.

a. See table 1 for derivation of changes in real earnings.

## Technical Note

The wage rate data in this brief come from the SIPP. SIPP respondents report earnings, weeks worked per month, hours worked by week, and wage rates (for those paid by the hour) for up to two jobs per month for each of the prior four months. With this information, I tabulate hourly wages for each hour worked by the personal characteristics of employees. My comparisons run from the first available year of the SIPP (1984) to the most recent year (1995).<sup>\*</sup> The unit of analysis is hours of work, as calculated by weighting each worker on each job in each month by the hours worked on that job. Weighting by workers only yielded similar results. In estimating changes in real wages, I subtract the percentage change in the Consumer Price Index (CPI), adjusted downward by the .65 percentage points (half the 1.3-point reduction recommended by the Boskin Commission) from the percentage change in nominal wages. The unadjusted CPI measure would lower growth rates in wages by 6.9 percentage

points below the figures in tables 1 and 2. The adjustment has no impact on my conclusions with regard to wage differentials by group nor overall wage inequality.

Data from the March 1985 and March 1996 CPS are the source for earnings tabulations in table 4. In public releases of CPS data, the Census Bureau designates a maximum earnings level (\$99,999 in 1995) even for those with earnings above that threshold. To reduce any bias due to this top-coding problem, I use an adjustment based on an assumed distribution near and above the top code. One caution about the CPS data is that procedures changed in 1992 from reporting school attainment by years of school attended and completed to highest degree attained (except for those with less than a high school diploma).

<sup>\*</sup>The analysis ignores the upward trend in inequality that took place between 1979 and 1984–86. See Lerman (1997).

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