Reassessing trends in U.S. earnings inequality

*Earnings inequality trends are sensitive
to the earnings concept and sample of workers surveyed;
the concept of the wage distribution
across all hours worked yields virtually no change
in inequality between the mid-1980s and mid-1990s
for measures not influenced by top coding*

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Rising earnings inequality in the United States is conventional wisdom among economists, policy elites, and journalists. Over the past several years, an extensive literature has emerged that documents increases in earnings inequality and attempts to provide explanations of the phenomenon.[1] Richard Freeman has argued that "Researchers using several data sources—including household survey data from the Current Population Survey, other household surveys, and establishment surveys—have documented that wage inequality and skill differentials in earnings and employment increased sharply in the United States from the mid-1970s through the 1980s and into the 1990s."[2]

Recent publications reinforce the consensus that earnings inequality is continuing to increase. The 1997 *Economic Report of the President* points to growing inequality in annual earnings in trends among all male full-time, year-round workers, in the earnings ratios of college graduates to high school graduates, in the wage advantage of older to younger workers, and in the 90–50 and 50–10 cutoff ratios within groups classified by education (male high school graduates) and age (25- to 34-year-old men).[3] This past spring, the *Journal of Economic Perspectives* published a symposium of four articles; all cite a growth in earnings inequality over various periods. including the late 1980s and early 1990s.[4]

Much of the debate deals with the role of trade, foreign investment, and technology as major

sources of increasing earnings inequality.[5] It is common to attribute part of the rising inequality to falling real minimum wages and declining unionization. The 1997 *Economic Report of the President* summarizes the experts' consensus on the contributing factors as follows: technological change (45 percent), international trade (12 percent), a decline in the real minimum wage (10 percent), a decline in unionization (10 percent), rising immigration (8 percent), and other causes (15 percent).[6]

The descriptions and diagnoses of U.S. trends in earnings inequality have exerted a great influence on debates over the minimum wage, trade agreements, labor law reform, and tax policies. The issue is highly relevant to controversies about rising inequality in family income in the Nation[7] and about the U.S. labor market model. A major critique of the operations of the U.S. labor market relative to those of European markets is that rapid job growth in the United States has come partly at the cost of rising earnings inequality.[8]

Despite the emphasis on market and institutional forces as explanations of rising wage inequality, researchers generally do not use a comprehensive measure of the distribution of purchases (and sales) of labor input as their indicator of inequality. Often, economists measure inequality as the distribution of annual earnings among full-time, year-round workers.[9] Studies frequently limit the sample to men, to full-time workers, or to groups within a restricted age range. Few estimate trends in the

overall labor market from the perspective of what employers pay for the distribution of labor input. This article argues that some commonly used measures may be appropriate for normative questions, but they are inappropriate for assessing how market and institutional forces combine to alter the *overall* distribution of quantities of labor input purchased at each price (wage).

Most studies rely on data on individual workers from household records, as reported by a responsible adult; some use summary data on groups of workers, as reported by employers. Recently, in examining administrative wage records reported by employers to State unemployment insurance agencies, Julia Lane, David Stevens, and I derived evidence on trends in three States that conflict with the conventional story of continuing increases in earnings inequality.[10] These wage records provide data on quarterly earnings, including base pay, bonuses, and commissions, for considerably more than 90 percent of workers. Using the universe of unemployment insurance wage records in three large States, we tabulated inequality in quarterly earnings (as measured by the Gini coefficient and the 90–10 cutoff ratio) in the third quarters of 1985 (one State only), 1988, 1991, and 1994. By these measures, inequality declined slightly (about 2 percent) in 2 of the 3 States; inequality rose less than 1 percent in the third State. Although the unemployment insurance data provide no information on hours worked and thus on trends in earnings per hour, they do yield accurate information about what employers pay. Certainly, this evidence garnered from employers' records is far from conclusive about trends in the United States or about trends in payment per hour; however, as far as I am aware, it is the *only* evidence drawn from employer records on the distribution of wages paid to a comprehensive sample of workers.

Stimulated by these findings, I decided to reassess trends based on household records from the perspective of the distribution of payments to all units of labor input. Accordingly, using measures that best capture such a perspective, this article shows that a good deal of the evidence is consistent with there being no change in the wage distribution after the mid-1980s and with the notion that only some data sets support the view of a continuing rise in inequality. A second finding is that trends in earnings inequality are highly sensitive to the earnings measure and to the sample of workers. The first two sections discuss concepts of wage inequality and alternative data sources used to measure these concepts. The third section presents evidence that overall wage rate inequality stopped rising after the mid-1980s. The final section cites several sources that reconcile the finding that there was no increase in overall wage inequality with the rising wage differentials between well-educated and less educated workers.

Concepts of earnings inequality

Measuring trends in earnings inequality involves choosing a concept of earnings, an accounting period, a sample of workers, an inequality index, a time span, and a data set. The choices depend on whether the focus is on equity or on explanations of labor market phenomena. If, for example, the concern is with the differences in the ability of working men to contribute to their households' living standards, then the appropriate concept is annual earnings of adult men. If the issue is differentials in the average return to education, then we may wish to measure average earnings by education category. However, if the analytical focus is on the combined role of trade, technology, immigration, and other market forces, then the emphasis should be on labor as an input in the production process, and the measure should be the distribution of payments per unit of labor. In this case, the appropriate earnings concept is compensation per hour across all hours worked in the economy.

A simple example illustrates the rationale for relying on wage rates when the focus is on the role of production processes. Suppose there is a change in the way an employer produces goods or services, causing the employer to use more labor input at the high end of the skill distribution. Suppose also that there are no other relevant changes. Then the distribution of hours purchased across wage rates would be more unequal, whether the increased quantity of high-skill, high-priced inputs came as two part-time workers or one full-time worker. However, the distribution of weekly or annual earnings across individuals might become more unequal if the added high-skill hours of labor provide part-time jobs for two workers.

The case for including all hours by all workers is that rising inequality within a subset of workers may well be consistent with no change in the overall distribution of labor input, because another group may have increased its share of jobs in the middle of the wage distribution. Suppose the question was whether technology was causing a change in the distribution of prices of another input, say, steel. In examining whether the distribution of steel prices was becoming more unequal, we would examine quantities of steel sold at each price during the base period and the current period. If we observed increases in the quantities purchased at the bottom and top tails of the steel price distribution and decreases in the middle part of the distribution, we would conclude that a rise in inequality took place. Note that the appropriate data would cover the entire quantity of steel sold in the relevant market; one would not limit the analysis to a single major steel supplier or calculate separately changes in the distribution of the prices of steel sold by the top four vendors, because steelmakers might have come to specialize in segments in the mar-

ket, and thus, the price distribution of quantities sold by each company may have become more equal at the same time that the overall distribution was becoming less equal.

The same logic should apply to combining hours supplied by male and female workers, younger and older workers, and full-year and part-year workers. Suppose that, despite changes in trade, technology, and migration, employers as a whole provided the same distribution of jobs and paid the same distribution of wages in the current year as in some prior year. Suppose, however, that at the same time, reduced discrimination against women or more rapid gains in human capital among women led to a shifting of positions between some male and female workers. Assume that some men receiving wages at the midpoint of the male wage distribution exchanged their jobs for positions held by women, which paid less than the average men's salary, but above the average women's salary. In this case, the employers would be hiring the same quantities of labor hours at each relative wage, yet wage inequality would have increased both among men and among women separately.

Thus, studies that draw implications about the role of forces like technology and trade on inequality should use the distribution of quantities of hours purchased by wage rate (or, equivalently, the distribution of wage rates weighted by hours purchased) among all workers. However, few studies use such an approach. A common concept employed is the annual earnings of full-time, year-round (50 or more weeks) workers.[11] This approach has a number of problems, the first of which is one of selection. Because limiting the sample to subsets of workers ignores part of the wage distribution, the results can yield misleading estimates of trends. Suppose, for example, that a smaller proportion of low-wage workers worked 50 or more weeks in 1984 than in 1994. In this case, earnings inequality could rise for the sample of year-round workers (but not necessarily for all workers) because the 1994 distribution would have included more of the bottom tail. Second, while the motivation for using only full-time, year-round workers is to focus on differences in pay per hour, restricting the sample in this way fails to take adequate account of differences in hours and how they vary with wage rates. In fact, variations in hours worked among full-time, year-round workers are large (about 18 to 20 percent of hours worked), and the correlation between wage rates and annual hours rose from 0.008 to 0.052 between 1984 and 1994; among men, the increase was from –0.057 to +0.018.[12] Third, the use of annual earnings with full-time, year-round workers as the unit of observation gives more weight to hours supplied by workers with relatively few hours worked than to workers with relatively many hours worked. For instance, those working 2,600 hours and those working 1,750 hours will have the same weight.[13]

The analysis presented in this article avoids these problems by measuring the distribution of wage rates across all hours worked and across all workers. With this concept, all amounts of labor input purchased and sold in the U.S. economy are represented; the weight attached to each hour of labor input is the same for all hours worked.

Data sources

To develop estimates of wage distributions throughout the United States, investigators usually turn to one of two sources of earnings data from the Current Population Survey (CPS). CPS questions posed in March of each year yield information on the previous year's earnings, weeks worked, and usual hours per week, while questions asked each month of one-quarter of the CPS sample cover usual weekly earnings and usual weekly hours on the worker's primary job. An alternative source is the Survey of Income and Program Participation. This survey requests information from each respondent on actual earnings, weeks worked, and hours worked in each of two jobs or in self-employment for each of the 4 months prior to each survey wave. By piecing together information on the same individuals for three or four waves, one can obtain annual data.

Neither of the data sets and related concepts are flawless. The CPS data based on usual weekly earnings and hours are problematic in principle and, apparently, in practice. The respondent is asked about *usual*, not actual, weekly earnings and hours on the primary job last week. For those paid by the hour, the interviewer asks how much the respondent earns per hour. No information is available on those working a second job or self-employment. Nor does the question specify a period during which these usual hours, earnings, or wage rates apply. Adding to these difficulties, beginning in 1994, the CPS questions on usual weekly earnings changed slightly to mention taxes explicitly, thus creating problems of comparability.

In an effort to validate self-responses to wage and earnings surveys by comparing person reports with earnings records by firms, Rodgers, Brown, and Duncan found that all person responses were subject to considerable measurement error (assuming that employer records revealed the true amounts of earnings and hours worked for a given employer).[14] However, person responses to the question about *usual earnings* per pay period correlated less with employer reports (0.456) than did responses to questions about annual earnings (0.78–0.79). In addition, person responses to a question about *usual hours worked per week* had only a 0.61 correlation with employer information. Comparisons of computed earnings per hour revealed the weakest performance for measures based on usual hours per week.[15]

With the annual CPS data, one can calculate average wage rates by dividing annual earnings by the product of usual hours worked per week (in those weeks actually worked) and weeks

worked during the calendar year. One theoretical problem with these data is that the average wage rates sometimes suppress differences in hours compensated within the year. For example, someone with two jobs (or one job and a self-employment business) might be paid $14 per hour for 1,000 hours and $8 for 1,000 hours. The annual data (reported correctly) would then show 2,000 hours purchased at $11 per hour, ignoring the large disparity between the two wage rates. In addition, the link between the questions on hours worked and those on weeks worked is potentially weak. We want to know the mean hours worked for all weeks in which the individual worked even a few hours (or was on vacation or sick leave); but a plausible interpretation of the question on hours would be to report the modal number of hours and not necessarily the mean number.

In practice, the calendar CPS data might be flawed because of the long recall period expected of respondents. Asking respondents to refer to their tax records may improve reporting of earnings, but not reporting of weeks worked or hours worked per week. Another problem is the rising proportion of earnings that must be imputed on the basis of a record-matching procedure. By 1993, about 22 percent of all persons with earnings had at least one item imputed; almost 30 percent of those with $100,000 or more in earnings had all or part of their earnings imputed by the Census Bureau.[16] The proportion of high earners with overall earnings imputed rose from 10.7 percent to 18.7 percent between the March 1987 and March 1995 surveys. For investigators working with public-use tapes, the CPS top coding also poses problems. Unfortunately, the Census Bureau did not raise the top codes on the worker's longest job between March 1985 and March 1995, so an increasing share of workers reported earnings at the CPS top code. As a result, adjustments for top coding take on increasing importance over time.

CPS procedures and questions have varied slightly in recent years, raising the possibility of problems of data comparability. In January 1994, a new computer-assisted survey information collection system replaced paper-and-pencil interviewing, allowing for the integration of the monthly and annual demographic surveys undertaken every March.[17] This method avoids any significant interruption of the interview process. Charles T. Nelson, a Census Bureau expert on income surveys, believes that the computer-assisted method stimulated more responses to earnings questions—especially from respondents with high-earning individuals in their households—and more reports of very high earnings.[18] In the March 1995 and March 1996 surveys, the question about the previous year's earnings changed slightly to specify explicitly that the respondent should report earnings before taxes. The former question asked for earnings before all deductions, but did not explicitly mention taxes. If workers from all income classes

were equally likely to exclude taxes in earlier periods than in 1995 and 1996, the percent increase in earnings reported would have been higher among high-wage workers, because they pay higher tax rates and, thus, in previous years would have excluded a higher proportion of their gross earnings.

The CPS data used in this article come from the March surveys. Each worker's wage rate is derived as annual earnings (from wage and salary income, self-employment income, and farm income) divided by annual hours, the latter being the product of usual hours worked per week and weeks worked the previous year. Unless otherwise noted, adjustments for the top coding of earnings prepared by Jared Bernstein and Lawrence Mishel are used; these are based on the assumption of a Pareto distribution in the range near and above the top-code value.[19] The article also follows their approach of excluding outlying observations. The estimated distributions are the wage dispersions across all workers, weighted by hours worked.[20]

The data from the Survey of Income and Program Participation come from selected panels and waves of the core survey.[21] With those data, hourly wage and salary income can be obtained for each person for up to two jobs in each month. The wage rate for each job is equal to the hourly wage rate reported by those paid by the hour or the monthly wages divided by the product of weeks worked per month on the job and hours worked per week on the job. Each job-month is an observation. The estimates of the wage rate distribution are across all job-months, weighted by hours worked per job-month times the weight for each person. The results reported below are hourly earnings based on wage and salary income only; they exclude self-employment income.

The Survey of Income and Program Participation has several advantages over the CPS. The recall period for earnings and hours worked is only the previous 4 months, instead of the previous 12. As with the CPS weekly data, but not the CPS annual measure, Survey of Income and Program Participation respondents who are paid by the hour report their hourly wage rates. Unlike the question in the weekly CPS, the earnings question from the Survey of Income and Program Participation asks about actual earnings during a specific month, not usual weekly earnings over an unspecified period.[22] Also, unlike the weekly CPS, the Survey of Income and Program Participation collects separate information on earnings and hours worked for up to two jobs per month over the previous 4 months. Moreover, the survey permits one to cumulate hours worked by wage rates on the basis of individual job-months. Although annual data from this survey yield lower total wage and salary income than CPS annual data do, a much smaller share of the former's data than CPS data is based on imputed earnings.[23] Unlike the questions in both CPS's, the relevant questions in the Survey of Income and Program Participation remained the

same over the relevant period. Finally, the top codes in the latter survey are much higher than in the CPS, leaving far fewer cases requiring imputations of earnings and wage rates. One important disadvantage of the Survey of Income and Program Participation is that data collection began only at the beginning of 1984, whereas CPS microdata have been available since the mid-1960s. A second problem is that the survey question about working hours on each job asks respondents for usual weekly hours worked instead of actual hours worked. On the other hand, in all likelihood, recall problems of the type highlighted by Rodgers, Brown, and Duncan arise in both surveys. The Survey of Income and Program Participation oversamples low-income persons, the use of person weights derived by the Census Bureau permits tabulations that are nationally representative.

Measures of inequality

This article reports results based on two common indexes of inequality: the Gini index and the 90–10 cutoff ratio of deciles in the earnings distribution. The 90–10 ratio has the advantage of being a simple summary measure that is independent of reporting problems which often affect the extremes of the distribution. The Gini index is comprehensive in the sense that it takes account of earnings differences between every pair of individuals in the entire distribution. One interpretation of the Gini index is to take it as one-half the average difference in income between every two individuals, divided by the mean income. Unfortunately, incorporating the segments of the distribution in which earnings are top coded is problematic. For this reason, when CPS data are used, estimates based on the entire distribution are supplemented with estimates of Gini coefficients and 90–10 ratios based on the bottom 95 percent of the wage distribution. These estimates are not influenced by wage patterns of those subject to the top codes. By contrast, top coding is not a serious problem in the estimates from the Survey of Income and Program Participation, because its levels are set well above those in the CPS.

Results

Trends in the Gini coefficient and 90–10 ratios of the wage distribution across all hours worked in the economy appear in table 1 and charts 1 and 2. A good place to begin is chart 1, which displays the 90–10 ratios for data from the CPS and data from the Survey of Income and Program Participation. The CPS trends show a clear rise in inequality between 1980 and 1986, as other researchers have found. However, since 1986, the trend in the 90–10 ratio is essentially flat, with slightly lower levels in 1988 and 1991 and a slightly higher level in 1993. The ratio of wage rates at the 90th percentile relative to the 10th percentile was no higher in 1995 than in 1986. The

Table 1.	Percent changes in Gini coefficient and 90–10 ratios by data set, sample, and period, 1979–95		
Measure and years	CPS, all hours, top-code adjustment	CPS, bottom 95 percent of hours worked	Wage and salary data from Survey of Income and Program Participation
Gini coefficient:			
1979–95	10.3	6.6	—
1982–92	3.4	2.4	—
1986–92	.7	–.5	1.8
1992–95	4.0	2.4	–3.2
1986–95	4.6	1.8	–1.4
90–10 ratios:			
1979–95	11.7	9.3	—
1982–92	8.7	7.3	—
1986–92	–2.6	–2.2	.6
1992–95	2.4	1.6	–1.7
1986–95	–.2	–.6	–1.0

NOTE: Dash indicates percent change could not be calculated because survey did not exist before 1984.

SOURCE: Urban Institute tabulations from CPS data and from data from Survey of Income and Program Participation.

trend of 90–10 ratios in the other survey's data is similarly flat over the 1986–95 period. The 90th percentile of paid hours remained about 4.2 times the 10th percentile of paid hours. The trends in Gini coefficients in chart 2 differ somewhat by data set and by top-coding procedure. As in chart 1, inequality based on the data from the Survey of Income and Program Participation rose 1 to 3 percent between 1983–84 and 1986–87, but then remained constant and even declined at the end of the period. As a result, the Gini coefficients based on this survey were no higher in 1995 than in the 1983–84 period. The trend in the CPS-based Gini coefficients is similar to the 90–10 trend through 1992. Inequality clearly rose from 1980 through 1985–86 and then remained constant through 1992. Between 1992 and 1993, the Gini coefficient based on the entire CPS and the top-code adjustment rose from 0.358 to 0.365, an increase of 2 percent, and then grew another 1.5 percent by 1995.

The rise in the CPS Ginis in the 1993–95 period is sensitive to the changes in the top 2.5 percent of earners and a somewhat higher percentage of wage rates, changes affected greatly by the adjustments for top coding. As noted earlier, changes in the data collection method starting in March 1993 and changes in the wording of the question on earnings starting in March 1994 may have influenced the estimated earnings among those at the top. The high and rising rates of imputed income at the highest levels of earnings (nearly 30 percent in 1993) add a further note of caution to findings so sensitive to imputations. Using estimates of the Gini coefficient on all but the highest paid 5 percent of hours worked avoids having to rely on imputations of earnings among those at the top, with-

out giving up a comprehensive inequality measure. The trend in these Gini coefficients is broadly similar to the overall trend, but with a much lower increase in inequality between 1992 and 1995. A summary of the percent changes in the Gini coefficient and 90–10 ratios over various periods appears in table 1. Note that the results vary by period, but nearly all the measures and data show little or no increase in inequality since 1986. The only indicator of growth in inequality of more than 2 percent since that year is the Gini index based on the full CPS sample, which requires earnings projections for the top 2.5 percent of hours worked. While this source and method are subject to bias and error, the results do provide evidence of continuing increases in inequality. On the other hand, tabulations based on all of the 90–10 ratios, the CPS Gini measures based on the bottom 95 percent of the distribution, and the Gini coefficients from the Survey of Income and Program Participation reveal little or no evidence of rising wage inequality since the mid-1980s.[24]

Most points in the wage rate distribution rose proportionately over the 1986–95 period, as measured by the CPS with top code adjustments. The ratios of wage rates of the 75th percentile relative to the 25th percentile, of the 50th to the 25th or to the 10th percentile, and of the 90th to the 50th percentile remained essentially constant, with three decreases and one increase, all of less than 1 percent.

Relationship to other findings

Why do the results set forth in this article differ from those reported in other studies? Several explanations account for the differences. First, unlike other studies, the analysis presented here utilizes data from the Survey of Income and Program Participation. Second, no other study estimates inequality on the basis of the overall distribution of hours worked; rather, other studies limit the sample of workers, examine trends separately by sex, and use weekly or annual earnings instead of hourly earnings. Third, many studies use mean or median differences in earnings by education or work experience,[25] instead of calculating inequality across all workers.

Some studies that measure earnings as payments per hour or that include all workers (or both) also find no increases in inequality since the mid-1980s. Results cited in a report from the Organization for Economic Cooperation and Development based on hourly earnings show a slight decline in inequality between 1989 and 1992.[26] Tabulations by Robert Haveman show no increases in the inequality of wage rates between 1973 and 1988 or between 1988 and 1991.[27]

Trends in inequality turn out to be highly sensitive to the definition of earnings and the sample of workers used. Another publication from the Organization for Economic Cooperation and Development showed that, between 1979 and
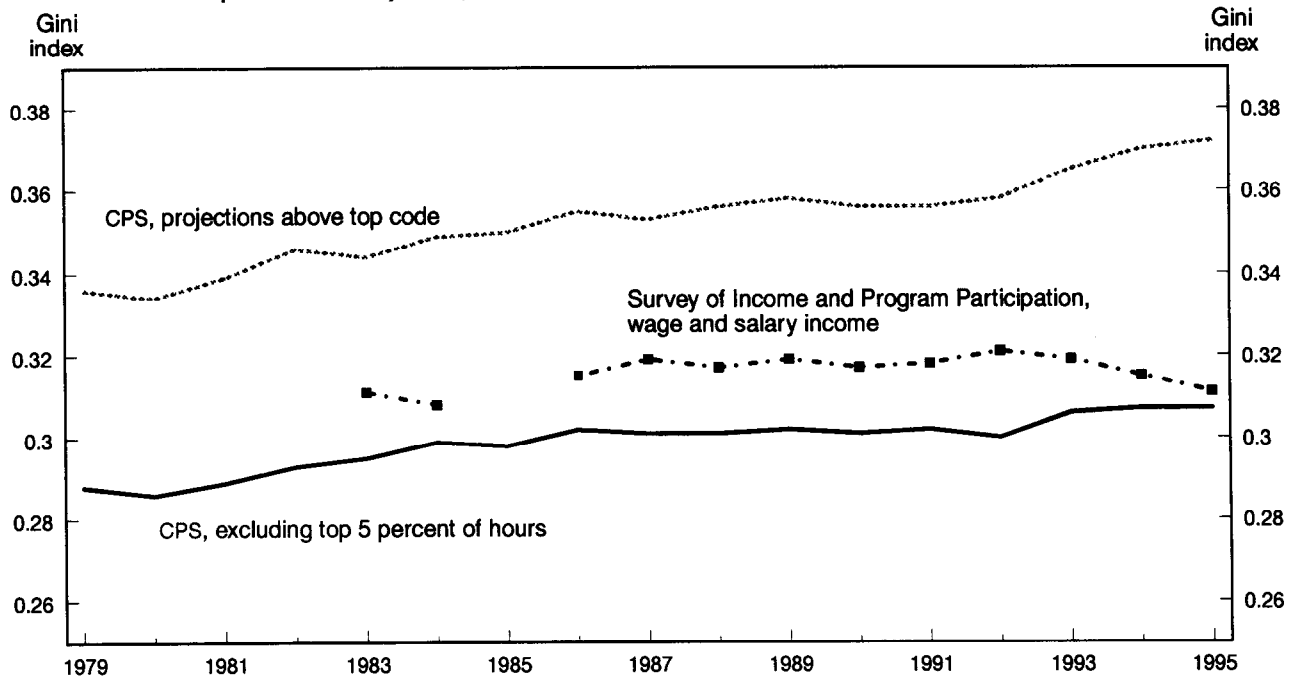

Chart 1. 90–10 ratios of wage rates for all hours worked, Survey of Income and Program Participation and Current Population Survey (CPS), 1979–95
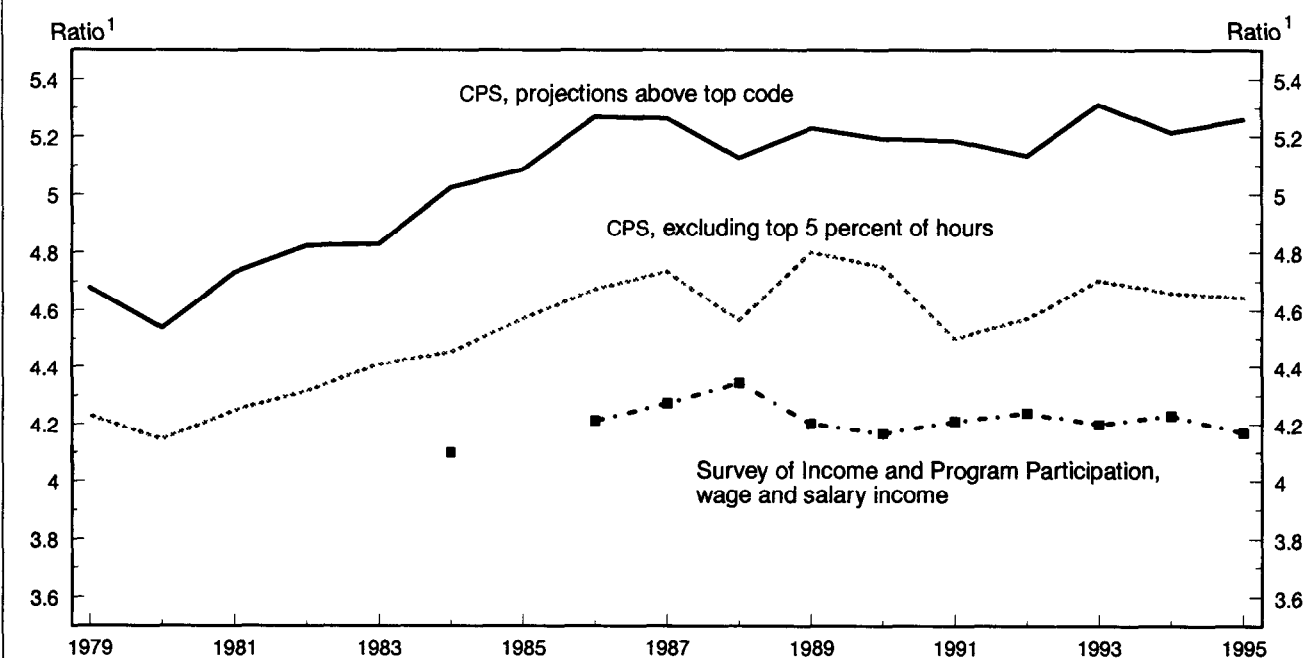
[1] Ratio of the wage at the 90th percentile to the wage at the 10th percentile.
SOURCE: Special tabulations based on data from the Survey of Income and Program Participation and the Current Population Survey.

Chart 2. **Gini index for wage rates for all hours worked, Survey of Income and Program Participation and Current Population Survey (CPS), 1979–95**

Gini
index

Gini
index

CPS, projections above top code

Survey of Income and Program Participation,
wage and salary income

CPS, excluding top 5 percent of hours

0.38 0.36 0.34 0.32 0.3 0.28 0.26

0.38 0.36 0.34 0.32 0.3 0.28 0.26

1979   1981   1983   1985   1987   1989   1991   1993   1995

SOURCE: Special tabulations based on data from the Survey of Income and Program Participation and the Current Population Survey.

1991, earnings inequality in the United States (as measured by the mean logarithm of the deviation) increased among full-time, year-round workers by nearly 18 percent, but fell by 1 percent among all workers and declined by 11 percent when measured across the working-age population.[28] This study noted that differences across countries in both the level and change in earnings inequality vary substantially by the measure employed. Table 2 provides details pertaining to the United States on the sensitivity of changes in inequality (based on the 90–10 ratios) to the sample of workers and the definition of earnings. All the data come from the CPS and utilize top-code adjustments. The percentage differences by measure vary from –27 percent to +13 percent. While wage rate inequality across all workers remained constant between 1986 and 1995, the 90–10 ratios rose for men and women separately. Inequality increases were highest among female and male full-time, year-round workers, but annual earnings among all workers and among prime-age workers (workers between 25 and 54 years) became more equally distributed. Measures that take account of changes in quantities of work supplied, as well as amounts paid per unit of work, show no increases in earnings inequality. Overall, the trends were toward more equalization among all workers than among men and women separately and among persons with any work schedules than among persons working full time, year round.

The use of wage rates instead of annual earnings reduced the upward trend in inequality only among full-time, year-round workers separately by sex.

Wage inequality and educated workers

The evidence against the continuing increase in wage inequality is not necessarily inconsistent with the prevailing view of widening gaps in earnings by education. Considerable evidence suggests a rise in the differentials by education since the mid-1980s.[29] But three factors offset the impact of this rise on wage inequality.[30] First, the distribution of hours worked changed in the direction of equalization, mostly because of a shift from those with only a high school degree to those with some college. Second, the gender gap narrowed substantially between 1984 and 1995. Third, racial differentials in wage rates narrowed, especially among men. Analyses that examine the role of changes in between-group differences in overall inequality from 1984 to 1995 reveal that declining gender and race differentials offset the increase in education differentials, leaving no change in the between-group component of wage inequality.[31]

THIS ARTICLE CONTRIBUTES TO THE EXTENSIVE LITERATURE on earnings inequality in four ways. First, it explains that an appro-

Table 2. Sensitivity of changes in earnings inequality to definition of wages and sample of workers, 1986 and 1995

Wage definition and sample of workers	Inequality, as measured by 90–10 ratio, March Current Population Surveys		
	1986	1995	Percent change
Wage rate, weighted by hours worked:[1]			
All workers	5.27	5.26	–0.2
Men	5.30	5.57	5.1
Women	4.27	4.74	10.6
All workers, aged 25–54	4.75	4.85	2.2
Men, aged 25–54	4.44	4.92	10.2
Women, aged 25–54	4.11	4.45	7.8
All full-time, year–round workers, aged 25–64	4.34	4.60	5.8
Men, full time, year round, aged 25–64	4.42	4.80	8.2
Women, full time, year round, aged 25–64	3.75	4.03	7.3
Annual earnings, weighted by persons:[2]			
All workers	21.89	18.57	–16.5
Men	17.60	15.25	–14.3
Women	21.37	20.00	–6.6
All workers, aged 25–54	10.53	9.17	–13.8
Men, aged 25–54	6.80	6.77	–.4
Women, aged 25–54	13.75	10.50	–27.0
All full-time, year–round workers, aged 25–64	4.50	4.76	5.6
Men, full time, year round, aged 25–64	4.17	4.67	11.3
Women, full time, year round, aged 25–64	3.73	4.27	13.4

[1] The sample with wage rate weighted by hours worked excludes those with computed wage rates of less than $1 per hour and more than $100 per hour in 1989 dollars.

[2] The sample with annual earnings weighted by persons includes only those reporting at least $100 in 1986 dollars.

SOURCE: Tabulations from the March 1987 and March 1996 Current Population Surveys.

priate way to assess rising overall inequality associated with labor market forces is to calculate the distribution of wage payments across all hours worked in the economy. Including only part of the work force or measuring earnings across workers can involve problems of selection, limited coverage, or incorrect weighting of differential compensation to units of labor input.

Second, the article presents trends in wage inequality based on data from the Survey of Income and Program Participation and based on hours-weighted CPS data. The trends cast doubt on the prevailing view that increasing earnings inequality induced by labor market forces continued rising through the 1980s and into the mid-1990s. All of the measures not influenced by top coding—the 90–10 ratios, the Gini coefficients of the bottom 95 percent of the CPS wage distribution, and the Gini coefficients pertaining to the Survey of Income and Program Participation —show no rise in wage rate inequality over the entire distribution of hours purchased in the economy. In

the case of the lone measure that did increase, all of the 1986–95 rise in inequality took place after 1992; the trend was flat between 1986 and 1992.

Third, the analysis shows that estimates of inequality trends are highly sensitive to definitions of earnings and to samples of workers. Earnings inequality decreased more than 20 percent by some measures, but increased more than 10 percent by other measures.

Finally, the article reconciles the constancy in overall inequality in the 1984–95 period with rising educational differentials. The offsetting factors were an equalizing trend in education and declining wage rate differentials between women and men and between blacks and whites.

Given these findings, economists should be cautious about their assessments of the impact on inequality of market and institutional forces in the United States. Earnings inequality did increase for some groups of workers, and some forces, such as trade and technology, may have affected overall inequality. However, according to several indicators, the combined effects of changes in demand, supply, and institutional forces over the last decade did not generate higher wage inequality in the U.S. labor market as a whole. ☐

Footnotes

[1] See, for example, Frank Levy and Richard Murnane, "U.S. Earnings Levels and Earnings Inequality: A Review of Recent Trends and Proposed Explanations," *Journal of Economic Literature*, September 1992, pp. 1333–81; Chinhui Juhn, Kevin Murphy, and Brooks Pierce, "Wage inequality and the rise in returns to skill," *Journal of Political Economy*, June 1993, pp. 410–42; and Lawrence Katz and Kevin Murphy, "Changes in Relative Wages, 1963–87: Supply and Demand Factors," *Quarterly Journal of Economics*, February 1992, pp. 35–78. More recently, Katherine Bradbury, "The Growing Inequality of Family Incomes: Changing Families and Changing Wages," *New England Economic Review*, pp. 55–82, has found continuing increases in earnings inequality through the 1980s and on into the early 1990s.

[2] Richard Freeman, "Are your wages set in Beijing?" *Journal of Economic Perspectives*, Summer 1995, pp. 15–32.

[3] *Economic Report of the President: 1997* (Washington, DC, U.S. Government Printing Office, 1997).

[4] See the following articles from the spring 1997 issue of the *Journal of Economic Perspectives*: Peter Gottschalk, "Inequality, Income Growth, and Mobility," pp. 21–40; George Johnson, "Changes in Earnings Inequality: The Role of Demand Shifts," pp. 41–54; Robert Topel, "Factor Proportions and Relative Wages: The Supply-Side Determinants of Wage Inequality," pp. 55–74; and Nicole Fortin and Thomas Lemieux, "Institutional Changes and Rising Wage Inequality: Is There a Linkage?" pp. 75–96.

[5] The literature on the explanations of rising earnings inequality is extensive. On the impact of trade, for example, see Adrian Wood, *North–*

South Trade, Employment, and Inequality: Changing Fortunes in a Skill-driven World (Oxford, U.K., Clarendon Press, 1994); George Borjas and Valerie Ramey, "Foreign competition, market power, and wage inequality," *Quarterly Journal of Economics*, November 1995, pp. 1075–110; Edward Leamer, "Wage Inequality from International Competition and Technical Change," *American Economic Review*, May 1996, pp. 309–14; and Gary Burtless, "International Trade and the Rise in Earnings Inequality," *Journal of Economic Literature*, June 1995, pp. 800–16.

[6] *Economic Report of the President: 1997*, p. 175.

[7] For example, Gottschalk states, "It is clear that the countries with the largest increases in inequality—the United States and United Kingdom—were also the countries with the most decentralized wage setting institutions" (Gottschalk, "Inequality, Income Growth, and Mobility," p. 34).

[8] Organization for Economic Cooperation and Development, *OECD Employment Outlook* (Paris, OECD, July 1996), pp. 59–103.

[9] Peter Gottschalk and Timothy Smeeding, "Cross-National Comparisons of Earnings and Income Inequality," *Journal of Economic Literature*, June 1997, pp. 633–87.

[10] Julia Lane, Robert Lerman, and David Stevens, "Employers, Jobs, and the Dynamics of Earnings Inequality," unpublished manuscript, 1997.

[11] See Bradbury, "The Growing Inequality of Family Incomes"; *Economic Report of the President: 1997*; and Gottschalk and Smeeding, "Cross-National Comparisons." As the latter put it, "Almost all studies of the United States use the Current Population Survey to examine the distribution of weekly or annual wages for males. In order to concentrate on changes in wages and not changes in hours worked, most studies select only persons working full-time and full-year" (p. 645). In another article, Gottschalk examines weekly earnings using a sample of full-time workers, aged 22 to 62, who were in the labor force at least 39 weeks, were neither self-employed nor working without pay, worked at least 1 week, and were not individuals who worked only part of the year because they went to school or retired or were in the military" (Gottschalk, "Inequality, Income Growth, and Mobility").

[12] I calculated these figures from the March 1985 and March 1995 Current Population Surveys.

[13] The method used recently by Gottschalk ("Inequality, Income Growth, and Mobility") estimates the distribution of weekly earnings of full-time workers, aged 22 to 62, with at least 1 week of work and 39 weeks in the labor force. This measure ignores differences in hours within the full-time group and ignores part-time workers. By using workers as the unit of observation, the approach implicitly attaches a higher weight to those weeks worked by part-year workers than those worked by full-year workers. And, as noted in the previous paragraph, selection problems might bias the estimates of trends.

[14] Willard L. Rodgers, Charles Brown, and Greg J. Duncan, "Errors in Survey Reports of Earnings, Hours Worked and Hourly Wages," *Journal of the American Statistical Association*, December 1993, pp. 1208–18.

[15] Although the questions tested in the study by Rodgers, Brown, and Duncan are not exactly the questions asked in the CPS monthly surveys, they are close enough to raise questions about their accuracy, especially relative to questions based on actual earnings in a particular period.

[16] Paul Ryscavage, "A surge in growing income inequality?" *Monthly Labor Review*, August 1995, pp. 51–61.

[17] Ibid.

[18] Personal communication, Dec. 8, 1997.

[19] Jared Bernstein and Lawrence Mishel, "Has wage inequality stopped growing?" this issue, pp. 3–16. For a more detailed treatment of top codes, see John Angle and Charles Tolbert, "Topcodes and the Great U-Turn in Nonmetro/Metro Wage and Salary Inequality," technical bulletin, Economic Research Service, forthcoming.

[20] A small number of observations with computed wage rates below $0.50 per hour or above $100 per hour in 1989 dollars are excluded. The total weight is equal to the person weight times the annual hours of the person.

[21] This article uses the March 1979–96 CPS files and the 1984, 1987, 1988, 1991, 1992, and 1993 panels from the Survey of Income and Program Participation. In general, data from this survey cover wage rate distributions during February through August of each year.

[22] Evidence indicates that questions about actual earnings in a specified period yield more accurate information than questions about usual earnings over an unspecified period. (See Rodgers, Brown, and Duncan, "Errors in Survey Reports.")

[23] Denton Vaughan, *Reflections on the Income Estimates from the Initial Panel of the Survey of Income and Program Participation (SIPP)*, Studies in Income Distribution, no. 17 (Social Security Administration, Office of Research and Statistics, May 1993).

[24] The difference in the estimates of inequality between the two surveys is noteworthy. However, an analysis of the situation is beyond the scope of this article.

[25] See, for example, John Bound and George Johnson, "What Are the Causes of Rising Wage Inequality in the United States?" *Economic Policy Review*, January 1995, pp. 18–25.

[26] Organization for Economic Cooperation and Development, *OECD Employment Outlook* (Paris, OECD, July 1996), pp. 59–103; see especially p. 103.

[27] Robert Haveman, *Earnings Inequality: The Influence of Changing Opportunities and Choices* (Washington, DC, American Enterprise Institute for Public Policy Research, 1996).

[28] Organization for Economic Cooperation and Development, *OECD Economic Outlook* (Paris, OECD, December 1996), pp. 36–42.

[29] See Robert I. Lerman, "Meritocracy without Rising Inequality? Wage Rate Differences Are Widening by Education and Narrowing by Gender and Race," in *Economic Restructuring and the Job Market*, no. 2 (Washington, DC, The Urban Institute, September 1997); and Johnson, "Changes in Earnings Inequality."

[30] Lerman, "Meritocracy without Rising Inequality?"

[31] Ibid.