

white-collar work. Clearly, inequality persists, and occupation statistics do not capture differences within occupations in the earnings of persons caused by discrimination or varying work experience. And there is no guarantee that past improvements will not plateau or reverse themselves. However, the evidence suggests that the economy has done well by the majority of Americans since the nineteenth century in terms of steadily improving and more equal occupational opportunity.

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## WAGES AND WAGE INEQUALITY

Robert A. Margo

The price of labor – its “wage” – is a fundamental datum in economics and economic history. The most important by-product of economic growth is a rising standard of living, and the wage, relative to the prices of consumer goods – the “real” wage – is a summary statistic of progress: a high and rising value of wages relative to consumer prices is a sign of a high and rising standard of living. The reverse is equally true. The low wages relative to the price of consumer goods that have been paid throughout much of human history and to many of the world’s workers even today is the very definition of poverty. Differences in wages – across occupations, industries, and locations, by educational level, between men and women, and so forth – can reveal much about the workings of an economy. For example, large differences in wages between different regions may be a sign of a poorly functioning labor market – too much labor in the region with relatively low wages and too little where wages are relatively high. However, just as a high rate of profit may induce firms to enter an industry, or a high return to capital (the interest rate) may spur investment, regional differentials may induce migration from the low- to the high-wage region, raising wages in the former and lowering wages in the latter, “integrating” the two regions into a single, common (and national) labor market. Changes in technology may alter the demand for one type of labor (for example, college graduates) versus another (for example, high school graduates), thereby affecting the ratio of wages of the two groups. If the effects are persistent, the relative supplies of the two types of labor may change – more college graduates if the “returns to education” have increased, or conversely, if they have fallen.

In an economy with competitive labor markets, the level of wages (and employment) is ultimately determined by the

equilibration of the demand for, and supply of, labor. However, government may intervene, if it thinks that the price of labor is too low, by setting a minimum wage, or it may try to prevent wages from rising too high – for example, during war time – by imposing a maximum price or by regulating the pace at which wages increase.<sup>1</sup> Higher wages have always been an important goal of organized labor, and the success of unions in establishing a wage premium for their membership has waxed and waned throughout American history. Prejudice or social norms may influence the pattern of wages: wage “discrimination” is present whenever workers who are the same in terms of underlying productivity are paid differently because of their race, gender, or ethnic background.

This essay is a companion to the data series on wages and wage inequality. As such, it concentrates primarily on money or “nominal” wages – wages expressed in current, rather than “constant,” dollars. One of the major uses of long-term series in nominal wages is that, with appropriate manipulation, they can be converted into real wages, which are indicators of the long-term change in the standard of living. The conversion of nominal to real wages is a subject in its own right and requires information on consumer and producer prices (for a discussion of the issues involved see the essay on prices and price indexes in Chapter Cc).

### Measurement Issues

Wages are a payment for a flow of “labor services” – that is, they are the price that someone pays to the worker for “renting” the use of the worker’s skills and energy for some period of time. Thus, wages are stated in terms of some unit of time, such as dollars per hour, day, week, month, or year. The method of quoting wages may not correspond to the time dimension of wage payment schemes. Thus, many workers paid on an hourly basis nonetheless have “steady” jobs. In the twentieth century, many wages are quoted on a “per hour” basis – for example, the hourly wages in manufacturing. In the nineteenth century (and earlier), the wage was often quoted “per day” or “per month.” Conversion of series based on one time period to those based on another requires contemporaneous information on the number of hours worked per day, or days per month, and so forth.

For some types of economic analyses it may be important to distinguish between income from wages and salaries and income from self-employment. The census definition of individual and household “earnings” is the sum of wage and salary income plus income from self-employment.<sup>2</sup> Since 1950, one can distinguish between these two forms of income because the Census Bureau asked separate questions about these two types of income. It is important to note that in historical series, the distinction between wage and salary and self-employment income is rarely made. Thus, “wages” and “earnings” are often used interchangeably.

A time series of wages refers to annual values (or some other frequency, such as monthly or quarterly) of a measure of central tendency, such as the median, mode, midpoint of a range, or average. In interpreting wage series it is important to pay close attention to what the “average” (or median, etc.) really means. The “average hourly wage” may not be the literal average of rates of pay per hour

across individuals but, instead, computed as total payments to labor divided by total hours worked, even if the workers in question were not hired by the hour.<sup>3</sup>

Throughout American history, some portion (or, on occasion, all) of wages were paid “in kind” – that is, in addition to (or in lieu of) monetary payments. That is, workers received part or all of their payments in goods or services. In-kind compensation in the form of goods may be literally that – as, for example, when farm labor in the nineteenth century received board (food), or when employees of large corporations in the late twentieth century received employer-paid health insurance or stock options. In addition, in-kind compensation may be in the form of characteristics of the work environment that workers generally value, for example, a cleaner facility, a better office, more vacation time, or a less stressful work pace. Alternatively, if the work environment were dangerous, workers might need a higher money wage to compensate for the increased personal risk. In such cases, economists speak of “compensating differentials” – to a first approximation, the difference in money wages between two jobs, one of which includes payment in-kind and the other does not, must equal the value of the in-kind payments. Thus, for example, the difference in monthly pay of farm labor with and without board should equal (approximately) the monthly cost of board. Unfortunately, there is little consistency across wage series in adjustments for in-kind compensation, typically because information on such compensation is often poor or lacking.

In principle, then, wage series are price series. Like all such series, wage changes over time reflect true changes in the level of prices combined with changes in the underlying “quality” of the good whose price is being measured, in this case, labor. Thus, time series of annual wages may fluctuate because the hourly wage rate changes or because annual hours worked changes. If one’s interest is in understanding what has happened to the price of labor over time, then it is desirable to standardize as much as possible for the quality of the labor supply. Thus, for example, Table Ba4512–4520 reports earnings for full-time, year-round workers so as to remove from the series changes in earnings that derive from changes in the share of the labor force that works part-time. Over time, the average American worker has become healthier and much better educated. Most economists believe that such improvements in “human capital” are reflected in higher labor force “quality” and, therefore, in higher wages. Although it is possible to control for changes over time in labor force quality using the so-called hedonic price method, few historical wage series, in fact, are so adjusted.<sup>4</sup>

A related issue in interpreting longtime series of wages concerns the fact that, by definition, wage (or earnings) series pertain solely to persons in the labor force. Over time, however, there have been significant changes in labor force participation of various population groups. A well-known example concerns married women. Few married women worked outside the home in the early

<sup>1</sup> For data on the minimum wage, see Table Ba4422–4425.

<sup>2</sup> In modern data series, wage and salary income is pre-income tax, whereas self-employment income is net of business expenses, including business taxes.

<sup>3</sup> When series are computed by dividing total payments to labor by total time worked (for example, total hours) the convention (not always followed) is to refer to them as earnings (for example, see Table Ba4361–4366), rather than wages.

<sup>4</sup> The hedonic price method uses linear regression to control for worker (or other) characteristics; holding constant (via the regression) these characteristics, changes in the level of prices over time measure true change in prices. An example of an historical wage series constructed using the hedonic method is Table Ba4253–4267.

twentieth century; today, most do. As the labor force participation rate of married women increased, the characteristics of the typical female worker changed, affecting her wage relative to other groups, in particular, adult men (Goldin 1990).<sup>5</sup>

To convert a nominal into a real wage series, it is necessary first to convert the nominal series into index number form – that is, choose a base year (for example, 1900) or average for several years, and “deflate” (divide) the values in each year of the nominal series by the value in the base period, and then multiply by 100 – and then divide by an index of prices.<sup>6</sup> Because prices frequently have (and continue) to differ across locations, it is highly desirable that the price deflator and nominal wage series refer to the same geographic area, although this is not always feasible. From the standpoint of the economic welfare of workers, the appropriate price deflator is an index of consumer prices – the “cost of living.” If the price deflator is an index of producer prices, the resulting real wage series is sometimes referred to as a “real labor cost” series. This is also a useful series because, under the assumption of a competitive labor market and profit maximization by employers, it traces out the “marginal product” of labor.<sup>7</sup>

“Wage inequality” refers to the extent of differences in wages across some unit of comparison – for example, individuals, firms, or locations. One of the most common ways to measure wage inequality is to examine differences in average wages – or more commonly, the ratio – between various population or labor market groups. When these groups are identified according to characteristics such as educational attainment, years of labor market experience, or occupation, the wage inequality measures are called “skill differentials.” A high or rising value of the skill differential indicates a high or rising level of wage inequality; a low or falling value indicates wage equality or movement toward greater wage equality. A practical advantage of using skill differentials to measure inequality is that data on wages by occupations can be found for the United States for long periods of time. Occupational skill differentials can be constructed from some of the wage series presented in this chapter. For example, a national series of skill differentials for artisans relative to common laborers for the period 1825–1860 can be constructed by dividing series Ba4258 by series Ba4253. The level and trend of this skill differential so calculated are displayed in Figure Ba-J. It reveals an initial skill differential that is high, relative to the most comparable economy of the time – Britain. It also reveals a decline over time, suggesting that during the period of America’s early industrialization, the real wages of artisans did not keep pace with the wages of common laborers. These data are consistent with the view of many labor historians who argue that the growth of the factory system of manufacturing



**FIGURE Ba-J Occupational skill differential – ratio of wages for artisans to wages for common labor: 1825–1860**

**Sources**

Series Ba4258 divided by series Ba4253.

led to a relative decline in the demand for artisan skills (see Margo 2000b, p. 156).<sup>8</sup>

Using the same technique, one can also calculate the degree of inequality between two or more labor market groups. Several series of female-to-male wage ratios may be found in Table Ba4224–4233. Additional measures of “gender differentials” can be readily constructed from data in Table Ba4512–4520. Wage ratios by race are shown in Table Ba4431–4439 or can be constructed, again, from data in Table Ba4512–4520.

One drawback to using skill, gender, or racial differentials to measure wage inequality is that overall wage inequality consists of two components: between-group inequality and within-group inequality. Wage differentials measure the between-group component of inequality. It is perfectly possible for between-group and within-group inequality to be moving in opposite directions. The behavior of wages in the 1970s offers an example: the ratio of wages of college graduates to high school graduates declined, but wage inequality within education groups rose. Caution should be exercised before drawing strong conclusions about changes in overall wage inequality from time series of wage differentials.

An alternative to wage differentials as measures of wage inequality is the so-called range statistic. A range statistic measures the differences between wages at two separate points in the wage distribution – for example, at the ninetieth and tenth percentiles. Before the range statistic is calculated, the data are usually converted to logarithms because otherwise, the size of the range will depend on the units of measurement. This statistic is called the “90–10” wage differential.

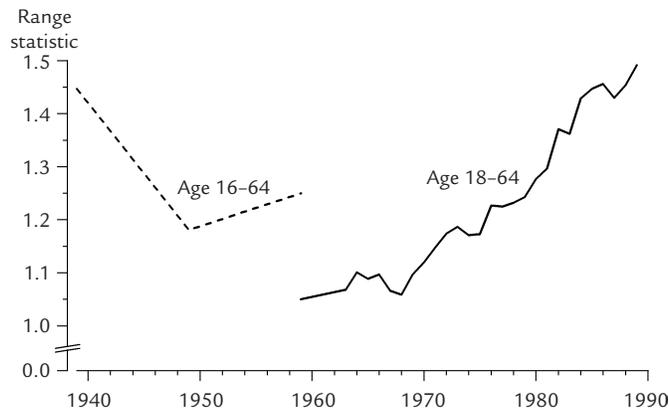
Estimation of range statistics requires enough information to identify exact points in the distribution of wages (for example, the wage at the tenth percentile). This means that economywide estimates of range statistics are difficult to produce prior to the 1940 Census, which was the first federal census to contain individual wage information for the entire labor force. The 90–10 wage differential calculated for the period beginning with the 1940 Census data are shown in Table Ba4426–4430. The 90–10 differential for men is displayed in Figure Ba-K. It reveals the sharp decline in wage inequality during the 1940s that Goldin and Margo (1992) have called “The Great Compression.”

<sup>5</sup> Black men are another example. The earnings of black men relative to those of white men have been increasing since 1940 for full-time workers (see Tables Ba4431–4439 and Ba4512–4520). But, the black–white ratio has increased much less for the entire population because the labor force participation rate of black men has fallen over the same period, primarily among men whose wages would be low if they were in the labor force; see Donohue and Heckman (1991).

<sup>6</sup> Alternatively, a series may be presented in “constant dollars,” meaning that current-dollar amounts are divided by the price index, with the base year set equal to unity. If the price index is known, it is straightforward to go back and forth between constant- and current-dollar amounts (for example, see Table Ba4512–4520).

<sup>7</sup> The marginal product of labor is  $\Delta Q/\Delta L$ , the change in output for a small change in the labor input.

<sup>8</sup> For an alternative view of the trend in the skill differential during early industrialization, see Williamson and Lindert (1980).



**FIGURE Ba-K Wage inequality – the 90–10 wage differential in the male wage distribution: 1939–1989**

**Sources**

Series Ba4426–4427.

**Documentation**

The range statistic shown here is the logarithm of the wage at the ninetieth percentile in the male wage distribution, minus the logarithm of the wage at the tenth percentile.

The range statistic is one of a large array of measures developed by economists and statisticians that attempt to summarize the extent of wage inequality. By far the most common such measure in general use is the standard deviation or the variance of the logarithm of wages. See series Ba4428–4430 for the trend in overall wage inequality according to this measure.

The level and, in some cases, even the trend in wage inequality will vary according to the measure used. For more detailed discussions of measures and trends in wage inequality, see Levy and Murnane (1992) and Katz and Autor (1999).

### Sources of Wage Evidence in American History

As with many economic statistics, information on wages has changed markedly in availability over the course of American history. Before the Civil War, collection of wage data by state or federal government agencies was spotty, and most scholars have turned to archival sources to fill the void.

A variety of archival sources provide information on wages before 1860. Account books are very useful for extracting information on prices, in general, and wages, in particular. Account books are records of economic transactions, typically prepared by entrepreneurs or businesses. Account books survive in some abundance, especially for farmers, and thus have been used to track changes in farm wages over time. Drawbacks of account books are the lack of coverage of certain geographic regions, where surviving books are scarce, and the difficulty of valuing payment in kind (as opposed to wages). Examples of series that use account books as all or part of the data source are shown in Tables Ba4214–4217 and Ba4219–4223.

Payroll records are a second archival source. Payroll records are similar to account books in the sense that they record economic transactions; they differ, however, in that they pertain solely to the hiring of labor. Possibly the most extensive body of payroll data for the pre-Civil War period comes from the records of the U.S. Army. Officers called quartermasters stationed at army posts frequently would hire civilians from the local area to perform various tasks – for example, maintenance of horses, or constructing

or repairing buildings, which required the services of carpenters, painters, masons, and other skilled artisans. Comparisons of wages paid to civilian employees of the army with wages paid in the local area suggest that the army rarely, if ever, overpaid its workers. Instead, it seems to have typically paid the “going wage” in the local area for labor of a specific type. Copies of the payrolls were sent to Washington, D.C., where they were later deposited at the National Archives. Unlike other such data for the nineteenth century, these records cover a wide variety of occupations in virtually all parts of the country. The series in Tables Ba4253–4270 are based on this source.

A few economic surveys collecting wage information were conducted by the federal government before the Civil War. Various census studies and other surveys can be used to estimate the annual earnings of manufacturing workers (see Table Ba4244–4249) at various dates between 1820 and 1860, as well as other compilations; for example, the 1850 and 1860 federal Censuses of Social Statistics provide evidence on wages in select occupations. These data are used in the construction of Table Ba4234–4243.

Two of the most important government surveys of wages in the nineteenth century are the so-called Weeks and Aldrich reports, named after the individuals in charge of the surveys. The Weeks report was conducted as part of the 1880 Census, whereas the Aldrich report was conducted in the early 1890s as part of a congressional inquiry into the effects of tariffs. Both reports were based on (nonrandom) samples of the payroll records of manufacturing firms in business operation at the time of the surveys. Wage series constructed from these records are retrospective, in the (important) sense that the firms had to be in existence prior to either survey. Firms that failed before the surveys were conducted are not included. The absence of failed firms introduces a systematic bias (of unknown direction) in these data. In both surveys, wage information is available by firm (and, hence, industry) and occupation. The Weeks report failed to include information on the number of observations underlying the wage averages reported by firms. This means that large and small firms must be given the same weight in analyses that make use of the data. If small and large firms pursue different wage-setting patterns, the results of analyses making use of these data will be biased.

Both the Weeks and Aldrich reports have been used in whole or part in the construction of wage series for the postbellum period; see, for example, Tables Ba4280–4297. The Massachusetts data have been used less often; however, they do figure prominently in the construction of series Ba4218. Because of deficiencies of both temporal and geographic coverage, the Weeks and Aldrich data are not particularly useful for constructing wage series for the antebellum period, except to a limited extent in the 1850s (see Table Ba4271–4279, which is based on the Weeks data).

The decennial federal censuses are another periodic source of wage information. The census first began collecting data on wages in 1850 (for manufacturing, and for various occupations included in the Census of Social Statistics, noted previously) and has continued to do so to the present day. The frequency of data collection, however, changed in the twentieth century as various special censuses (for example, the Censuses of Agriculture) began to be taken at nondecennial intervals. For the post-World War II period, the major source of annual earnings information is the Current Population Survey (CPS). The CPS is used to measure both annual earnings by various labor market groups (for example,

college graduates) and earnings inequality. See, for example, Table Ba4426–4430.

During the second half of the nineteenth century, the collection of wage data became more routine as federal agencies expanded their operations and as states established their own bureaus of labor and industrial statistics.<sup>9</sup> These state agencies conducted numerous surveys of both individual workers and firms, sometimes publishing the original data in their annual reports, usually without any analysis. Carroll Wright, the first Commissioner of Labor Statistics in Massachusetts, and later chief of the U.S. Census Bureau, was a pioneer in such surveys. One such survey, published in 1885, provides wage evidence similar to that of the Aldrich and Weeks reports, and it is used in the construction of series Ba4218.

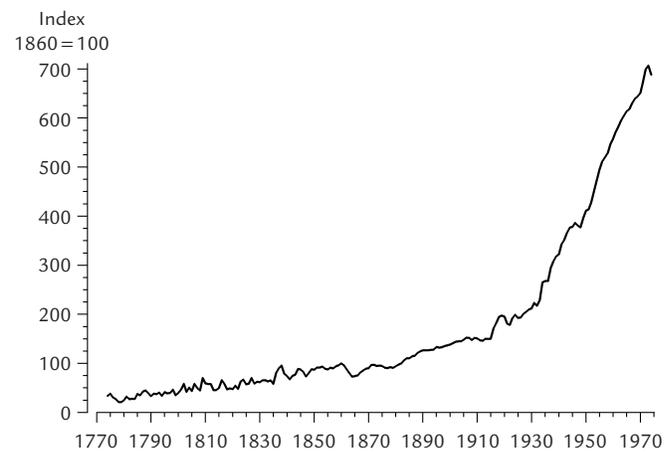
The U.S. Bureau of Labor Statistics (BLS), established in the late nineteenth century, is charged with the regular collection of wage and related labor market information. Prior to the 1930s, this was accomplished through the use of periodic surveys and special studies; see, for example, Tables Ba4253–4267, Ba4280–4282, and Ba4320–4334. Beginning in 1932, the Bureau surveyed firms on a monthly basis as to their employment and payroll; in March 1993, there were approximately 390,000 reporting units in the survey. These data are a fundamental source of wage information for the twentieth-century United States, and they are used in the construction of Tables Ba4361–4380. The BLS also produces Area Wage Surveys, which provide evidence on average wages in detailed occupations for various metropolitan areas.

In conjunction with the construction of the national income and product accounts (NIPA), the U.S. Bureau of Economic Analysis (BEA) publishes annual estimates of the average yearly wage and salary income of full-time employees by industry, beginning in 1929; see Tables Ba4397–4418 and Ba4490–4511. These have been extended backward in time; see Tables Ba4280–4282 and Ba4335–4360. Wage and salary income, of course, is not the only form of labor income: total compensation includes payments by firms into social insurance programs (for example, Social Security), employer-provided group health insurance, and so forth. Estimates of these average annual “supplements,” in total for all industries, and by type of supplement, are provided in Tables Ba4419–4421 and Ba4484–4489. In addition to the BLS and BEA, there is an enormous number of specialty surveys that provide information on wages for specific groups.

## Key Trends

The majority of series provided here pertain to the “nominal” wage. It is possible to construct a “real” wage series – that is, nominal wages adjusted for change in the cost of living – by dividing nominal wages by an appropriate price index. Table Ba4218 displays a nominal wage series for unskilled laborers. A real wage series, shown in Figure Ba-L, can be calculated using a consumer price index (CPI) developed by Paul David and Peter Solar that covers two full centuries.<sup>10</sup>

It is immediately evident that over this very long period, real wages have increased substantially; indeed, the average annual rate



**FIGURE Ba-L Index of real wages for unskilled labor: 1774–1974**

### Sources

Series Ba4218 divided by series Cc2, then multiplied by 100.

of growth of real wages is approximately 1.5 percent per annum.<sup>11</sup> A series growing at this rate will double in value every forty-six years, or approximately twice every three human generations. This particular series attempts to measure the price of “raw” (that is, unskilled) labor, and thus does not capture many improvements in labor force “quality” associated with higher wages. It is also evident from the values of both series underlying Figure Ba-L that the price level (the deflator) rose markedly over the two centuries, implying that growth in nominal wages not only kept up with growth in the price level but outpaced it.

Several other features of the graph are worthy of note. First, the growth rate of real wages accelerated: growth was slower during the nineteenth century than in the twentieth.<sup>12</sup> This acceleration in growth is also apparent in real per capita incomes and reflects fundamental shifts in the underlying sources of productivity growth over time. Second, it is apparent that year-to-year (or longer-term) variability in growth rates of real wages – volatility – was very considerable in the nineteenth century but was dampened in the twentieth century. This dampening in volatility is partly an artifact of improvements in the quality of the underlying data series, but it also reflects changes in labor market institutions that, to some extent, insulate wages from various real and nominal “shocks” – for example, wars or recessions.

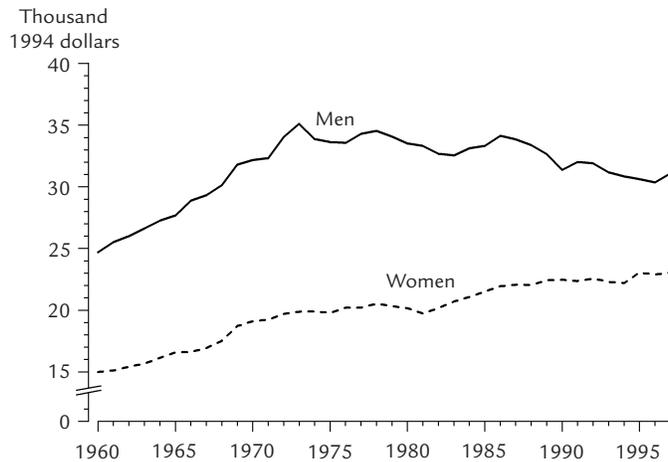
The David-Solar data end shortly after the beginning of the so-called productivity slowdown, which began about 1973. A consequence of the slowdown in productivity growth was a marked slowdown in the rate of growth of real wages. The slowdown in real wage growth is clearly visible in Figure Ba-M. According to these data, the median annual earnings of men were lower in 1997 than in 1973 when adjusted for changes in the price level. Some of the stagnation may be more apparent than real if the conventional CPI

<sup>9</sup> For additional information on various nineteenth-century sources of wage statistics collected by the federal government, see Lebergott (1964).

<sup>10</sup> For additional real wage series covering the antebellum period, see Margo (2000b).

<sup>11</sup> Growth rates are estimated as the coefficient of a linear time trend in a regression of the log of the real wage index. A rate of 1.5 percent per annum is similar to the long-run growth rate of output per worker, and consistent with the view that, in the long run, labor is paid the value of its marginal product, as simple neoclassical models of the labor market predict.

<sup>12</sup> The (estimated) average annual growth rate from 1774 to 1900 is 1.2 percent per annum, compared with 2.5 percent per annum from 1900 to 1974.



**FIGURE Ba-M Median earnings of full-time workers, by sex: 1960–1997**

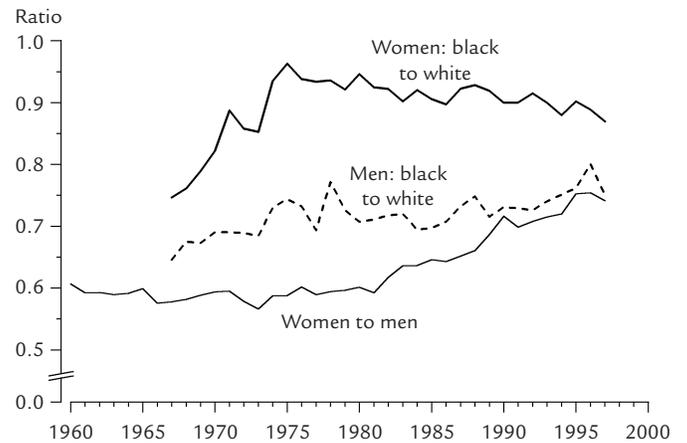
**Sources**  
Series Ba4512 and Ba4516.

used to adjust nominal wages overstates the true rate of inflation, as some observers charge. For a discussion of the accuracy of the CPI, see the essay on prices and price indexes in Chapter Cc.

Whether real wages on average have risen is not the only important question; it is equally important to determine if growth has favored one type of labor versus another – that is, whether there have been trends in wage inequality. Although much further work is needed, some basic features of the history of the American “wage structure” are evident. First, as shown previously in comparison with common labor, it appears that the wages of artisans were falling relative to those of other nonfarm occupations prior to the Civil War.<sup>13</sup> Second, it appears likely that the wages of skilled (or educated) labor were falling during the first part of the twentieth century, culminating in the so-called Great Compression of the 1940s (see Figure Ba-K) (Williamson and Lindert 1980; Goldin and Margo 1992.). Third, the United States has experienced a pronounced rise in wage inequality after 1970, which most economists attribute primarily to technological and other changes that have favored the demand for educated labor relative to other groups (Katz and Murphy 1992). The recent rise in wage inequality has taken place against the backdrop of little or no growth in the average real wage; thus, for some labor market groups (for example, high school dropouts) real wages were substantially lower at the end of the 1980s than in the early 1960s (Katz and Murphy 1992).

Other notable features of a changing wage structure include long-term increases in the earnings of men versus women, and African Americans relative to whites. Indeed, rather than being a constant, the series in Table Ba4224–4233 demonstrate that the wages of women relative to those of men have increased substantially over the past two centuries. Long-term increases in the

<sup>13</sup> Regressions of the log of the nominal wage on a time trend using series Ba4253, Ba4258, and Ba4263 indicate that nominal wages of common labor grew at about 1.1 percent per year over the 1825–1860 period, compared with 0.7 percent for artisans (1823–1860) and 1.4 percent for white-collar workers (1822–1860). The differences between the rates are statistically significant. The more rapid relative pace of growth among white-collar workers before the Civil War may be the first episode of a rising return to “educated” labor in American history; see Margo (2000b, p. 156).



**FIGURE Ba-N Earnings ratios for full-time workers, by sex and race: 1960–1997**

**Sources**  
Series Ba4512–4514 and Ba4516–4518.

relative earnings of African Americans are visible in Table Ba4431–4439, or by comparing changes over time in Table Ba4512–4520. For example, in 1967, the median African-American male worker earned 65 cents for every dollar earned by his white male counterpart when both worked full-time year-round; the corresponding figure for 1997 was 75 cents per dollar. The ratios of wages of women relative to men, African-American men relative to white men, and African-American women relative to white women calculated from Table Ba4512–4520 are plotted in Figure Ba-N. There is considerable debate among economists over the underlying sources for the rise in relative earnings of women and African Americans. Some stress the roles played by narrowing gender and racial differences in “human capital” (for example, the quantity and quality of schooling). Others focus on the role of government intervention in the form of antidiscrimination legislation (Smith and Welch 1989; Goldin 1990, 2000; Donohue and Heckman 1991).

Historically, regions were a defining feature of the American economy, and the integration of regional economies was an important part of the story of American economic development. It is apparent, for example, from Tables Ba4216–4217, Ba4234–4243, Ba4253–4267, and Ba4271–4279 that substantial regional differences in wages existed in the past.<sup>14</sup> These differences have narrowed in the twentieth century as regional economies have become better integrated and (to some extent) less specialized. Differences in average annual earnings across industries are also a feature of the historical (and contemporary) American wage structure. Although some of these can be explained by differences across industries in the skills (or other characteristics) of workers, to a surprising extent the “interindustry wage structure” has remained stable over time (see Allen 1995).

These observations merely scratch the surface of an extremely complex subject. For recent overviews of U.S. labor market

<sup>14</sup> In thinking about regional differences, it is important to keep in mind that the data in these tables are not adjusted for regional differences in prices. However, adjusting for price level differences does not eliminate regional wage differentials and, in some cases, the differentials are even larger in real terms; see, for example, Margo (2000b, Chapter 5) for evidence on regional differences in real wages before the Civil War.

development, see Goldin (2000) and Margo (2000a, 2000b). For an overview of the American labor market in the colonial period, see Galenson (1996). Readers are invited to explore the ramifications of these series, whether in comparing trends of different types of labor, or in conjunction with series on consumer (or producer) prices or the prices of other factors of production.

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## HOURS AND WORKING CONDITIONS

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This essay discusses the tables containing statistics relating to nonpecuniary aspects of employment. Perhaps the most important of these, historically, has been the number of labor hours worked during a standard period, such as a day, week, or year. The long-term decline of work hours is an important component of long-term changes in economic welfare, as workers have, in effect, devoted part of their increased income to purchasing leisure time. Conventional estimates of national income per capita underestimate the growth of economic well-being to the extent that they fail to count

the value of leisure.<sup>1</sup> Shortening the working day was a central demand of the labor movement until at least the early twentieth century. Labor hours are also a key component of measures of productivity (output per unit of input).

In addition to the hours series, historical statistics are available for some other indicators of working conditions. These include additional aspects of work schedules (such as vacations and other absences from work), nonwage benefits, occupational injuries and illnesses, and measures of job tenure and turnover.

This essay begins with a discussion of hours of work: some measurement issues; a brief user's guide to the various hours series; long-term trends drawn from the hours series, as well as business-cycle fluctuations in work hours over the past century and a half; and variations in the levels and trends of work hours by industry and worker demographic group. The second section examines another type of quantitative information related to working conditions – namely, turnover and job tenure. The last three sections consider series relating to other nonpecuniary aspects of work: occupational injuries, fringe benefits, and employer (workplace) size.

## Hours of Work

### Measurement Issues

The statistics on hours of work presented here typically report the number of work hours during a day or week. Information on hours of work has been obtained from two basic sources: employers (business establishments) and workers. All of the historical hours series for the period before 1940 presented here come from surveys or studies of business establishments. Beginning with the Population Census of 1940, the U.S. Bureau of the Census began asking workers about their hours of work in both its decennial censuses and the monthly Current Population Survey (CPS).

All of the hours statistics reported here refer to hours worked "for pay or profit," typically outside the home. They thus suffer from the fundamental problem that they do not capture hours of work spent at such productive but unremunerative activities as housework and caregiving. The resulting mismeasurement of work hours is especially severe when it comes to the work of women (see Wagman and Folbre 1996).

For the period before World War II, hours statistics cover primarily workers in manufacturing and a few other industries, such as railroads and mining. Hours data for other industries, such as services, are spotty. Even up to the present day, published hours statistics generally do not include agricultural workers.

The meaning of the term "hours of work" is not consistent across the various data series reported here. In most of the early establishment surveys, employers reported the regular or full-time hours at their establishment. For instance, a firm may report that its scheduled work hours were ten hours a day. Such regularly scheduled hours could and often did differ from actual hours of work. During seasonal or business-cycle downturns, for example, workers were often put on shortened workweeks, with the expectation that hours would return to their scheduled full-time level when business

<sup>1</sup> American workers today earn their incomes in about half the weekly hours they worked 150 years ago. If the hourly wage is considered a rough approximation of the value of a worker's time, then per capita wage and salary income underestimates the increase in workers' real well-being since then by a factor of 2.